

Post

Operations

Evaluation

Tool

Version 2.2

Using POET

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Introduction

The Post Operations Evaluation Tool (POET) is a prototype analysis system developed by Metron Aviation, Cognitive Systems Engineering and AMT Systems Engineering under the FAA's Collaborative Decision Making (CDM) program with a focus on supporting analysis of collaborative routing problems. These include identifying areas of National Air Space (NAS) congestion or inefficiency. Using a variety of performance metrics (such as departure, en route and arrival delays, and filed versus actually flown flight tracks), POET allows users to explore how the NAS functions.

The POET servers are currently installed at the ATCSCC with access to near real time ETMS data. This server maintains a “rolling” 100-day data set spanning the entire NAS for ready analysis using POET. With POET, users can easily access, filter, and visualize the flight information contained in the ETMS data using a variety of interactive charts, tables, and geographic displays. Analysis results can be aggregated into a variety of bins, including grouping by departure and/or arrival airports, filed arrival fixes, departure/arrival times, NRP/non-NRP, departure and/or arrival centers, user class and many more.

POET has a built-in collection of powerful data mining tools to recognize patterns and trends within the data. Some of the patterns currently recognized include circular airborne holding, arrival fix swaps and flown routes that differ significantly from the routes filed. POET has the further capability to integrate FAA data with airline-provided flight data (when available), to give a more complete picture of what is happening in the NAS.

Technical Support

For questions about POET or further information regarding the program, contact:

POET Technical Support
Metron Aviation, Inc.
131 Elden Street, Suite 200
Herndon, VA 20170
703-234-0769
E-mail: poet_support@metronaviation.com

Philip J. Smith
210 Baker Systems
Columbus, Ohio 43210
614-292-4120
E-mail: smith.131@osu.edu

Reporting Errors

There are several ways you can report a bug or error in POET. Note that when you report a POET bug or error via email, you are advised to send the corresponding log file by attaching it to your email.

Contact POET Technical Support or Phil Smith directly using the contact information listed above.

Report a POET bug or error via the POET website: <http://www.amtsys.com/poet/home.htm>.

Open POET. From the Home window, click **Bug Report**. This will open your default Internet browser and take you to the POET website, where you can fill out a bug report.

Text Conventions

If You See This	It Means
+	If you see the + symbol, you must perform two actions at once to perform a function in the software. For example, Ctrl +click indicates that you need to click the mouse once while holding down the Ctrl key on your keyboard.
>	This symbol between two words indicates a menu option. For example, File > Save indicates that you need to choose the Save option under the File menu.
Double-click	Click your left mouse button twice to complete an action.

Getting Started

Opening POET

You can start POET in one of 3 ways:

- Select the **POET shortcut icon** from your computer desktop.
- Select **POET** from your **Program Menu**.
- Double-click the **poet.exe** file in your POET program file directory.

When you open POET, the **POET Login** window (Figure 1) appears. Fill in your **User Name** and **Password**. The User Name and Password should be given to you at the time you install POET. Select your POET **Data Source** and the **Search Type** (Default is currently the only Search Type listed in this field) using the available pull-down menus.

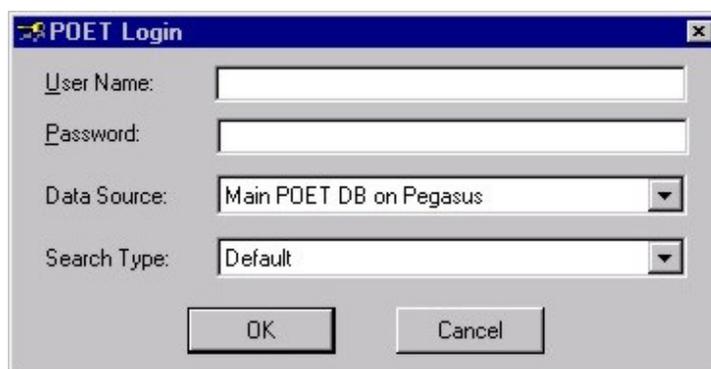


Figure 1: POET Login Screen

The user name, password, and data source entries vary with each user and determine your level of access to the database. If you are not provided with the necessary login information when you install POET, please contact Technical Support (p. 1).

Closing POET

Closing POET will shut down the software program. If you wish to close POET, you can do so in one of three ways:

- Select **File > Exit**.
- Close the POET toolbar by clicking the **X** icon in the upper corner of the window.

- Click **Exit POET** on the POET Home window or any Search Builder Window.

Choosing POET Functions

Using POET, you can view flight information by conducting a *search* for flights that meet specific criteria, generating a *summary report* that includes specific flights, or pulling up one of the *advanced charts*. Once you choose the function you need, a Search Builder Window for that particular function will appear. In the Search Builder Window, you will be able to define parameters for your report, search, or advanced charts. These functions are discussed in future chapters.

These POET functions are all available from **POET Home**, the first window you see when you open POET (Figure 2).

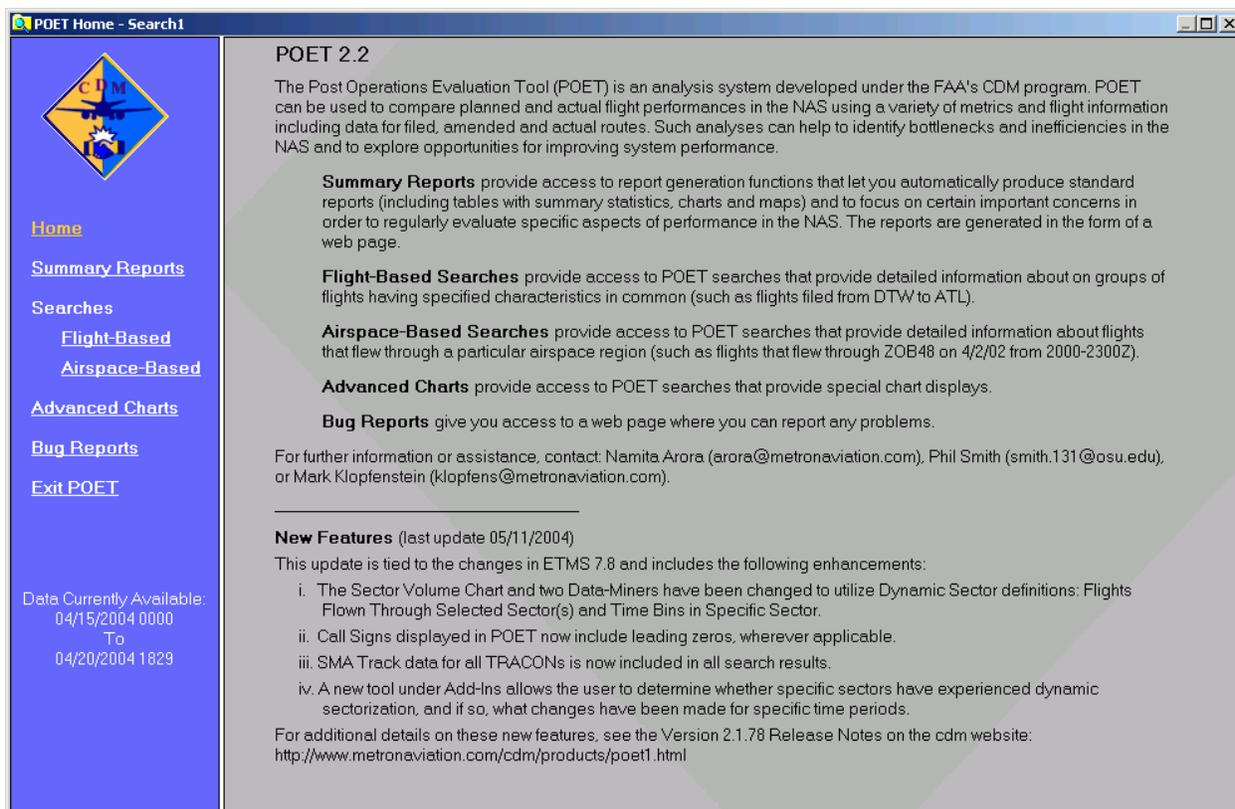


Figure 2: POET Home

POET Display

When you first log on to POET, you should see **POET Home** (Figure 2). While you work in POET, the windows displayed will change according to the function you are using. However, all windows in POET can be sized and closed in the same way. When POET displays multiple windows, you can also

choose the order in which you display the windows. This section discusses sizing and arranging windows in POET.

Showing the Toolbar

The POET toolbar is located directly below the main POET Menus. The toolbar provides several shortcuts to commonly used POET functions.

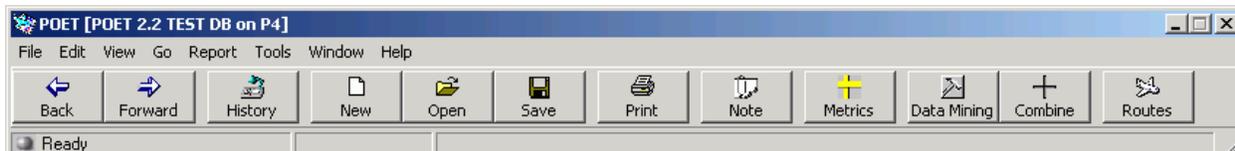


Figure 3: POET Toolbar

You can choose to show or hide the toolbar in the POET display.

Select **View > Toolbar**. When the toolbar option is checked, the toolbar is visible. When this option is not checked, the toolbar is hidden.

Right-click anywhere in a Search Results Table and select **Toolbar** from the pop-up menu. When the Toolbar option is checked, the toolbar is visible. When this option is not checked, the toolbar is hidden.

Use POET's configuration file (poet.ini in your POET directory) to change the default setting for the toolbar. In the configuration file, set the value next to **Toolbar** to **True** to show the toolbar when you open POET. Set the value next to **Toolbar** to **False** to hide the toolbar when you open POET. See Figure 4.

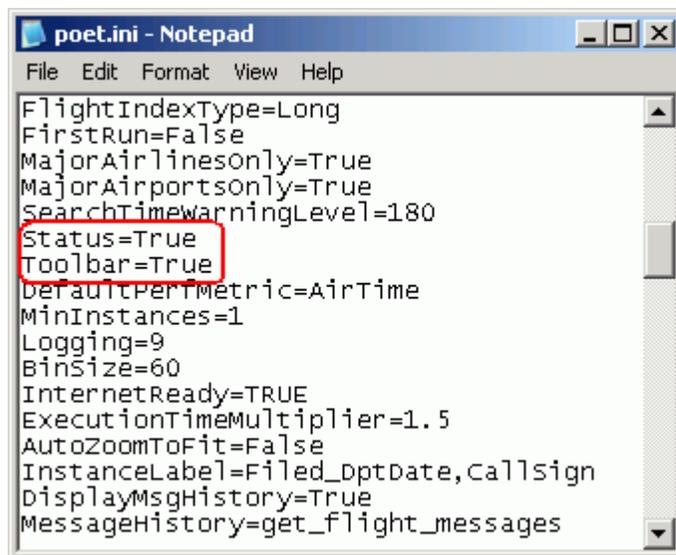


Figure 4: POET Configuration File with Toolbar and Status Bar Set to "True"

Showing Status Bar

The POET Status Bar is located directly below the POET toolbar. The Status Bar indicates the progress of POET functions.

You can choose to show or hide the Status Bar in the POET display.

Select **View > Status Bar**. When the Status Bar option is checked, the Status Bar is visible. When this option is not checked, the Status Bar is hidden.

Right-click anywhere in a Search Results Table and select **Status Bar** from the pop-up menu. When the Status Bar option is checked, the Status Bar is visible. When this option is not checked, the Status Bar is hidden.

Use POET's configuration file (poet.ini in your POET directory) to change the default setting for the Status Bar. In the configuration file, set the Status value to **True** to show the Status Bar when you open POET. Set the Status value to **False** to hide the Status Bar when you open POET. See Figure 4.

Sizing Windows

Maximizing

To maximize a window, click the maximize icon in the upper right corner of the window. The maximize icon is usually a large square. If the window is already maximized, the icon will be grayed out.



**Figure 5:
Maximize**

Minimizing

To minimize a window, click the minimize icon in the upper right corner of the window. The minimize icon is usually an underscore (_). If the window cannot be minimized, this option will be grayed out or will not appear on the window.



Figure 6:
Minimize

You can restore a minimized window to its original size by clicking the window icon on your computer screen. Windows or NT users will find the window icons displayed as labeled buttons along the bottom of the computer screen.

Customizing Size

You can size many windows in POET by dragging the border of the window with your cursor. This allows you to make the window as large or small as you need. Note, though, that not all windows can change size. If your cursor changes to a double-arrow along the border of a window, you can drag the arrow to size the window. If your cursor does not change when you place it on a window border, that window cannot be resized.

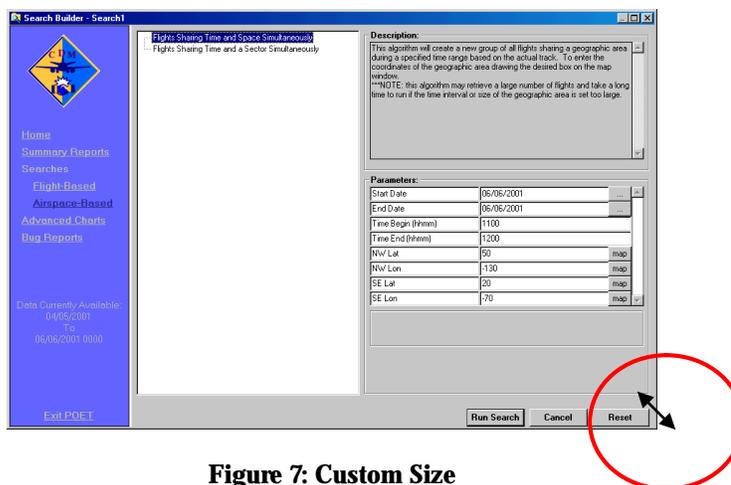


Figure 7: Custom Size

Arranging Windows

When multiple windows are displayed in POET (i.e. when viewing Search Results), you have a choice of how to arrange the windows: **POET Default**, **Cascade**, **Tile Horizontal**, or **Tile Vertical**.

POET Default

When multiple windows open simultaneously, they are automatically set to display in the POET Default manner (see Figure 8). If you change the window arrangement, you can always reset the windows to the default setting by selecting **Window > Default Window Arrangement**.

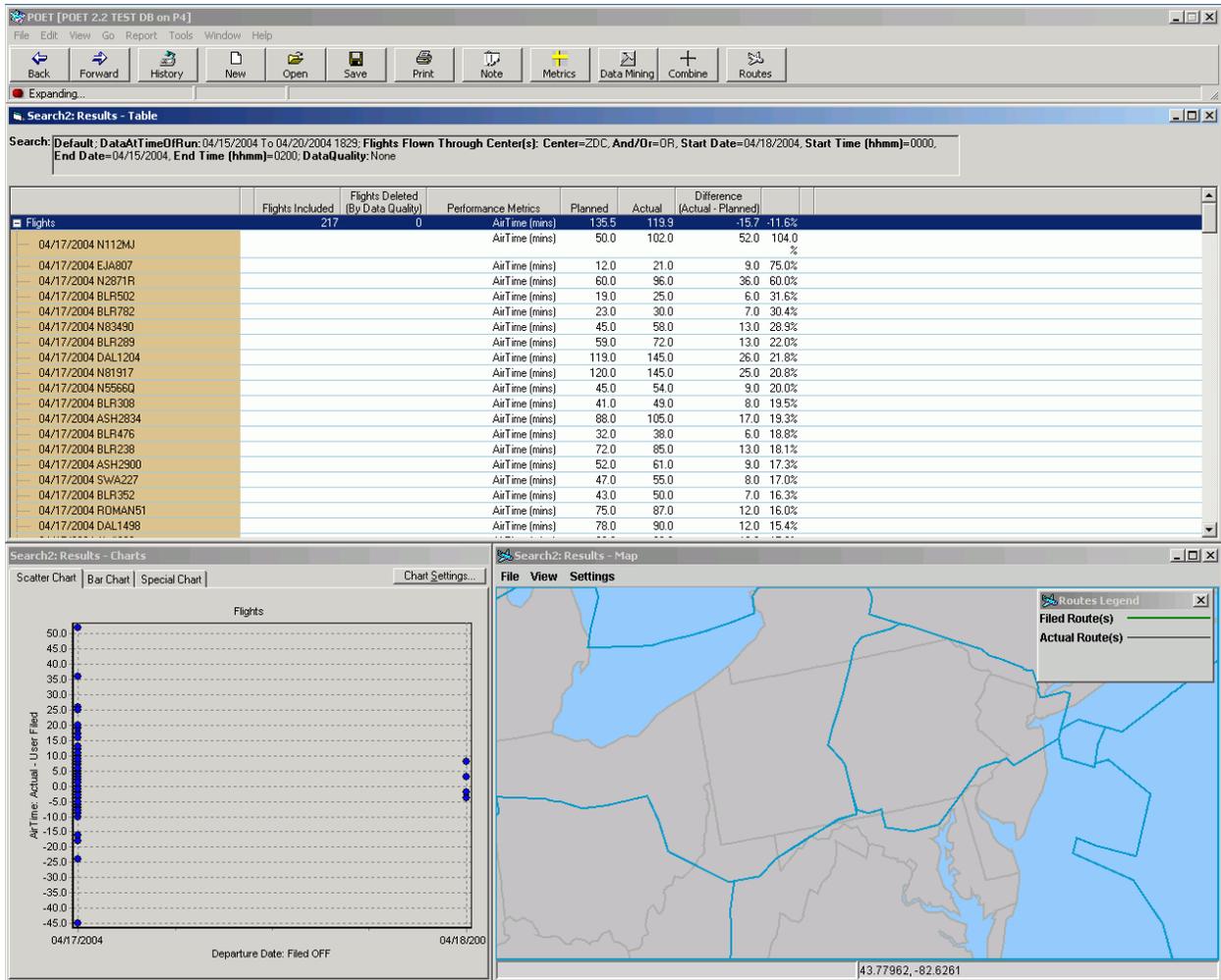


Figure 8: POET Default Window Display

Cascade

The Cascade option positions the windows behind one another on your screen. You can access each window, no matter what its position on the screen, by clicking anywhere on the visible portion of its title bar. To have the windows cascade, select **Window > Cascade** (Figure 9).

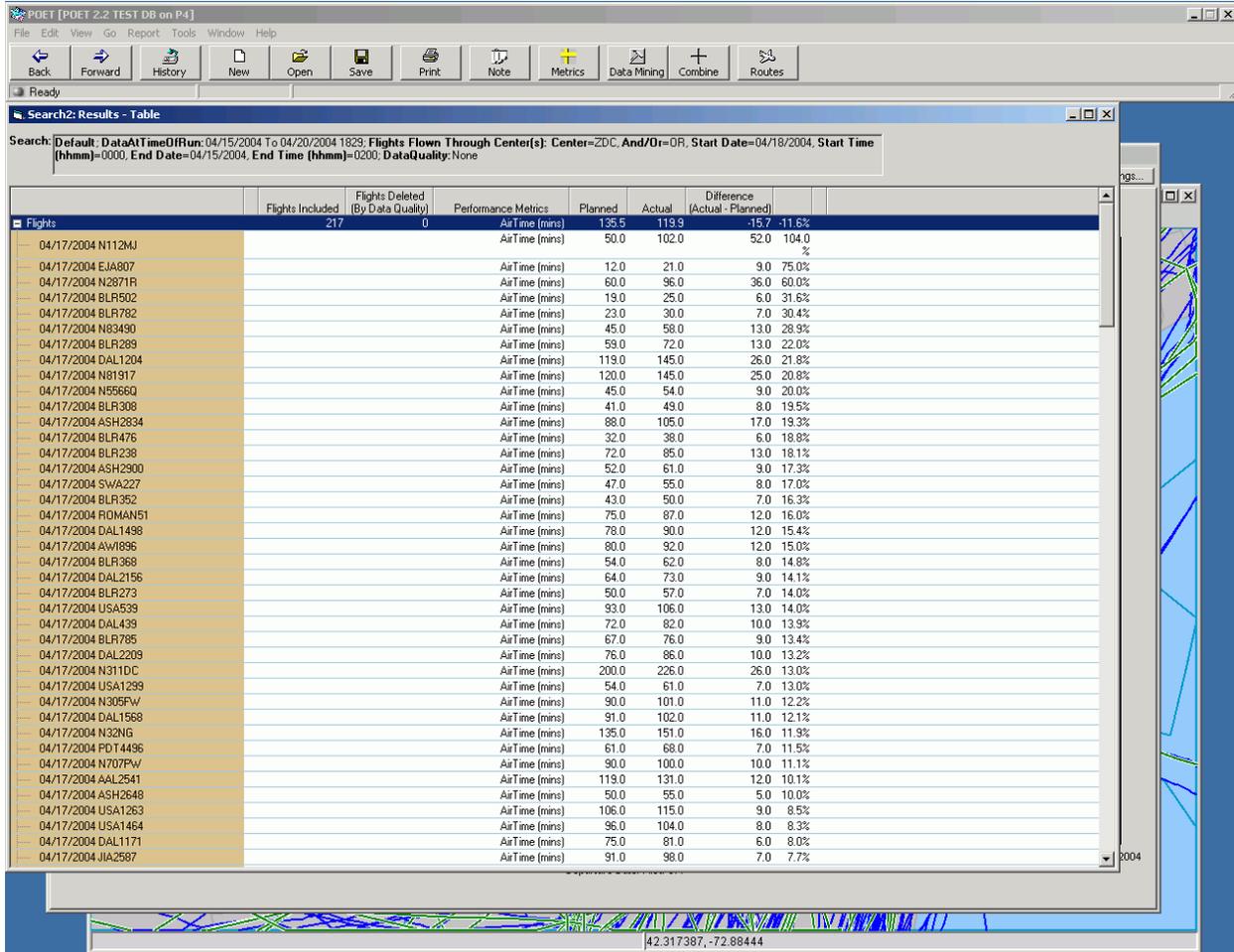


Figure 9: Cascade Window Arrangement

Tile Horizontal

You can choose to tile the windows horizontally. This means that the windows will be stacked up in three segments on your screen. You can view each of the windows in its entirety. To apply the Tile Horizontal arrangement, select **Window > Tile Horizontal** (Figure 10).

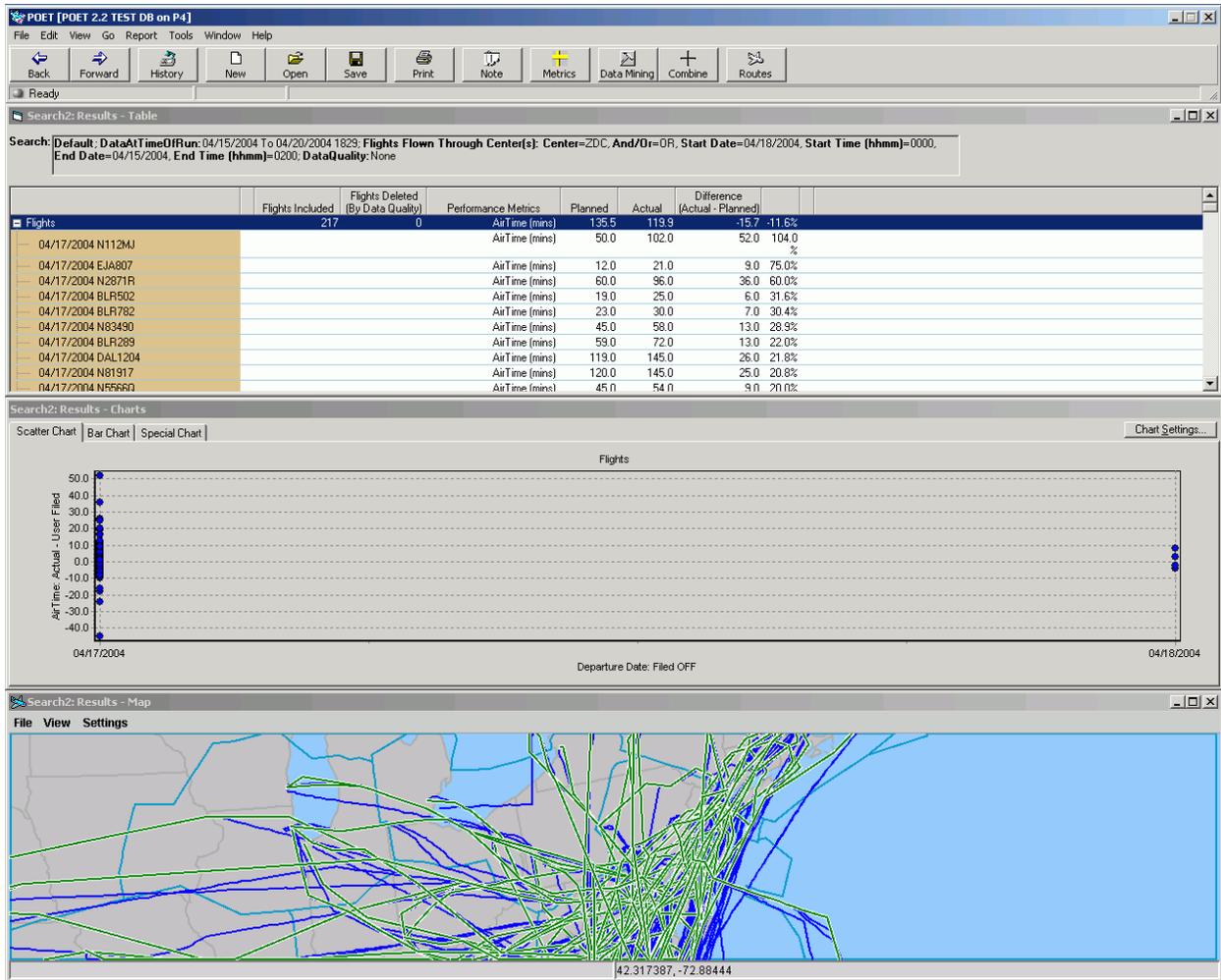


Figure 10: Tile Horizontal Window Arrangement

Tile Vertical

You can also choose to tile the windows vertically. This means that the windows will be on top of one another on your screen. You can view each of the windows in its entirety. To apply the Tile Vertical arrangement, select **Window > Tile Vertical** (Figure 11).

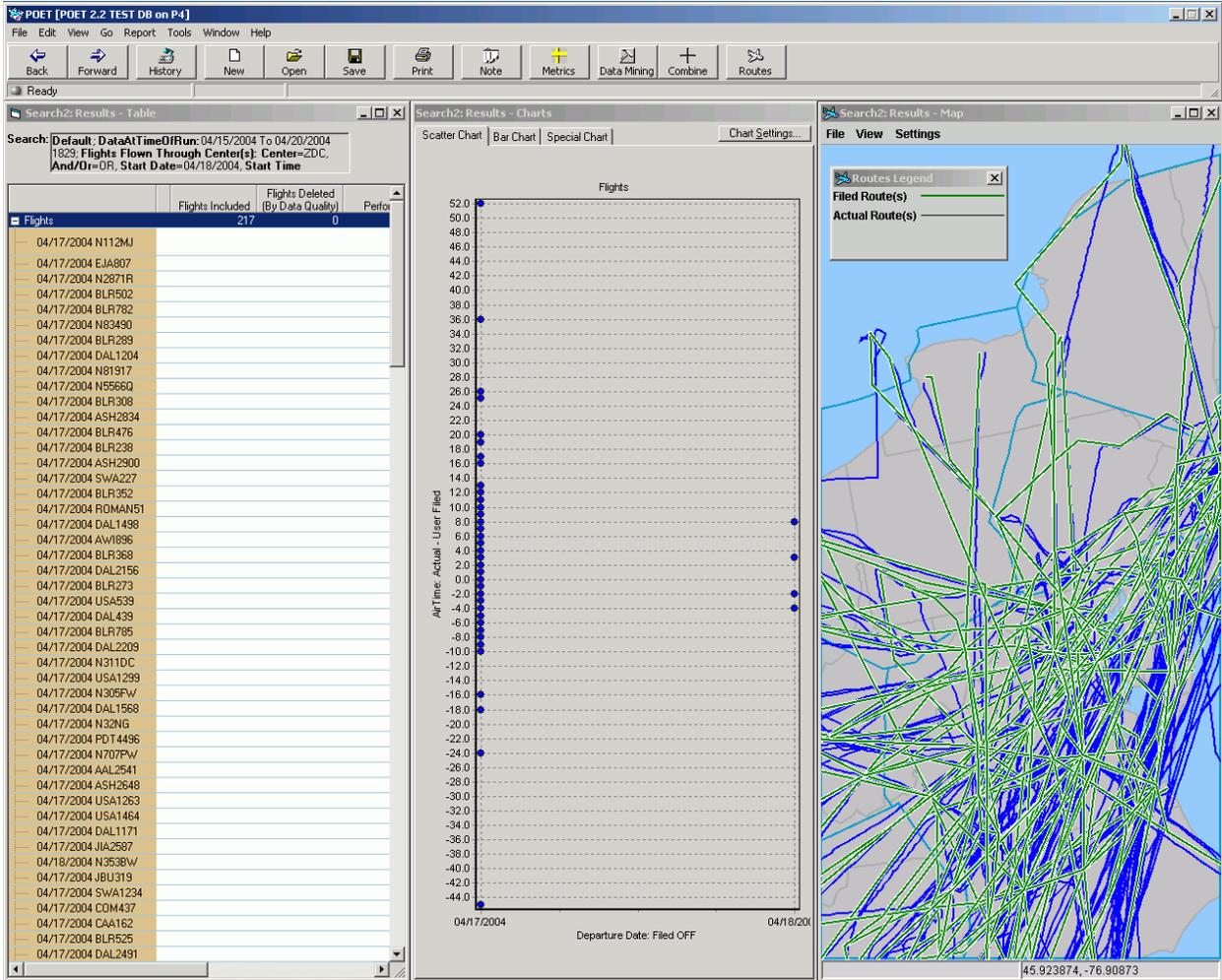


Figure 11: Tile Vertical

POET Tools

The Data Viewers option located under the Tools menu in the POET toolbar provides a way to query and view which dynamic sectors, FCAs/FEAs, and CDRs are present in a specified analysis period. This information can be helpful in setting up your search. Under the Tools menu, there are three options:

Viewing Dynamic Sectors

Beginning with ETMS Version 7.8 (deployed May 2004), sectors are no longer static airspaces. They can be enlarged or shrunk to manage controller workload by adjusting FPAs (removing them from one sector and adding them to a neighboring one or combing entire sectors). The Dynamic Sector Data Viewer provides a snapshot of the state of sector(s) during a given time period. It looks up the FPAs that are part of a non-baseline sector at a specific point in time on any given day.

To view the sector modifications, go to **Tools** in the POET toolbar and select **Data Viewers > Dynamic Sector**. The POET Find: Dynamic Sector(s) window appears (see Figure 12).

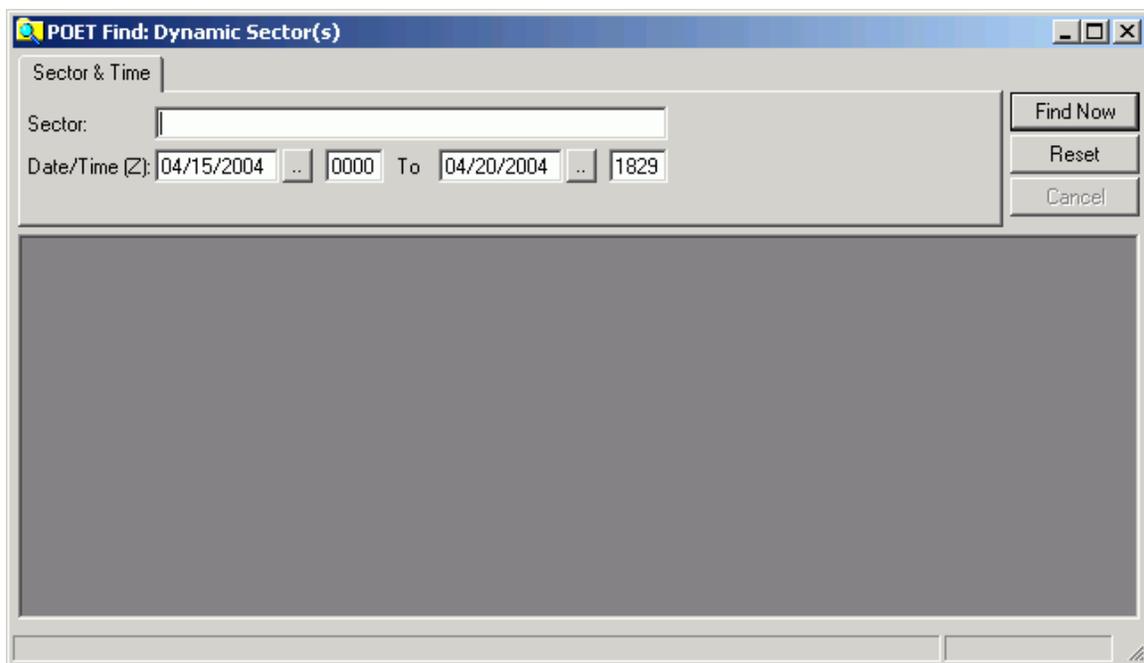


Figure 12: Dynamic Sector(s) Window

To determine if a sector has any changes from its baseline state:

1. **Sector**-- Type the 5 or 6-character sector code, comprised of the 3-letter center code and the 2 or 3-character sector code. This field is optional; if Sector field is left blank, the search results will return all dynamic sectors within the time parameters

2. **Date/Time (Z)** -- Enter the start date of your analysis in MM/DD/YY format or click  to open a calendar. From there, click on a date; this automatically inserts the date into the leftmost **Date/Time** field.
3. Enter the time (in hhmm format) to start your analysis (e.g. 1200 Zulu).
4. Type the end date you wish to analyze in MM/DD/YY format. Click  to the right of the second Date field to open a calendar. From there, click on a date; this automatically inserts the date into the rightmost **Date/Time** field.
5. Enter the time (in Zulu) to end your analysis.
6. Click **Find Now**. The search results appear (see Figure 13).

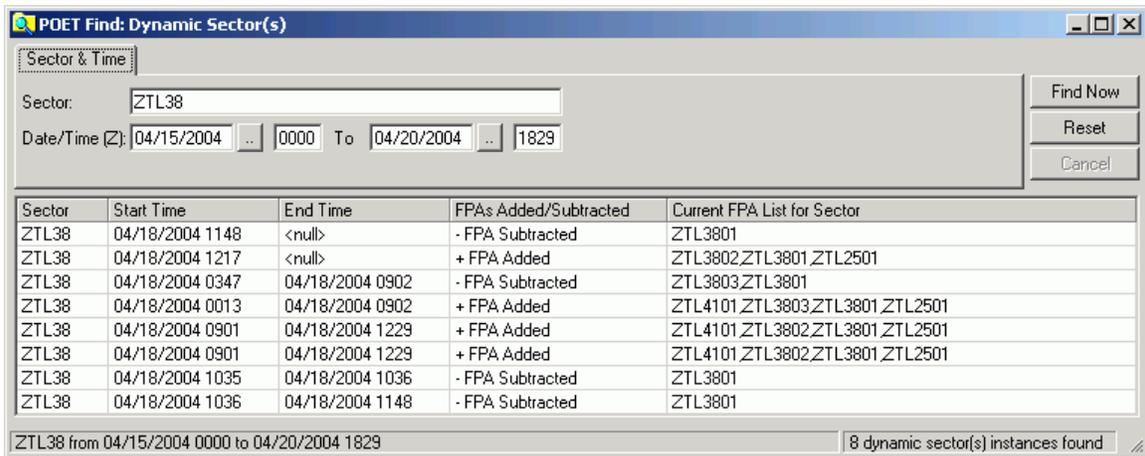


Figure 13: Dynamic Sector Viewer search results display

The results table provides the following information:

Column Name	Description
Sector	Sector name
Start Time	Date and time when FPAs were added to or removed from the sector
End Time	Date and time when the current state of the sector ended; A <null> value indicates that the sector continues to be in the specific state during the given time period.
FPAs Added/Subtracted	Indicates that FPAs have been taken on or given up by the sector
+ FPA Added	FPAs have been given to this sector
- FPA Subtracted	FPAs have been taken from the sector
Current FPA List for Sector	FPAs that comprise the sector during the specified time period

Viewing FCA/FEA Data

The FCA/FEA Data Viewer provides a snapshot of all the Flow Constrained Areas (FCAs) and Flow Evaluation Areas (FEAs) during a specified time period. It looks up FCAs and FEAs that existed during the specified time on any given day.

To view the current FCAs and FEAs in the POET database, go to **Tools** in the POET toolbar and select **Data Viewers > FCA/FEA**. The POET Find: FCA/FEA(s) window appears (Figure 14).

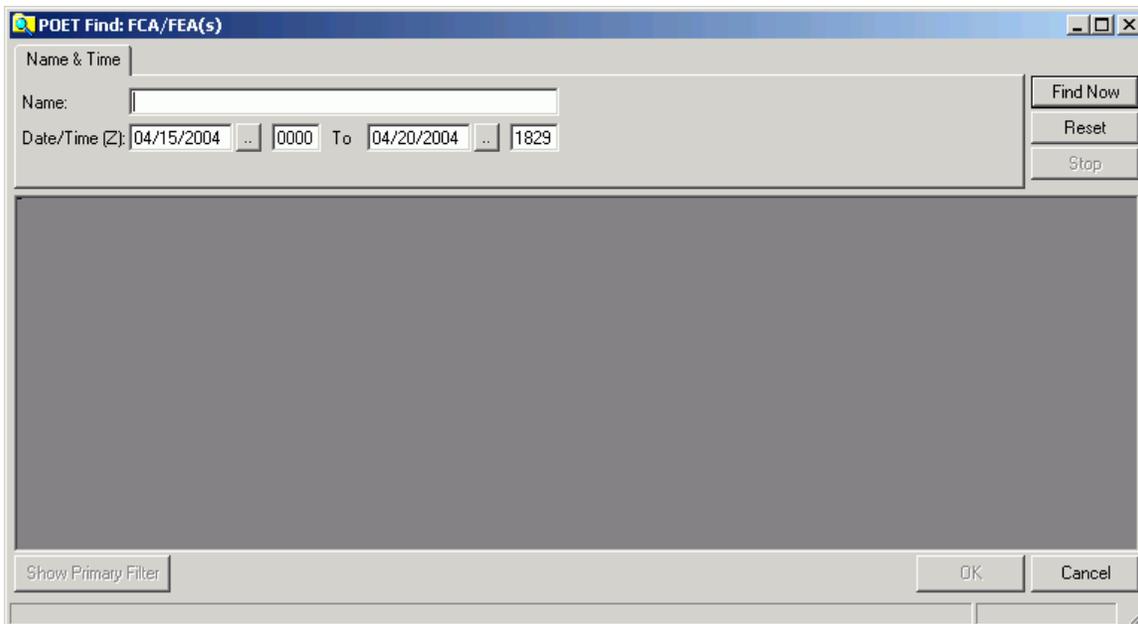


Figure 14: POET Find: FCA/FEA(s) Window

To determine if a FEA or FCA is implemented for a specific date range:

1. **Name** – Type the FCA or FEA name. This field is optional; if no name is entered the search results will return all FCA/FEA(s) within the time parameters.
2. **Date/Time (Z)** -- Enter the start date of your analysis in MM/DD/YY format or click to open a calendar. From there, click on a date; this automatically inserts the date into the leftmost **Date/Time** field.
3. Type the start time (in hhmm Zulu format) for your analysis (e.g. **1200**).
4. Type the end date for the analysis in MM/DD/YY format. Click to the right of the rightmost Date field to open a calendar. From the calendar, you can select a date; this automatically inserts the date into the appropriate Date field.
5. Type the end time (in Zulu) for your analysis in the rightmost Time field.
6. Click **Find Now**. The search results appear (Figure 15).

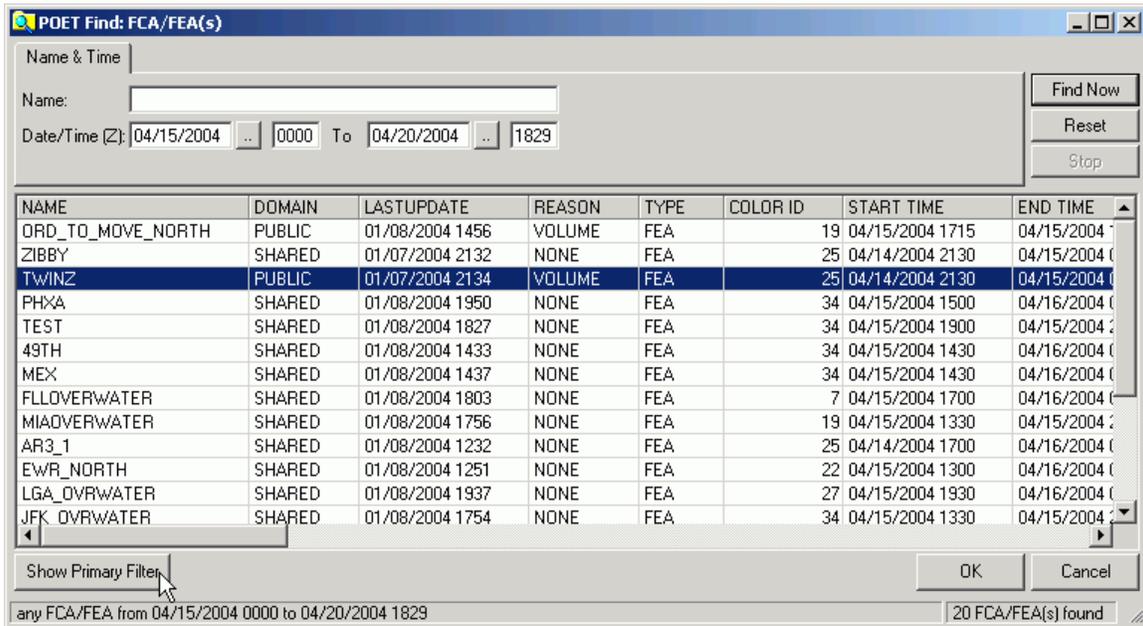


Figure 15: FCAs/FEAs Viewer window

The results table provides the following information:

Column	Description	
Name	FCA or FEA name assigned when it was created	
Domain	level of sharing for this FCA or FEA, either PUBLIC (shared with ATCSCC if from a field facility), SHARED (automatically shared with all sites in the facility) or PRIVATE (created and used only by a particular facility)	
Last Update	Most recent date and time when the FCA or FEA was updated	
Reason	Purpose of the FEA or FCA if provided (Volume, etc.)	
Type	Indicates whether it is an FEA (Flow Evaluation Area) or FCA (Flow Constrained Area)	
Color ID	Color code of the flights in the FCA or FEA	
Start Time	Effective start time of the FCA or FEA and the date and time that is included in your analysis	
End Time	Effective end time of the FCA or FEA that is not necessarily fall under the date and time specified in your analysis	
Format	FCA or FEA format: Sector, Fix, Tracon, Special Use Area (SUA), Arrival Airport (AP_ARR), Departure Airport (AP_DEP), Custom Polygon, or Custom Circle	
Circle Center	Center point of FCA circle	
Circle Radius	Radius of FCA circle	
Circle Ceiling	Upper altitude of FCA polygon or circle	
Circle Floor	Lower altitude of FCA polygon or circle	
Circle Points	Comma-separated latitude and longitude (in 100ths of degrees) and space-separated points to identify FCA polygon or circle	
Polygon Direction	Direction of FCA polygon movement	
Polygon Speed	Speed of FCA polygon movement; accepted values 0-999 knots	
NAS Value	NAS Element based on	FCA Format
	Airport name (point element)	AP_ARR, AP_DEP
	Sector name (area element; multiple points defined, separated by a space in between)	SECTOR
	Tracon name	TRACON
	Fix name (point element; one point specified)	FIX
	SUA name (area element; multiple points defined, separated by a space in between)	SUA

Viewing FCA/FEA Details

After POET has performed your FCA/FEA search, you can view the FCA/FEA definition. How an FCA/FEA is defined determines which flights are included in it.

To view how an FCA/FEA is defined:

1. Select the desired FCA or FEA from the returned FCA/FEA list. The entire row is highlighted (see Figure 15)
2. Click **Show Primary Filter** in the lower left corner of the Find FCA/FEA window to view the FCA/FEA's primary filter. The FCA or FEA filter definition window appears (see Figure 16). The filter window is static and cannot be changed.

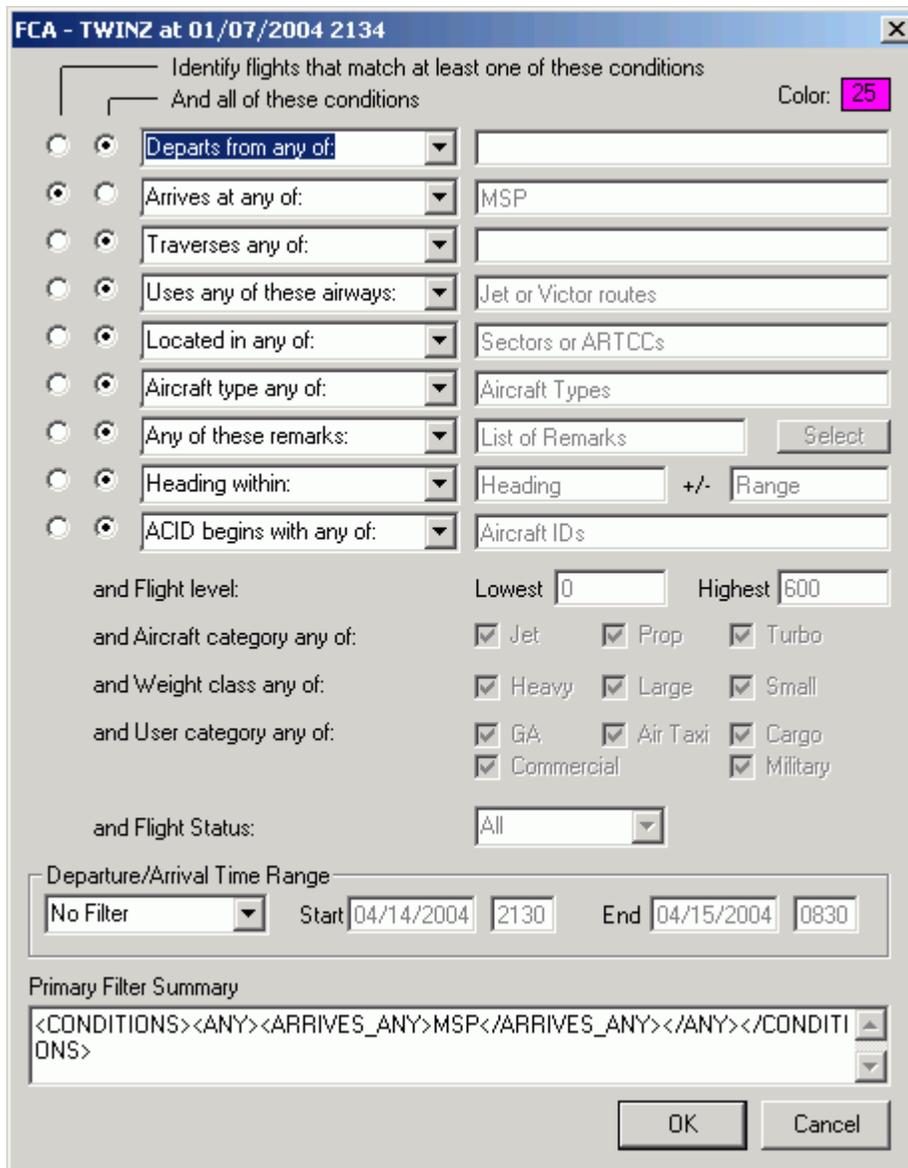


Figure 16: POET FCA Show Primary Filter Window

3. Click **OK** to return to the POET Find: FCA/FEA window.

FCA/FEA Filter Parameters

The FCA/FEA filter window describes how the FCA/FEA is defined. The two radio buttons indicate how each of the criteria is used when filtering the FCA/FEA data. If the leftmost column is selected, flights included in the FCA/FEA meet at least one of these conditions. If the right radio button is selected, flights must match all of the column conditions.

Viewing CDR Data

The CDR Data Viewer provides a snapshot of all the Coded Departure Routes (CDRs) during a given time period. It looks up CDRs that exist for specified departure and arrival centers, airports, or fixes, and route strings and codes.

If you do not enter any search parameters and click **Find Now**, your search results will include every record in the CDR database. This can be a time-consuming process, as there are sometimes numerous routes in the database. You do not have to fill in every input field to perform a search. The more specific search parameters you provide, the more specific the search results. Note some query fields accept multiple entries, each separated by a comma or a space in between.

To view the CDRs, go to **Tools** in the POET toolbar and select **Data Viewers > CDR**. The POET Find: CDRs window appears (Figure 17).

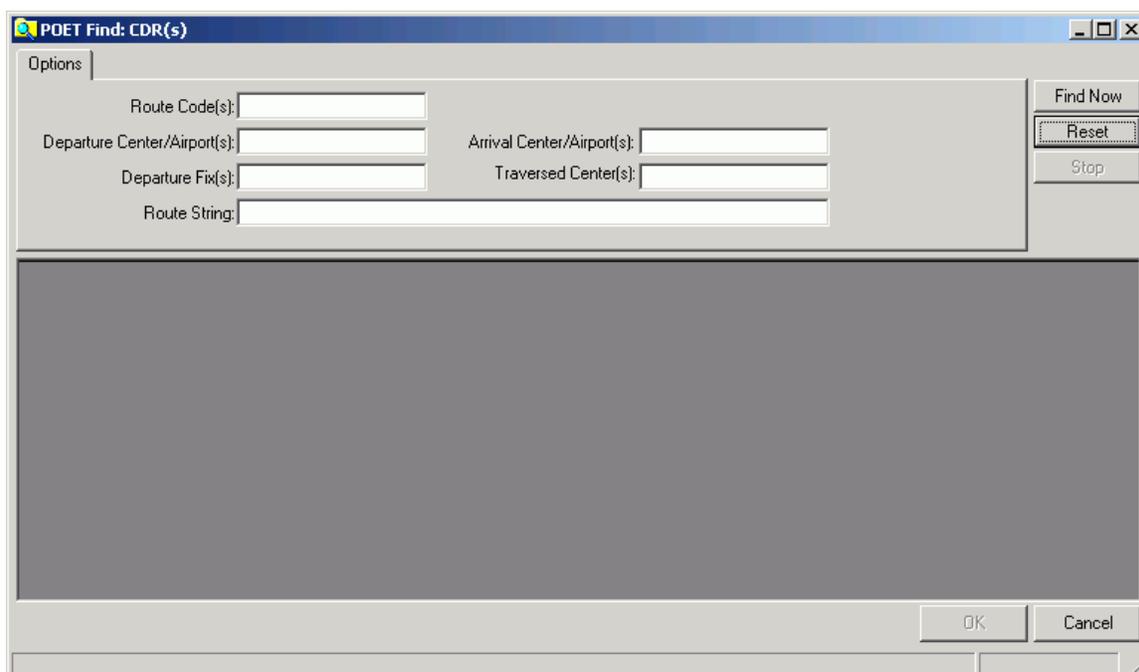


Figure 17: POET Find: CDR(s) Window

Type the search parameters in one or any of the query fields and then click **Find Now**. The available query fields in the CDR Data Viewer window are:

- **Route Code(s)** – Type the CDR route code or codes. The 8-character route designator comprises a 3-character departure airport code, 3-character arrival airport code, and a 2-character facility-designated code.
- **Departure Center/Airport(s)** – Type either the 3 or 4-character airport or center code to identify the route’s point of origin.

- **Arrival Center/Airport(s)** – Type either the 3 or 4-character code for the destination airport or the 3-character code for the arrival center.
- **Departure Fix(es)** – Type the departure fix code or codes.
- **Traversed Center(s)** – Type the 3-character code or codes for a center through which the route path traverses.
- **Route String** – Type an element of the route string (i.e. a fix, navaid or airport code).

Once your search is complete, any records that match the search criteria appear in the table below the search parameters. Each record is listed on its own row, with several columns to separate specific information.

Example: Find all flights arriving at any of the three Washington DC major airports using CNX as a departure fix and ZFW as a traversed center. We selected **IAD**, **BWI** and **DCA** as arrival airports, defined **CNX** as a departure fix and **ZFW** as a traversed center (Figure 18).

Figure 18: POET Find: CDR(s) Query Fields

icode	orig	dest	dfix	route	dcntr	acntr	centers	rlength	errs	play	atclag
ABQBWICE	KABQ	KBWI	CNX	KABQ CNX J15 CME FST J86 IAH J2 CEW AMG CAE J52 RIC OTT6 KBWI	ZAB	ZDC	ZAB ZDC ZFW ZHU ZIX	1936			Y
ABQBWIM1	KABQ	KBWI	CNX	KABQ CNX J15 INK J4 MGM J37 SPA J14 RIC OTT6 KBWI	ZAB	ZDC	ZAB ZDC ZFW ZME ZTL	1778			Y
ABQBWIM2	KABQ	KBWI	CNX	KABQ CNX J15 CME FST J86 IAH J2 LCH J138 SJI J37 MGM J37 SPA J14 RIC OTT6 KBWI	ZAB	ZDC	ZAB ZDC ZFW ZHU ZTL	1870			Y
ABQBWIM3	KABQ	KBWI	CNX	KABQ CNX J15 CME FST J86 IAH J2 LCH J138 SJI J37 MGM J40 J75 CAE J52 RIC OTT6 KBWI	ZAB	ZDC	ZAB ZDC ZFW ZHU ZIX ZTL	1922			Y
ABQBWIVZ	KABQ	KBWI	CNX	KABQ CNX J15 INK J4 FUZ UIM ELD SQS VUZ J14 RIC OTT6 KBWI	ZAB	ZDC	ZAB ZDC ZFW ZME ZTL	1745			Y
PHXBWINA	KPHX	KBWI	CNX	KPHX MAXX01 CNX J74 IRW FSM MEM J42 BKW J147 CSN OTT6 KBWI	ZAB	ZDC	ZAB ZDC ZFW ZID ZME	1812			Y
PHXDCANA	KPHX	KDCA	CNX	KPHX MAXX01 CNX J74 IRW FSM MEM J42 BKW FINKS7 KDCA	ZAB	ZDC	ZAB ZDC ZFW ZID ZME	1776			Y
PHXIADNA	KPHX	KIAD	CNX	KPHX MAXX01 CNX J74 IRW FSM MEM J42 BNA HVQ JASEN3 KIAD	ZAB	ZDC	ZAB ZDC ZFW ZID ZME	1765			Y

OK Cancel

DEST/ACNTR:IAD,BWI,DCA and CENTERS:ZFW and DFIX:CNX 8 CDR(s) found

Figure 19: POET Find: CDR(s) Results

The CDR results table provides the following information:

Column Name	Column	Description
rcode	Route Code	8-character CDR designator made up of the 3-character departure airport code, 3-character arrival airport code, and a 2-character facility-designated code.
orig	Origin Airport	4-character origin airport or departure center code
dest	Destination Airport	4-character destination airport or arrival center code
dfix	Departure Fix	CDR's departure fix
route	Route String	CDR's route string, including fixes, nav aids, traversed centers, and airport codes
dcntr	Departure Center	3-character departure center code
acntr	Arrival Center	3-character arrival center code
centers	Traversed Centers	3-character centers codes of centers through which the flight path traverses. Note that centers are listed alphabetically, not geographically along the route.
rlength	Route Length	length of the flight in nautical miles
errs		
Play	Playbook Play	associated Play name from the Playbook table
atcflag	ATC Flag	This field was designed to allow the FAA to designate whether users may file the CDR at any time (the default value for this field is Y meaning Yes). If the use of a particular route use is restricted by ATC, the field will contain an N meaning No.

Summary Reports

The Summary Reports function in POET provides a shortcut to generating a report from a search. Instead of first having to run a search and build a report page by page, you can use the Summary Reports option to access a list of pre-defined reports. You select the report and define report parameters. POET conducts a search for flights that meet the report parameters and automatically generates the report.

You will see the search results, including a table, chart, and map. Once the search results are generated, POET generates the report in HTML. The report automatically opens in your default Internet browser and contains tables with summary statistics, charts, and maps.

Starting Summary Reports

To begin a Summary Report, click **Summary Reports** on the POET Home menu and the Summary Reports Search Builder window appears (Figure 20). In the Search Builder window, you can see different Summary Reports available, as well as the definition and parameters for each report.

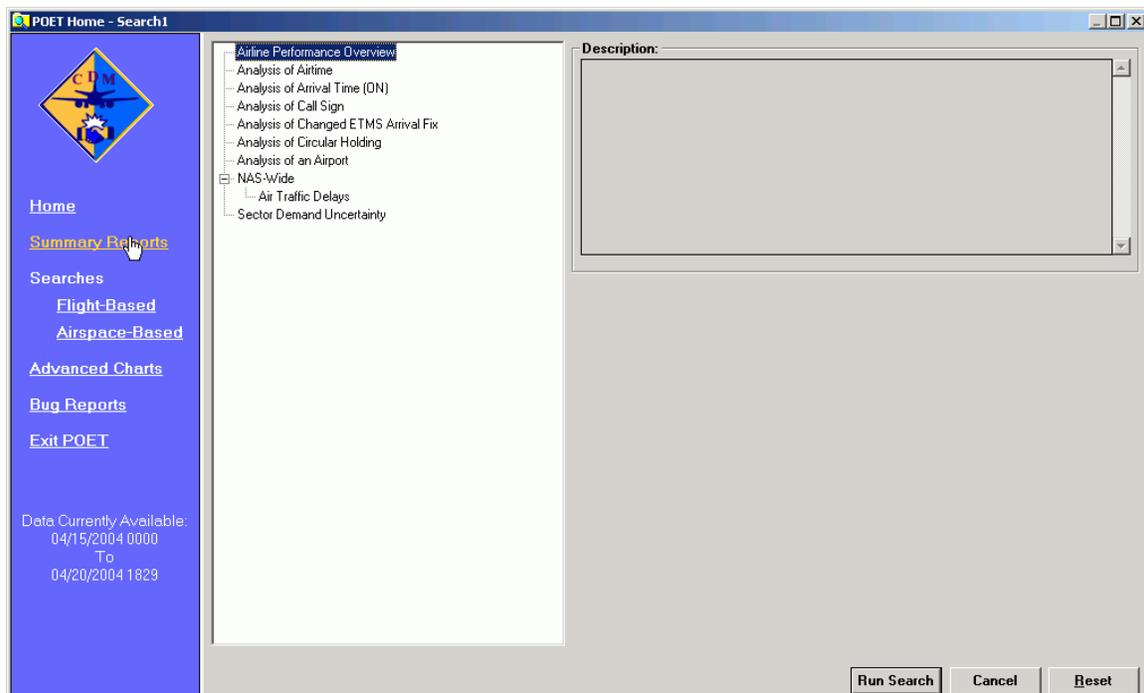


Figure 20: Summary Report Menu Option and Search Builder Window

Summary Report Options

There are several Summary Report types available. For example, one popular Summary Report included in POET is **Analysis of a Call Sign**. Use this Summary Report type to look at all information associated

with a call sign on a particular day. Other Summary Reports may facilitate analysis of circular holding, arrival fix compliance, and various NAS-related events.

To select a Summary Report type, simply click the report name in the Search Builder window. The report will be highlighted and the definition and parameters for that report will appear (Figure 21). Please note that available Summary Reports are subject to change in future versions of POET.

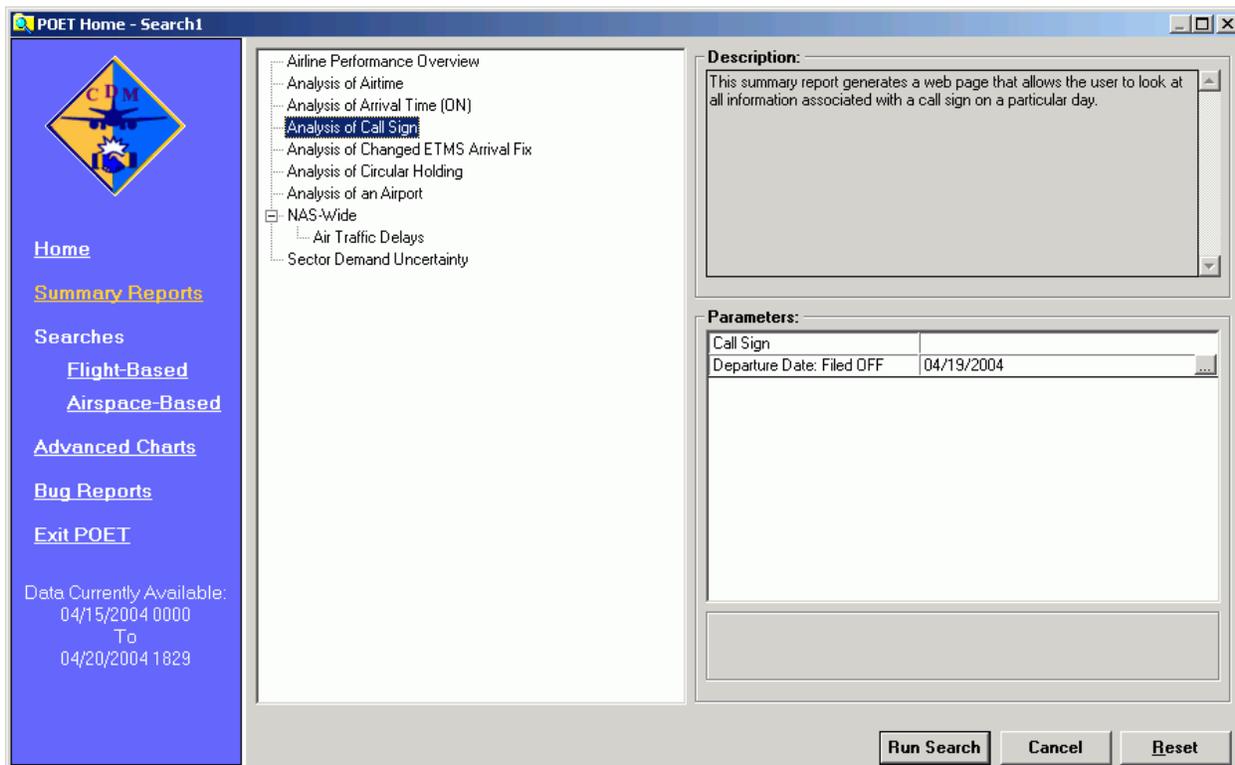


Figure 21: Summary Reports Search Builder

Parameters and Shortcuts

Each Summary Report requires you to enter specific parameters in order to run a search and create the report. The following parameters are common to the Summary Reports; however, each report will utilize a different group of the parameters.

Airport Parameters

Arrival Airport - Enter the 3 or 4-character airport codes for the arrival airports to analyze. When you enter multiple airport codes, separate each code with a comma. You can enter the codes using your keyboard or by pulling up the pop-up airport menu (Figure 22). Note that some Summary Reports only allow you to enter one arrival airport.

Airport - Enter the 3 or 4-character airport codes for the departure airport to analyze. You can enter only one airport using your keyboard or by pulling up the pop-up airport menu (see Figure 22).

SHORTCUT ALERT!

When you enter an airport parameter, POET provides a pop-up airport menu. To access this menu, click  to the right of any airport field. The Select Airports window appears. Click the airport code(s) for the airports to include in your Summary Report (see Figure 22). To clear an airport selection, double-click the airport code.

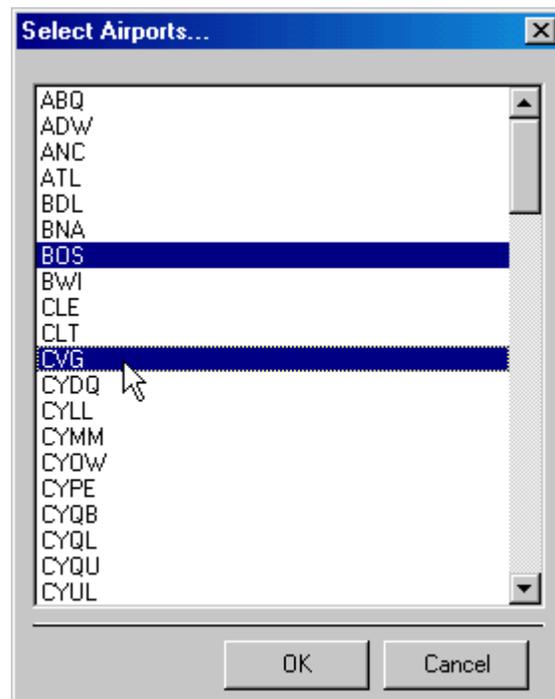


Figure 22: Airport Pop-up Menu with 2 Airports Selected

Date Parameters

Start Arrival Date: Filed ON - Enter the start date for your analysis of flights that meet the other parameters. POET will include flights in your Summary Report that flew on or after this date up until the date you set in the End Arrival Date field. Note that POET uses Filed ON data.

End Arrival Date: Filed ON - Enter the end date for your analysis of flights to include in the Summary Report. POET will include those flights in your Summary Report that flew on or after the Start Arrival Date and on or before the End Arrival Date. Note that POET uses Filed ON data.

Start Departure Date: Filed ON - Enter the start date for your analysis of flights that meet the other parameters. POET will include flights in your Summary Report that flew departed or after this date up until the date you set in the End Departure Date field. Note that POET uses Filed ON data.

End Departure Date: Filed ON - Enter the end date for your analysis of flights to include in the Summary Report. POET will include those flights in your Summary Report that departed on or after the Start Arrival Date and on or before the End Arrival Date. Note that POET uses Filed ON data.

Start Date/Time - Enter the start date and time for your analysis of flights that meet the other parameters. Enter the start time of the time range in this field using hhmm format. POET will include

flights in your Summary Report that flew on or after this date up until the date you set in the End Date/Time field.

End Date/Time - Enter the start date and time for your analysis of flights that meet the other parameters. Enter the end time of the time range in this field using hhmm format. POET will include flights in your Summary Report that flew on or after this date up until the date you set in the End Date/Time field.

SHORTCUT ALERT!

When you input arrival and/or departure dates, POET provides a pop-up calendar. To access the calendar, click  to the right of any arrival or departure date fields. By default, the calendar displays the date currently entered in the Date field. Use the right and left arrow buttons to scroll through the months for which POET contains data. Click a date to enter the date into the current field. An example of the pop-up calendar is shown in Figure 23.

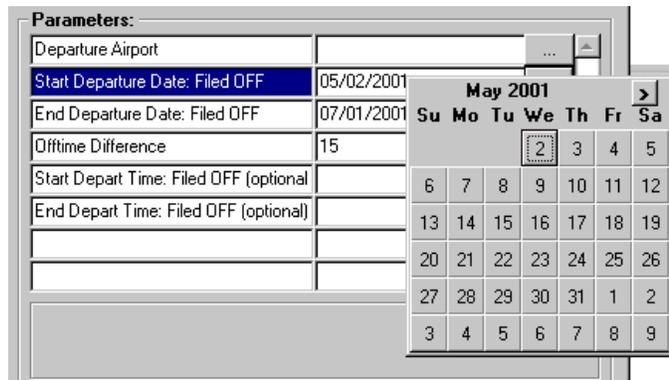


Figure 23: Summary Reports Popup Calendar

Time Parameters

Start Arrival Time: Filed ON (optional) - Note that this field is optional. You can generate a Summary Report without using this field. Enter the time at which you want POET to begin its search for flights to include in the Summary Report. POET will include flights in your Summary Report that flew on or after this time up until the End Arrival Time for the date range you specify.

End Arrival Time: Filed ON (optional) - Note that this field is optional. You can generate a Summary Report of Analysis of Airtime without using this field. If you choose to use this field, enter the end time for each day to stop searching for flights to include in the Summary Report. POET will include only those flights in your Summary Report that flew on or after the time specified in Start Arrival Time and up until the time specified in this field for the set date range.

Start Departure Time: Filed ON (optional) - Note that this field is optional. You can generate a Summary Report without using this field. If you choose to use this field, enter the time for each day at which you want POET to begin its search for flights to include in the Summary Report. POET will include flights in your Summary Report that departed on or after this time up until the End Arrival Time for the date range specified.

End Departure Time: Filed ON (optional) - Note that this field is optional. You can generate an Analysis of Changed Departure Fix without filling in this field. If you choose to use this field, enter the end time for each day to stop searching for flights to include in the Summary Report. POET will include

only those flights in your Summary Report that departed on or after the time specified in Start Arrival Time and up until the time specified in this field for the set date range.

Bin Size for Time Data (min) – POET aggregates your search results into time "bins" that cover a specific range of time. Enter the number of minutes in the Bin Size for Time Data field of how many minutes should be included in each "bin." For example, if you enter **15**, POET will display the data according to 15-minute time increments.

Other Parameters

Airline - Enter the 3-character airline code for the airline you want to analyze. Note that you can only enter one airline into the field.

Call Sign - Enter the call sign for the flight you want to analyze. The call sign is made up of the 3-character airline code and the flight identification number, including any leading zeroes. For example for flight UAL007, POET accepts the following values when entered: **UAL7**, **UAL07**, or **UAL007**.

Arrival Center - Enter the 3-character center code for the arrival center you want to study.

SHORTCUT ALERT!

When entering arrival centers, POET provides a menu of the available centers (Figure 24). Click  to the right of the Arrival Center field. The Select Centers window appears. By default, no centers are selected. Use the scroll bar to move through the centers for which POET contains data. Click a center to enter the center into the Arrival Center field. .



Figure 24: Select Centers

Sector -- Enter the specific sector whose traffic you wish to analyze. The sector name should be made up of both the 3-character center code and sector number, as many sectors are not specific to a certain center. For example, ZOB48 indicates that you are interested in the traffic that transits ZOB center's sector 48.

Fix - Enter the name of the fix to study. Note that fix names should be entered using all capitalized letters (i.e. **PETTY**).

Minimum Flight Group Size -- This value is the minimum number of flights necessary to be included as a 'flight group.' Only those flight groups with the minimum number of flights will be returned in the search results. This prevents a display of flights groups that contain very few flights.

Summary Report Display

POET Summary Reports are generated in HTML format. After POET creates your Summary Report, open your report in your default Internet browser.

The first page of your report is the **Summary**, which summarizes the report type and its parameters (Figure 25).

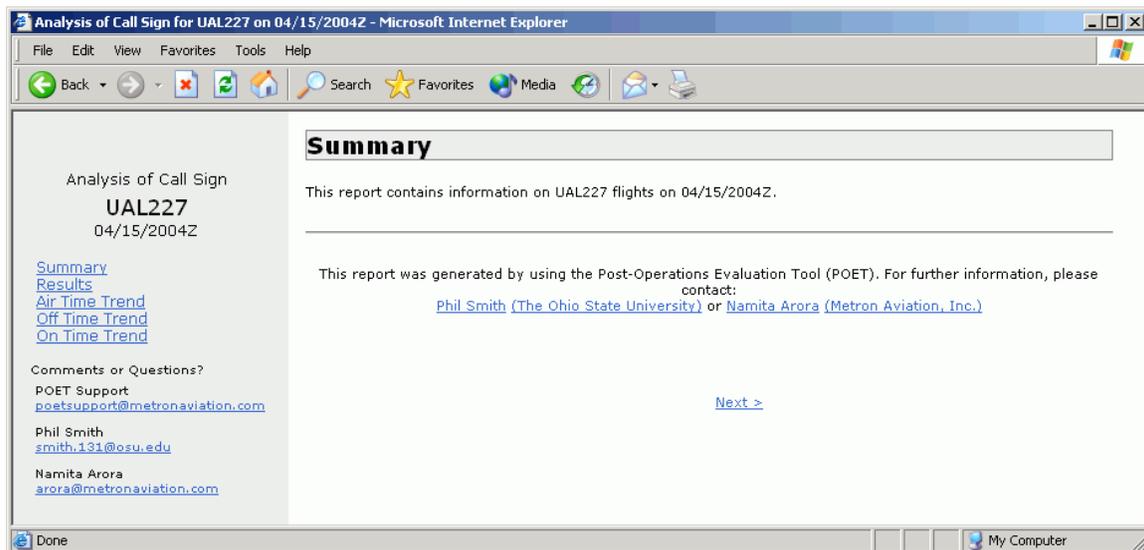


Figure 25: Page 1 of Call Sign Analysis Summary Report

The left frame of the Summary Report lists the other pages in the report. Click any of the page names to jump to that page in the report. There are several pages to view: Summary, pages for each of the fixes, and Results. When you click **Results**, the complete table of flights that match your report parameters appears (Figure 26).

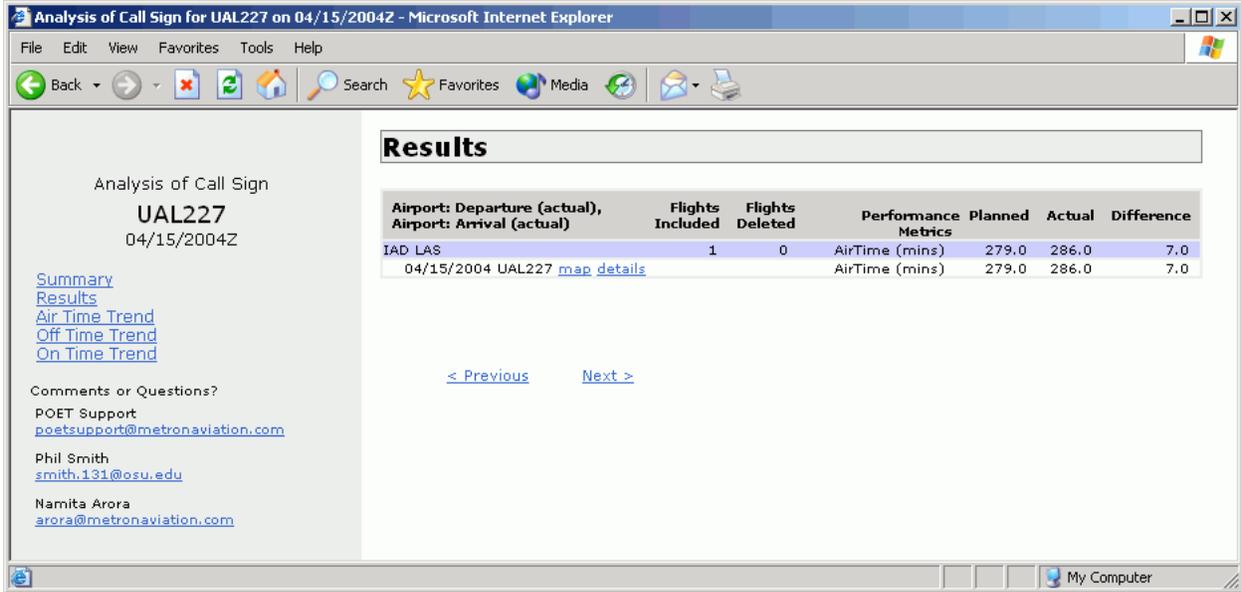


Figure 26: Results page of a Summary Report

The Results page provides access to flight details and maps from the table. A map can graphically illustrate air traffic patterns and flight data can help further analyze these patterns. Click any link to a Chart or Map to pull up a graphic for that flight group (Figure 27).

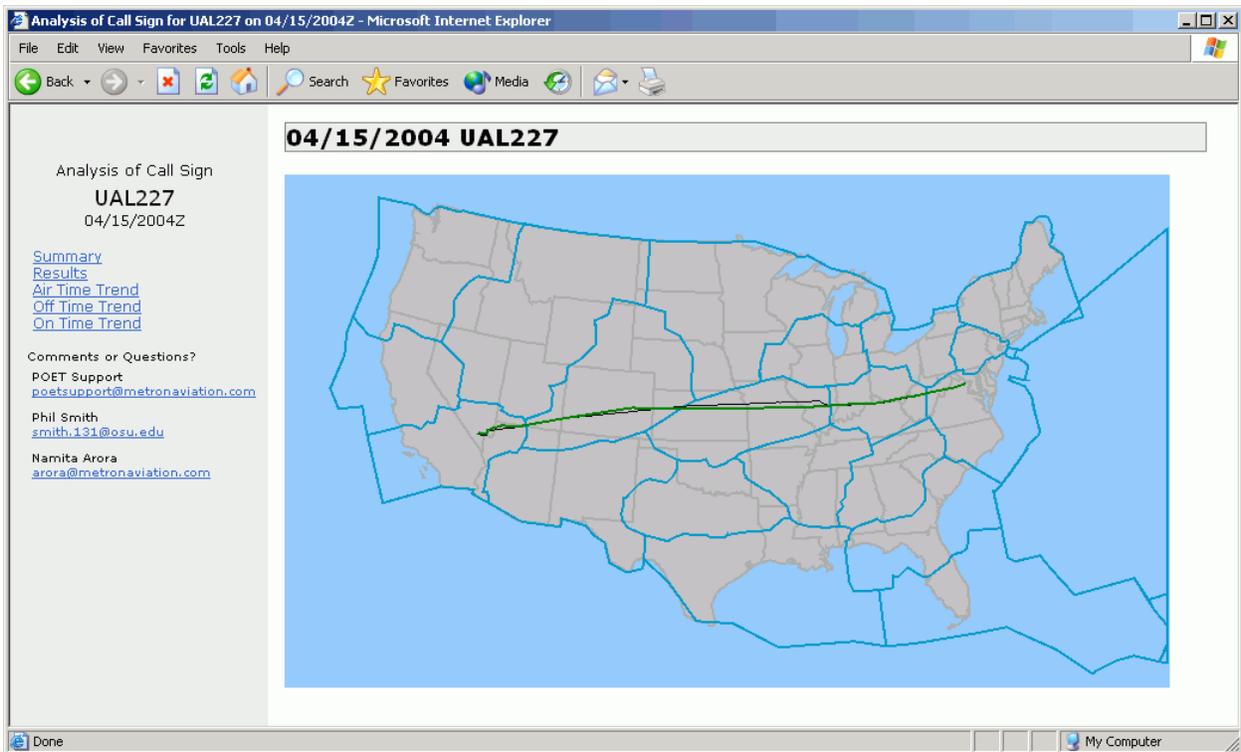


Figure 27: Summary Report Results Map

Likewise, to view a chart summarizing the activity for a single arrival fix, click the arrival fix name in the report. At the bottom of each report page, there are links to go to the **Next** page or **Previous** page in the report.

Advanced Charts

Advanced Charts are available from the POET Home window and provide a way to conduct specific analysis without having to run a search. Each Advanced Chart utilizes a pre-defined algorithm, for which you set the parameters. The algorithm results are displayed in a specific type of chart (i.e. line chart, bar chart, etc.).

Starting an Advanced Chart

To create an Advanced Chart, select **Advanced Charts** from the POET Home window. This will take you to the Advanced Charts Search Builder window (Figure 28).

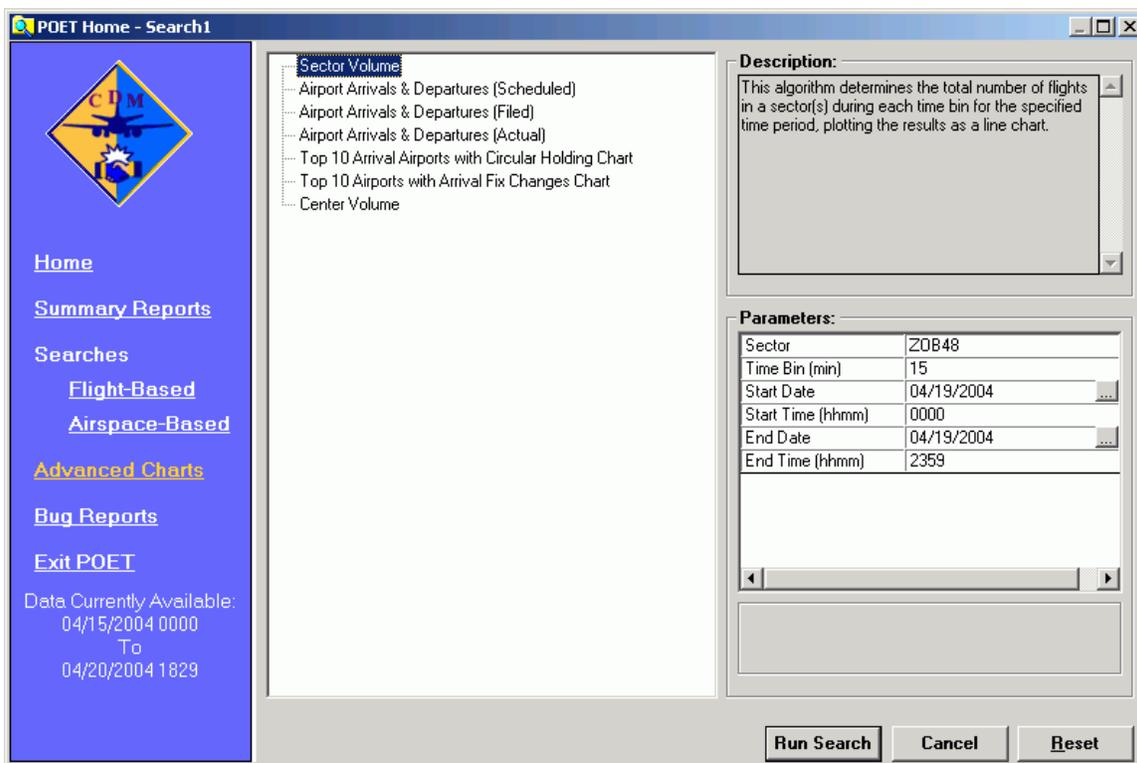


Figure 28: Advanced Charts Search Builder Window

From the Advanced Charts Search Builder window, select the chart name you want to view and set the parameters for that chart. Selecting a chart type displays the description of the algorithm used to generate the chart and the appropriate parameters.

Advanced Chart Options

The Advanced Chart options described here are current as of the initial release of POET 2.2. Note that the available options may change with future versions of POET. POET also gives you the option of using an external module plug-in to generate a chart.

- Volume:
 - Sector
 - Center
- Airport Arrivals & Departures
 - Scheduled
 - Filed
 - Actual
- Top 10 Arrival Airports with Circular Holding
- Top 10 Airports with Arrival Fix Changes

Sector Volume

The Sector Volume algorithm determines the maximum number of flights in a sector during each time bin for the specified time period. Results are plotted as a line chart. You must define the following parameters:

Sector – Enter the specific sector(s) you want to analyze. Separate multiple sectors with a comma. The sector(s) should include the 3-character center code and the sector number. For example, **ZTL38, ZTL39**.

Time Bin (min) – Enter the number of minutes to be included in each "bin." The time bin affects the detail of your chart. For example, if you enter **5**, you will see the maximum amount of flights in the sector for every 5-minute time period. Your line chart may vary significantly within each hour (Figure 29). If you enter **60**, you will see the maximum amount of flights in the sector for every 60-minute time period (Figure 30).

Start Date – Enter the start date in MM/DD/YYYY format for your query. Click to the right of the **Start Date** field to open a calendar. From the calendar you can click on a date; this automatically inserts the date from the calendar into the **Start Date** field.

Start Time (hhmm) – Enter the start time (in Zulu) for your analysis (e.g. **1200**).

End Date – Enter the end date in MM/DD/YYYY format for your query. Click to the right of the **End Date** field to open a calendar. From the calendar you can click on a date; this automatically inserts the date from the calendar into the **End Date** field.

End Time (hhmm) – Enter the end time (in Zulu) of your analysis.

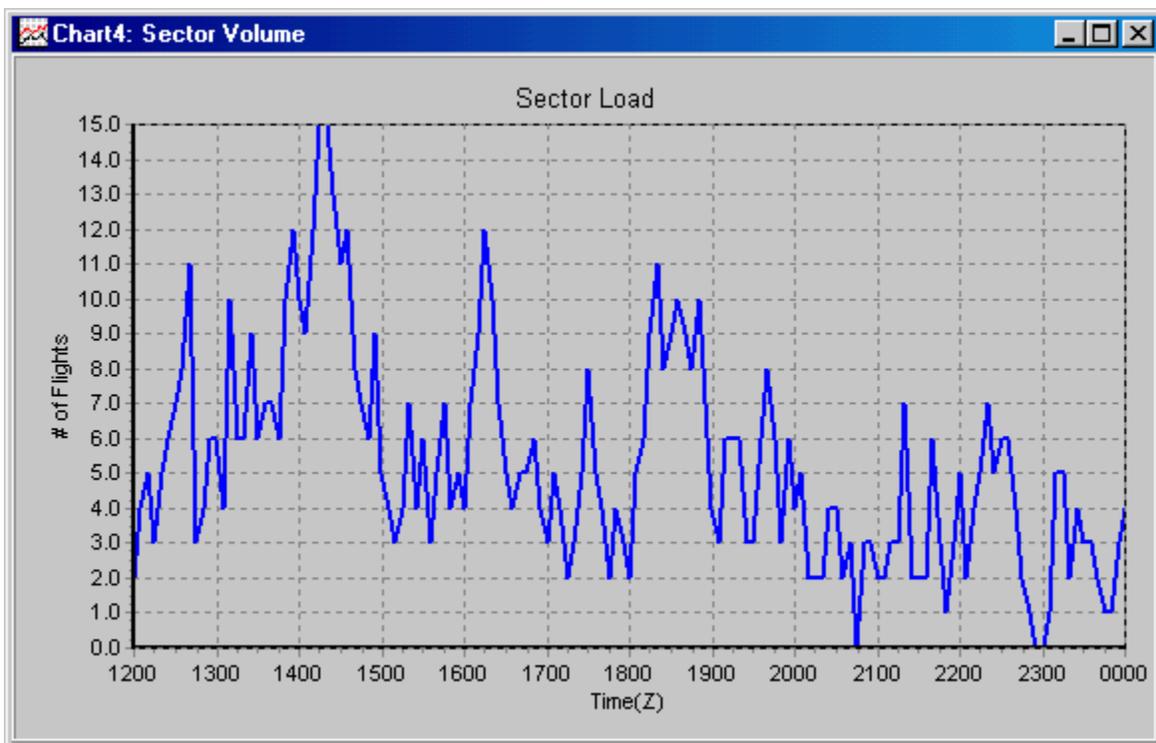


Figure 29: Sector Volume Chart with Time Bin set at 5 Minutes

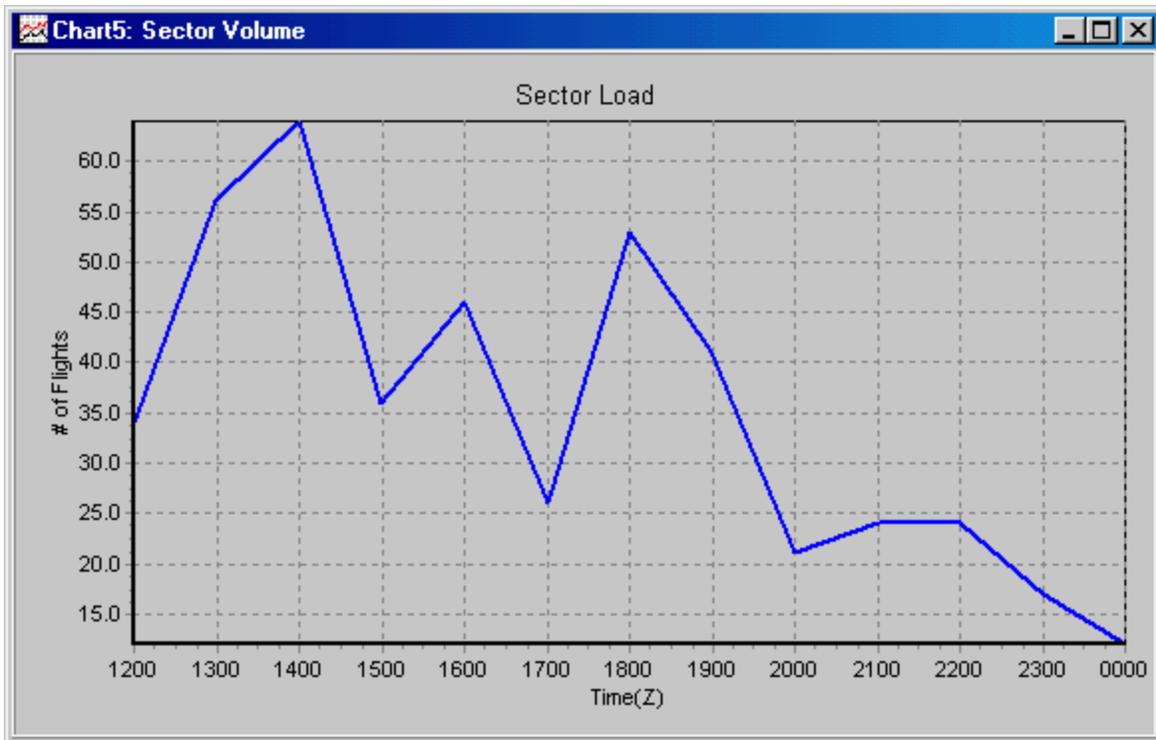


Figure 30: Sector Volume Chart with Time bin set at 60 Minutes

As in the Dynamic Sector Viewer, Advanced Charts also show dynamic sectorization. As shown in Figure 31, sectors ZTL38 and ZTL39 have been modified from their baseline states. On 4/18/2004, at 0013, 0901, 1031 and 1207, ZTL38 (blue graph) and ZTL39 (light green graph) took on additional FPAs, shown by the green plus (+) signs on the graph. At 0347, 1035, and 1148, ZTL38 gave up FPAs, shown by a red minus (-) signs on the graph.

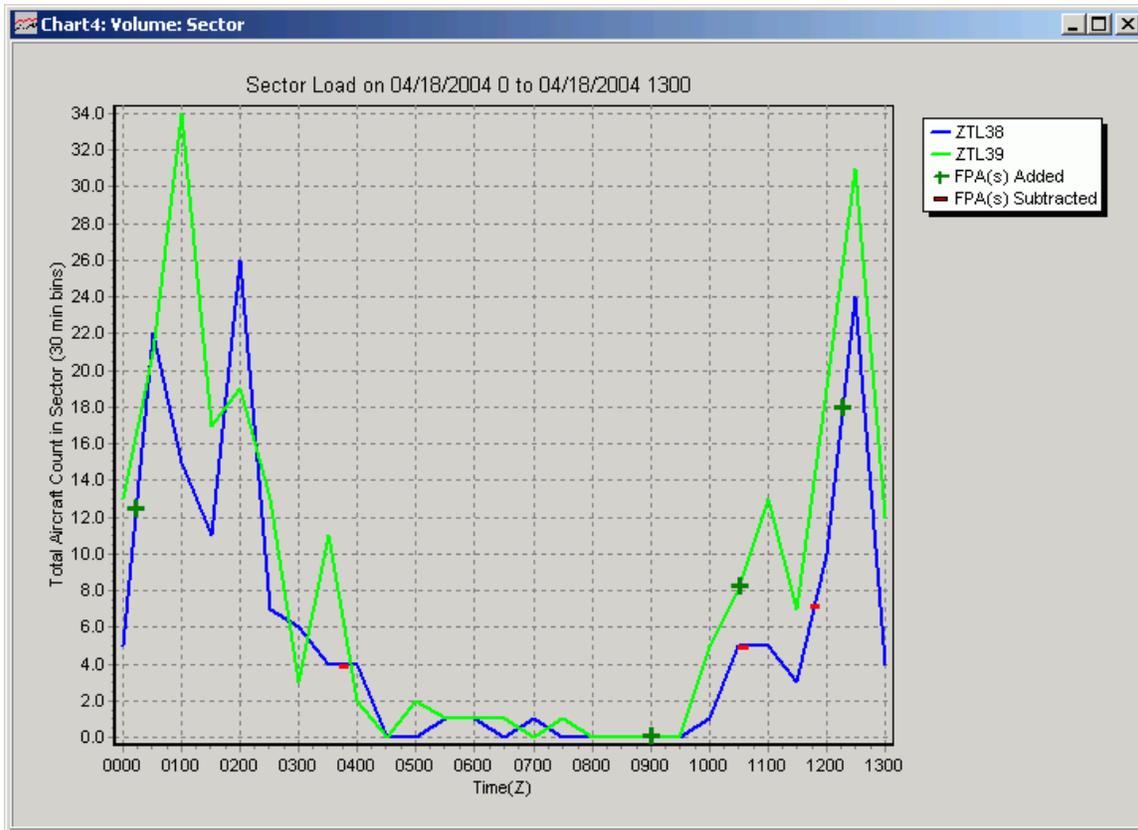


Figure 31: Sector Volume Chart with FPAs Added and Subtracted

Use the Dynamic Sector Data Viewer under the **Tools > Data Viewers** menu on the toolbar to determine which FPAs were added or subtracted from these sectors (Figure 32).

POET Find: Dynamic Sector(s)

Sector & Time

Sector: ztl38

Date/Time (Z): 04/15/2004 0000 To 04/20/2004 1829

Find Now
Reset
Cancel

Sector	Start Time	End Time	FPAs Added/Subtracted	Current FPA List for Sector
ZTL38	04/18/2004 0013	04/18/2004 0902	+ FPA Added	ZTL4101,ZTL3803,ZTL3801,ZTL2501
ZTL38	04/18/2004 0347	04/18/2004 0902	- FPA Subtracted	ZTL3803,ZTL3801
ZTL38	04/18/2004 0901	04/18/2004 1229	+ FPA Added	ZTL4101,ZTL3802,ZTL3801,ZTL2501
ZTL38	04/18/2004 0901	04/18/2004 1229	+ FPA Added	ZTL4101,ZTL3802,ZTL3801,ZTL2501
ZTL38	04/18/2004 1035	04/18/2004 1036	- FPA Subtracted	ZTL3801
ZTL38	04/18/2004 1036	04/18/2004 1148	- FPA Subtracted	ZTL3801
ZTL38	04/18/2004 1148	<null>	- FPA Subtracted	ZTL3801
ZTL38	04/18/2004 1217	<null>	+ FPA Added	ZTL3802,ZTL3801,ZTL2501

ZTL38 from 04/15/2004 0000 to 04/20/2004 1829

8 dynamic sector(s) instances found

Figure 32: ZTL38 Sector Volume Chart with FPAs Added and Subtracted

Refer to the POET Tools section on page 13 for more information on the Dynamic Sector viewer.

Airport Arrivals and Departures

There are several Airport Arrivals and Departures algorithms available. Each chart uses a different algorithm that gathers different arrival and departure data based on actual, filed, or scheduled departures and arrivals. The algorithms create either a bar or line chart showing the number of departures and arrivals at an airport that actually occurred (based on ETMS data) during each time bin for the specified date and time period. You must define the following parameters:

Airport – Enter the 3 or 4-character airport code for the airport you want to analyze. For a list of airports, click the button to the right of the Airport field. Clicking an airport code in the list will automatically enter that code into the Airport field. Note that you can only enter one airport into the field.

Time Bin (min) – The time bin affects the detail of your chart. For example, if you enter **5**, you will see the arrival and departure activity at the airport for every 5-minute time period. The numbers can vary significantly within each hour. If you enter **60**, you will see the arrival and departure activity for every 60-minute time period over several hours.

Start Date – Enter the date to start your analysis in MM/DD/YYYY format. Click  to the right of the **Start Date** field to open a calendar. From the calendar, click on a date; this automatically inserts the date from the calendar into the **Start Date** field.

Start Time (hhmm) – Enter the time (in Zulu) to start your analysis (e.g. 1200).

End Date – Enter the date to finish your analysis in MM/DD/YYYY format. Click  to the right of the **End Date** field to open a calendar. From the calendar you can click on a date; this automatically inserts the date from the calendar into the **End Date** field.

End Time (hhmm) - Enter the time (in Zulu) to end your analysis.

Chart Type – Enter **B** for Bar chart or **L** for Line chart or use the pull-down menu to select **Line** or **Bar**, depending on your choice of chart display. See Figure 33 and Figure 34 for examples.

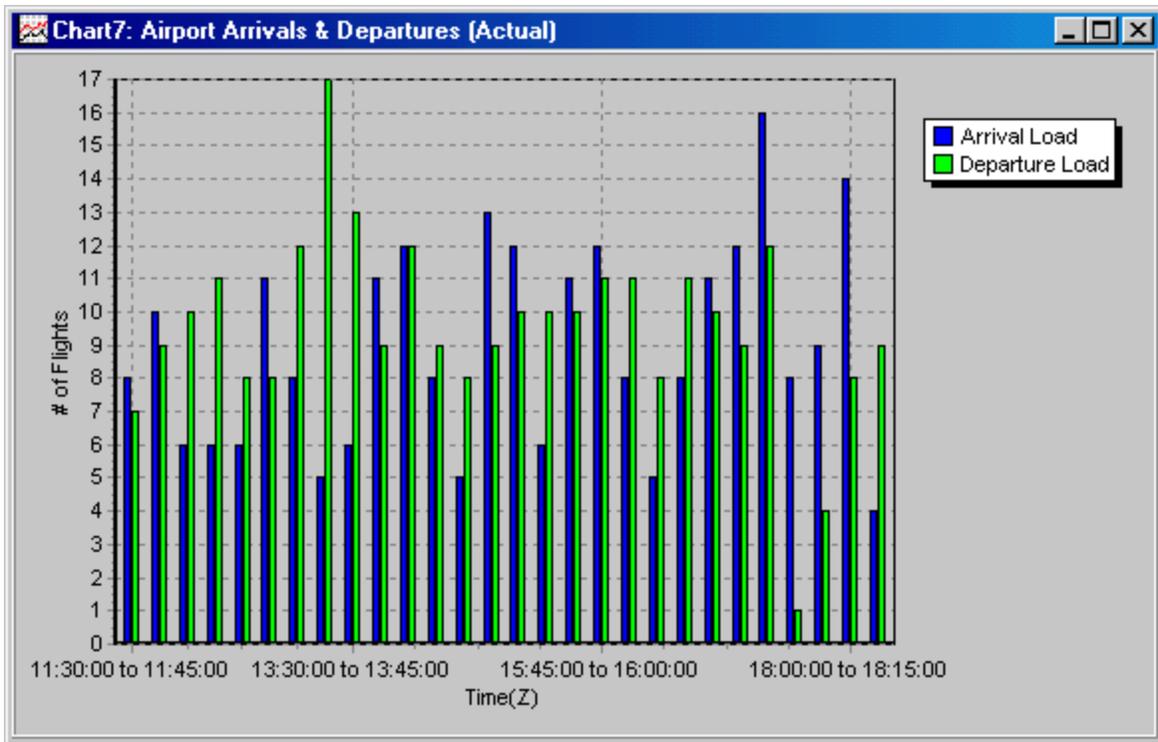


Figure 33: Airport Arrivals and Departures Bar Chart

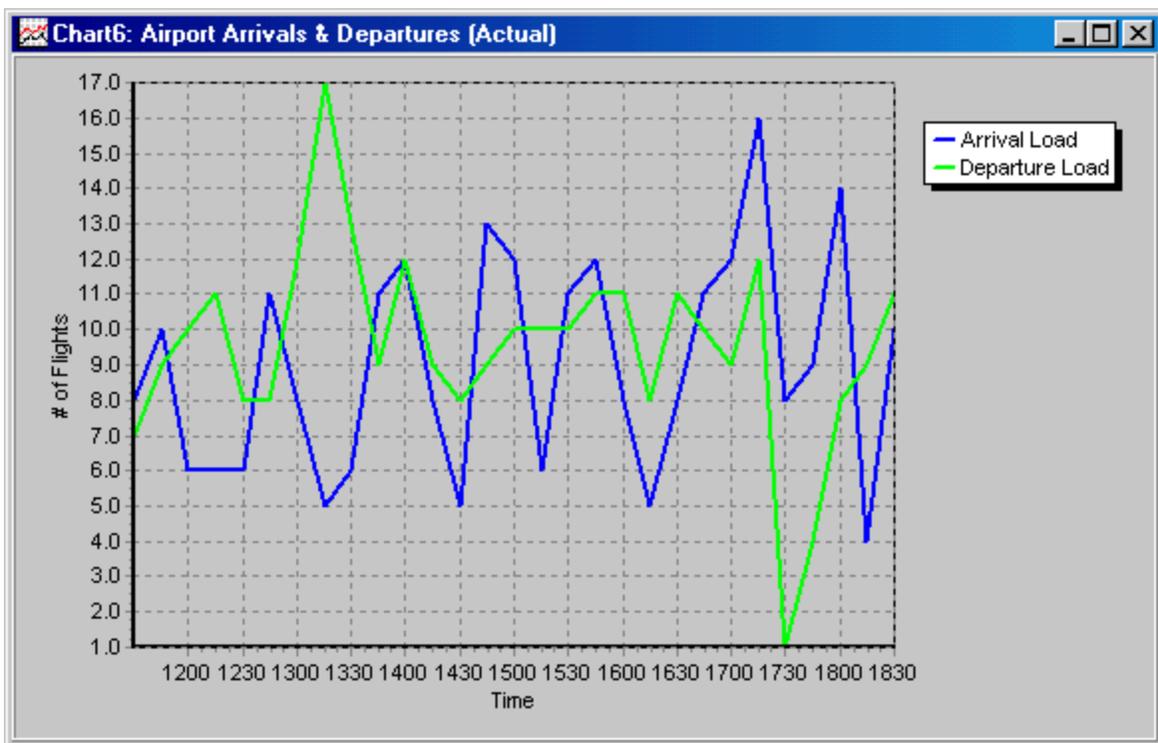


Figure 34: Airport Arrivals and Departures Line Chart

Top 10 Arrival Airports with Circular Holding

This algorithm creates a bar chart showing the top 10 arrival airports with the most circularly held flights that arrived during your specified date and time period (Figure 35).

StartDate – Enter the date to start your analysis in MM/DD/YYYY format. Click to the right of the **Start Date** field to open a calendar. From the calendar, you can click on a date; this automatically inserts the date from the calendar into the **Start Date** field.

StartTime – Enter the time (in Zulu) to start your analysis in hhmm format (e.g. **1200**).

EndDate – Enter the date to finish your analysis in MM/DD/YYYY format. Click to the right of the End Date field to open a calendar. From the calendar you can click on a date; this automatically inserts the date from the calendar into the End Date field.

EndTime – Enter the time (in Zulu) to end your analysis in hhmm format.

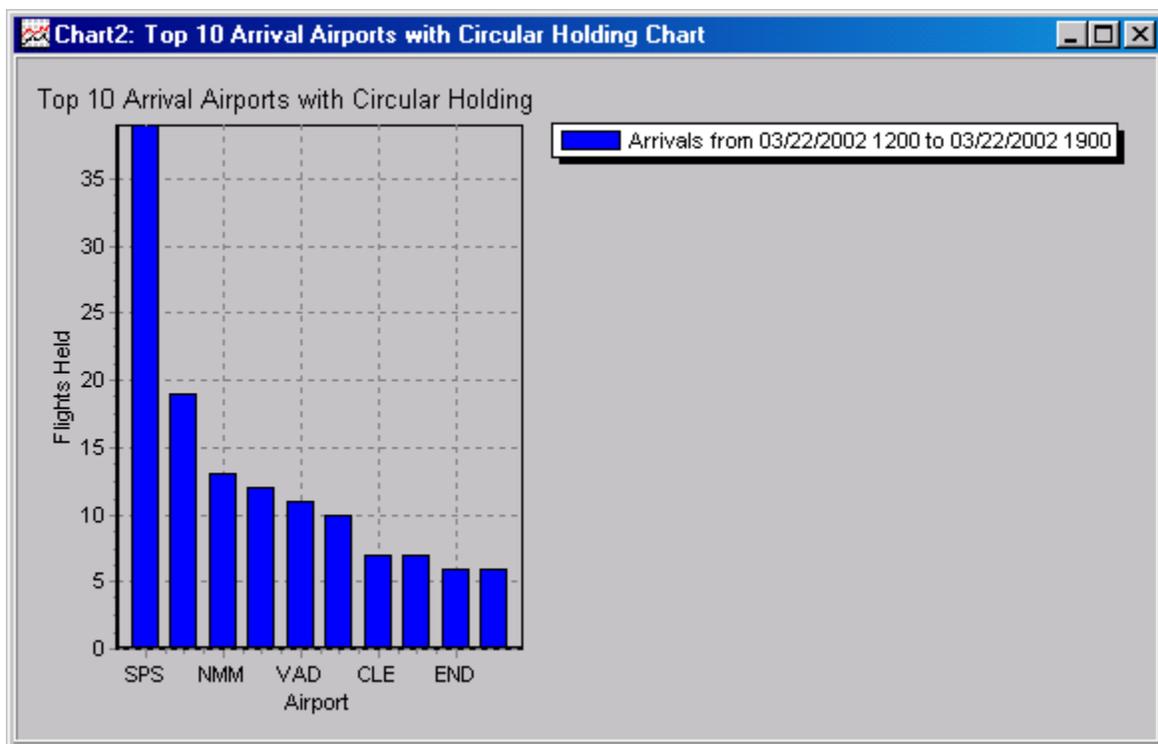


Figure 35: Top 10 Airports with Circular Holding

Top 10 Airports with Arrival Fix Changes

This algorithm creates a bar chart showing the top 10 airports with the most arrival fix changes (planned vs. actual) for flights that arrived during your specified date and time period (Figure 36).

StartDate – Enter the date to start your analysis in MM/DD/YYYY format. Click to the right of the Start Date field to open a calendar. From the calendar, click on a date; this automatically inserts the date from the calendar into the Start Date field.

StartTime – Enter the time (in Zulu) to start your analysis in hhmm format (e.g. **1200**).

EndDate – Enter the date to finish your analysis in MM/DD/YYYY format. Click to the right of the **End Date** field to open a calendar. From the calendar you can click on a date; this automatically inserts the date from the calendar into the **End Date** field.

EndTime – Enter the time (in Zulu) to end your analysis in hhmm format.

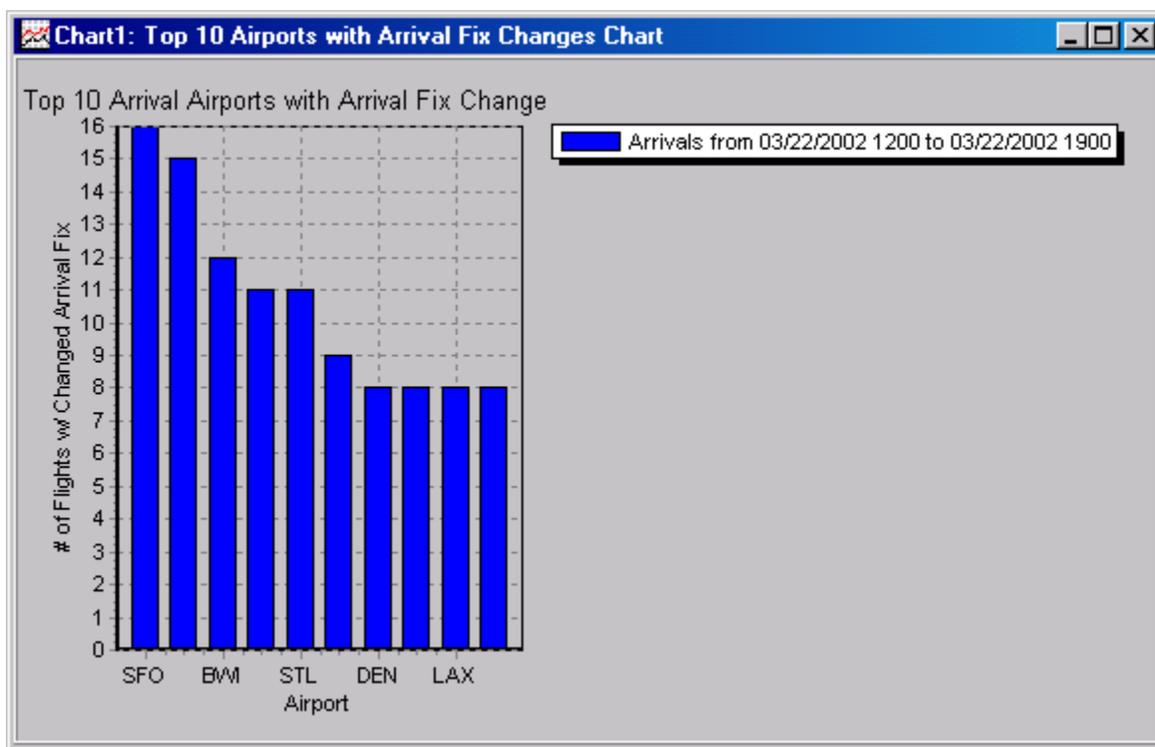


Figure 36: Top 10 Arrival Fix Changes

Center Volume

This algorithm determines the total number of flights in a center or multiple centers during each time bin for the specified time period, and then plots the results as a line chart. (Figure 37).

Center – Enter the 3-character code for the U.S. center to analyze. Example: **ZTL** indicates the Atlanta center.

Time Bin (min) – POET aggregates your search results into time "bins" that cover a specific range of time. Enter the number of minutes in the Time Bin field to tell POET how many minutes should be included in each "bin." For example, if you enter **15**, POET will display the data according to 15-minute time increments.

Start Date - Enter the date to start your analysis in MM/DD/YY format. Click to the right of the **Start Date** field to open a calendar. Click the button to the right of the **Start Date** field to pull up a calendar. From the calendar you can click on a date; this automatically inserts the date from the calendar into the **Start Date** field.

Start Time (hhmm) – Enter the time (in Zulu) to start your analysis (e.g. 1200).

End Date – Enter the date to finish your analysis in MM/DD/YY format. Click to the right of the **End Date** field to open a calendar. From the calendar you can click on a date; this automatically inserts the date from the calendar into the **End Date** field.

End Time (hhmm) - Enter the time (in Zulu) to end your analysis.

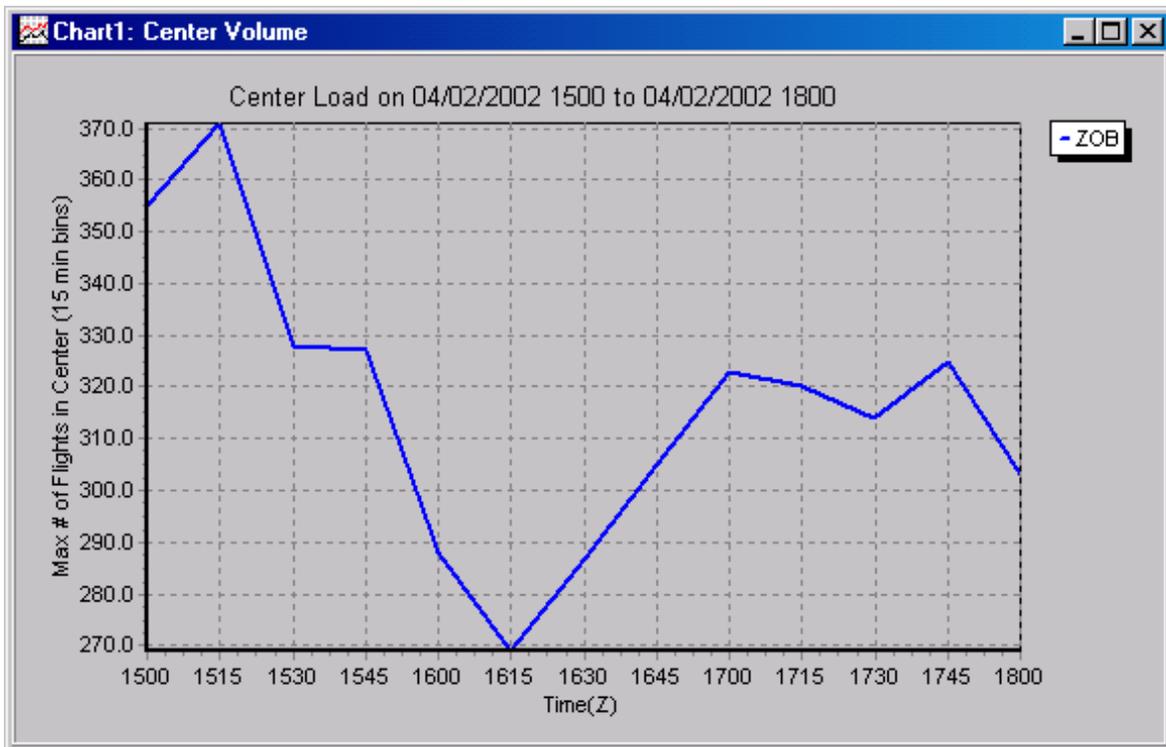


Figure 37: Center Volume

Creating a Flight-Based Search

In POET there are two types of searches you can conduct, **Flight-Based Search** and **Airspace-Based Search**. This chapter discusses performing a new **Flight-Based Search**, which is useful for finding information about different flight groups by airport, airline, call sign, and center. For example, if you wanted to find flight groups departing from DTW and arriving at ATL that met certain criteria, you would perform a flight-based search. Refer to page 61 for more information on performing an Airspace-Based search.

For information on opening a previously saved search or using search templates, see the Running Searches chapter on page 68.

Starting Flight-based Searches

To begin a flight-based search, select **Flight-Based** under **Searches** from the POET Home window. This opens the Advanced Charts Search Builder window (Figure 38).

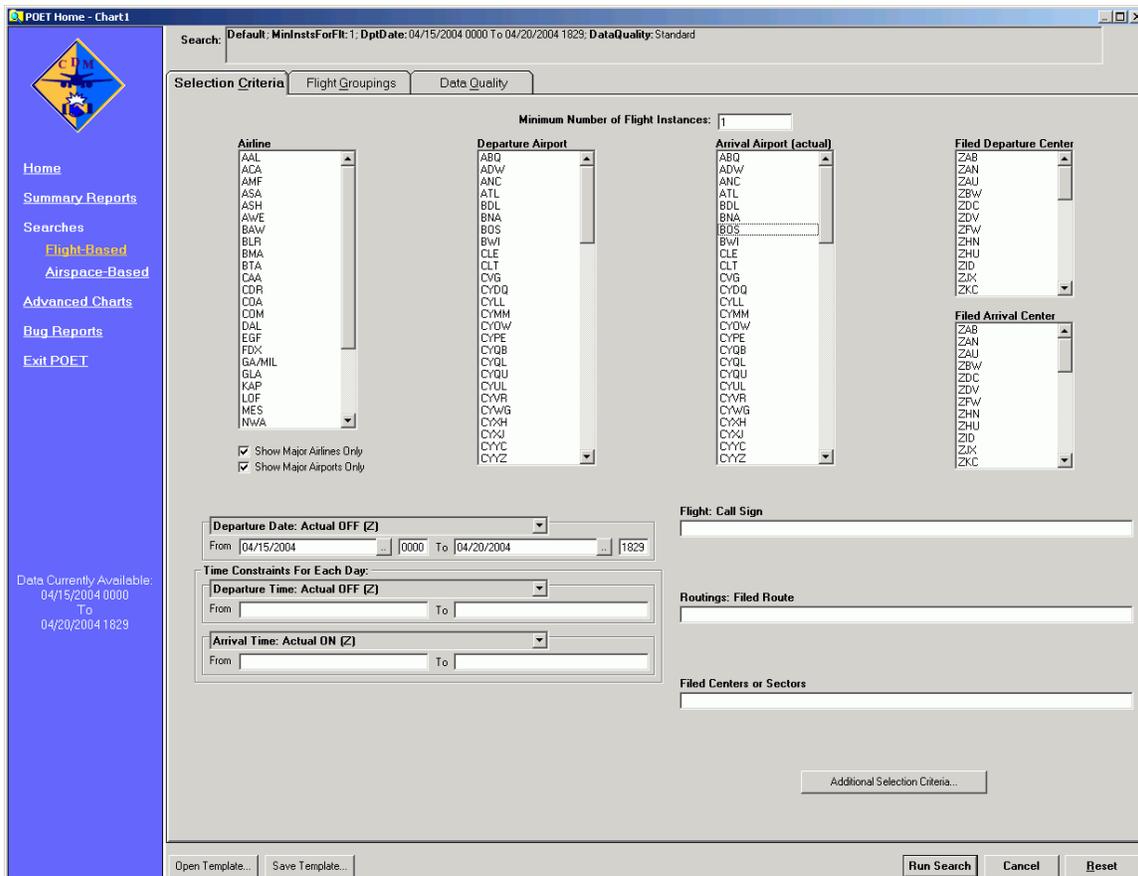


Figure 38: Flight-Based Search Builder window

Defining Search Parameters

The first step to create a new Flight-Based search in POET is to define your search. That is, you must enter specific search criteria, or *parameters*. You can fill in as many or as few parameters as you wish to conduct your search. Note that the more general your search is, the longer POET may take to load your search results.

The Search Builder Window for Flight-Based Searches contains three tabs--Selection Criteria, Flight Groupings, and Data Quality--each with a different set of search fields and flight grouping criteria for you to use. You can use as many or as few of the tabs and fields as you wish to define your search and group your flights. You define your flight search using the Selection Criteria tab. Using the other tabs, you define additional criteria to use in grouping the search results.

The three tabs available on the Search Builder window are:

Selection Criteria - This tab provides the actual flight search fields. For example, you can enter origin and destination airport, date range, and airline parameters in this tab to define the collection of flights for which you are searching. Additional selection criteria allow you to select data ranges for your search results. For example, you can tell POET to search for flights within a particular range of airtimes.

Flight Groupings - This tab allows you to determine whether you wish to group flights in your search results according to specific criteria. For example, if you want to view your search results grouped by aircraft type, you would select that parameter in the Flight Groupings Tab.

Data Quality - This tab allows you to determine which flight information will be displayed in your results based on the quality of data associated with the flight. Flights not meeting the data quality requirements will be returned in your search results but will be deleted. These flights are not included when calculating a flight group's performance metrics statistics.

Selection Criteria Tab

The Selection Criteria tab contains the actual search fields for your search. This is your starting point for entering search parameters as it determines the collection of flights that will be included in the search results.

If you do not select any parameters in the Selection Criteria tab and choose to run a search, your search will use the default parameters in the Selection Criteria tab. This generally includes the full date range of flight information for all airlines and airports and can take a long time to run.

Search Logic in the Selection Criteria Tab

Within each search field, you can select or enter several search parameters. If you enter more than one parameter in a search field, POET searches for flights that meet any of those parameters. Entering

multiple parameters in a single field tells POET to search for flights that meet one parameter or another. For example, if you select **ATL**, **DCA**, and **EWR** as departure airports, POET searches for flights that departed from ATL *or* DCA *or* EWR.

When you enter parameters in multiple *fields*, POET searches for flights that meet parameters in *all* the fields. Entering parameters in multiple fields tells POET to search for flights that meet the criteria entered in one field *and* another. For example, if you select **ATL** as a departure airport and **DFW** and **DCA** as arrival airports, POET searches for flights that departed from ATL *and* arrived at DFW or DCA.

This search logic is important because it can adversely affect your search. Note that some search fields are less constrained than others. For example, a single center is a broader search field than a single airport. If you enter parameters in both the Filed Center search field and the Arrival or Departure Airport search field, POET will conduct its search according to the more constrained search field. For example, if you enter **ATL** as the parameter in the Departure Airport search field and **ZTL** in the Filed Departure Center search field, POET will search for flights that have ZTL as the Filed Departure Center *and* ATL as the Departure Airport. Your search results will only yield flights with ATL as their departure airport. Flights departing from any other airport within ZTL cannot be included in the results because they do not meet the parameters in *both* search fields.

If you are not careful when entering parameters in all the search fields, you could effectively eliminate any flights from your results. For example, if you enter ATL as the parameter in the Departure Airport search field and ZNY in the Filed Departure Center search field, POET will not return any flights because it is impossible for any flights to depart both ATL and ZNY.

Working Example

In this chapter, we will use a single search example to explain Flight-Based Searches.

Example: Find all flights departing from LAX or ATL and arriving at DFW for a single day whose planned versus actual airtimes differ by more than 5 minutes. The date that you use may differ from the date used in this guide. We will sort the results according to Actual Arrival Date, Actual and Planned Arrival Times, and Actual Arrival Fix.

In Figure 39, we have entered search parameters in the Selection Criteria tab according to our example search. We selected LAX and ATL as departure airports, DFW as the arrival airport, and defined the date range as Actual Arrivals for a single day.

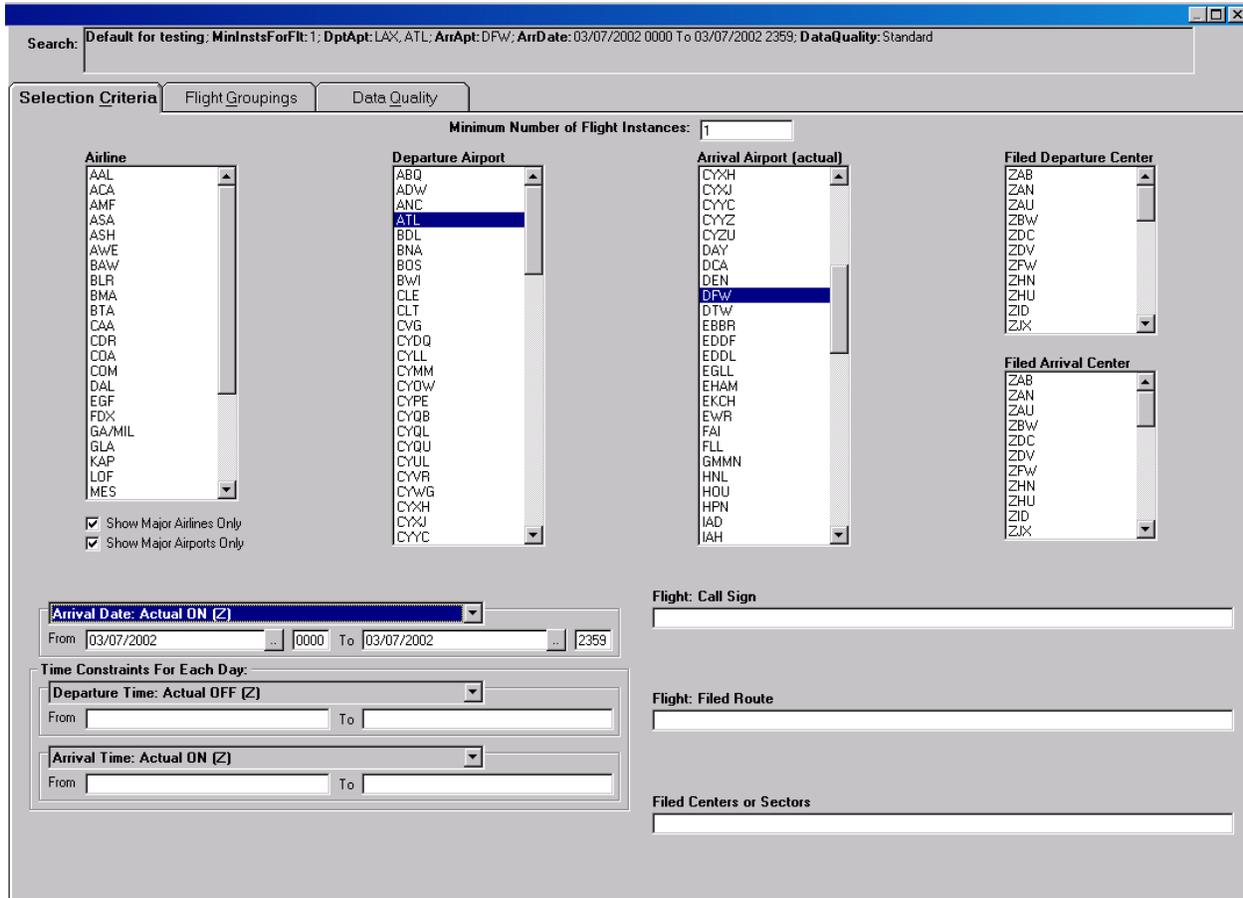


Figure 39: Selection Criteria Tab

Selection Criteria Search Fields

Minimum Number of Flight Instances

This value is the minimum number of flights necessary to be included as a 'flight group.' Only those flight groups with the minimum number of flights will be returned in the search results. This prevents a display of flights groups that contain very few flights.



Figure 40: Flight Instances Field in the Search Criteria Tab

Example: In our example, we will keep the default value for the minimum number of flight instances at 1. This should provide flight results for the entire day. Note that you could change this value to greater than 1 to limit the flight results returned.

Airline

The Airline search field lists the airlines that are available for your search. Select an airline by clicking on the airline code. Click several codes to select multiple airlines. To deselect an airline, click on the highlighted airline code.

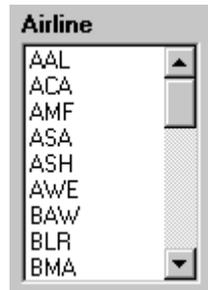


Figure 41: Airline Field in the Search Criteria Tab

Example: In our example, we want all airlines included in our search. By not selecting any airline in the airline field on the Search Criteria Tab, POET will include all airlines in the search results by default.

Show Major Airlines / Airports Only

Clicking on these boxes will allow you to either view all of the airlines/airports (separate check boxes for each) or just the major airlines/airports. **Note:** checking these boxes will not adjust the search query, but will only change what you see in the Search Builder Window's Airline and Airport search fields.

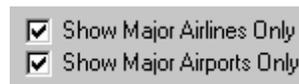


Figure 42: Show Major Airlines/Airports Field in the Search Criteria Tab

Example: The default value in POET for these two fields is to check them as "on." We have left the boxes checked. However, because major airlines and airports will always appear in POET's search fields, we could uncheck this option and still view the airlines/airports we want in our search. If we were to search flights from an airport or airline that is not considered "major," we would uncheck these boxes.

Departure Airport

This field specifies the departure airport (s) to be included in the search. Select one by clicking once on the airport code. Click several to select multiple airports. To deselect an airport, click on the highlighted airport code.

Example: For our search, we are looking at flights that departed from ATL and LAX airports. We selected **ATL** and **LAX** in the Departure Airports field in the Search Criteria tab (Figure 43).



Figure 43: Select Departure Airports in the Search Criteria Tab

Arrival Airport

This field specifies the actual arrival airport(s) to be included in the search. Select one by clicking once on the airport code. To deselect an airport, click on the highlighted airport code. Click several to select multiple airports.

Example: For our search, we are looking at flights that arrived at DFW airport. We selected **DFW** in the Arrival Airports field in the Search Criteria Tab (Figure 44).

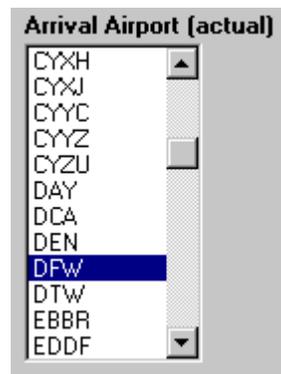


Figure 44: Arrival Airports Field in the Search Criteria Tab

Filed Departure Center

This field specifies the departure center (s) to be included in your search. Select one by clicking once on the center code. To clear a center selection, click the highlighted center code. Click several to select multiple centers.

Example: The filed departure center is irrelevant to our particular search. Not selecting a specific departure center means that POET will not constrain its search according to this field.

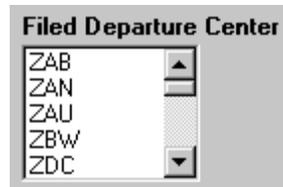


Figure 45: Filed Departure Centers Field in the Search Criteria Tab

Filed Arrival Center

This field specifies the arrival center (s) to be included in your search. Select one by clicking once on the center code. Follow the same procedure to select multiple centers. To deselect a center, click on the highlighted center code.

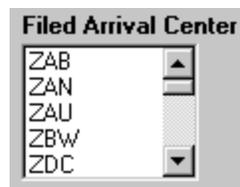


Figure 46: Filed Arrival Centers Field in the Search Criteria Tab

Example: The filed arrival center is irrelevant to our particular search. By not selecting a specific arrival center, POET will not constrain its search according to this parameter.

Scheduled, Filed, and Actual Departure and Arrival Dates

Specify the departure and/or arrival date(s) and times for the flights to be included in your search using the 3 fields at the bottom left of the Search Builder Window. Note that as well as telling you whether the departure/arrival date is Scheduled, Filed, or Actual, POET also lets you know if the departure/arrival data is based on OFF, ON, IN, or OUT times. You have the option of simultaneously analyzing Actual and Filed data. Note that all times are Zulu (Z).

Click the pull-down menu to specify a search parameter (e.g. Departure Date: Filed OFF). Then enter a date range that includes beginning (From) and end (To) dates for the parameter you selected. Click the button to the right of either the From or To field to open a calendar. In the calendar you can click the arrows at the top to scroll through months. Click a date on the calendar or type the date directly into the correct field to fill in your date range.

To specify a time range, enter the time (Zulu) using the 24-hour clock times. The default time range is from 0000 to 2359, which covers an entire day.

Example: In the Arrival/Departure Date field, we clicked to pull down the menu of arrival and departure dates available for our search. We clicked **Arrival Date: Actual ON** to choose that as the date for our search (Figure 47). The next step is to select a date range for flight arrivals. If you are unsure of the dates

to search, you can pull up a calendar in the date (Figure 48 and Figure 49). We entered a single date in both the **From** and **To** fields and left the default time options so that our data is pulled from a single day.

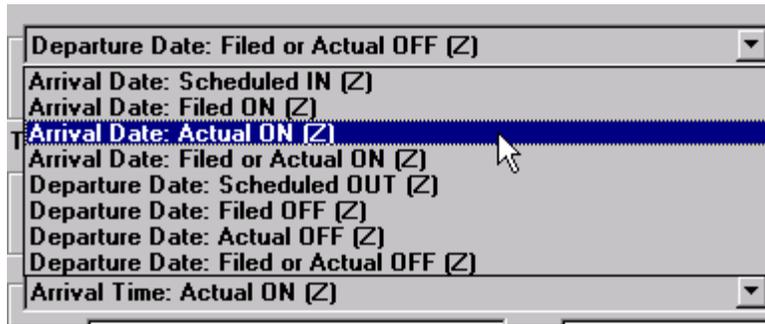


Figure 47: Arrival Date Field in the Search Criteria Tab



Figure 48: Click Here to open the Calendar



Figure 49: Calendar Available in the Date Range Field

Filed Route

In this field you can define a comma-separated list of route segments that must be contained in the filed route.

- Examples:**
- TXO** = TXO included in route
 - TXO.UKW3** = TXO.UKW3 included in route
 - JEN, UKW3** = Either JEN or UKW3 included in route

Example: We are not using a specific Filed Route in our search. Therefore, we did not enter any parameters into this field.



Figure 50: Filed Route Field in the Search Criteria Tab

Call Sign

This field identifies the call sign of the specific flight for which you are searching (e.g. DAL2276). The call sign is made up of the 3-character airline code and the flight identification number, including any leading zeroes. For example for flight UAL007, POET accepts the following values when entered: **UAL7**, **UAL07**, or **UAL007**.

Example: We are searching for a group of flights as opposed to those flights whose call sign we know. Therefore, we left this field blank in the Search Criteria tab.



Figure 51: Call Sign Field in the Search Criteria Tab

Filed Centers or Sectors

This field identifies the centers and/or sectors through which a flight plan is projected to pass. Listing a filed center and/or sector as a search parameter will limit the search to only flights that were filed to pass through that center and/or sector. For example, to limit your search to only flights that passed through the New York Center, enter **ZNY**. Likewise to limit your search to flights that passed through the New York Center sector 23, enter **ZNY23**.

Example: In our example search, we do not specify Filed Centers or Sectors.



Figure 52: Filed Centers or Sectors Field

Additional Selection Criteria

When you click **Additional Selection Criteria**, the Additional Selection Criteria window opens (Figure 53). In this window, you can further limit your search to specific data ranges. For example, if you are searching for just NRP flights or only those flights with a particular Filed ON Time, you would enter those constraints here. Additional Selection Criteria are made up of an Expression, an Operator, and a Value. You can use additional selection criteria in conjunction with each other using the And/Or pull-down menu to the left of the Expression column. The descriptions below should help you fill out your additional selection criteria.

Expression: The Expression is the actual data element for which you wish to define a range. For example, to look for flights that had a particular actual en route time, you would select Actual Air Time as your expression and then create a range for that data element.

Operator: The Operator allows you to determine the parameters for the selected Expression (e.g., Filed Air Time). The following operators may be available depending on the selected expression:

- <none>
- > (Greater than)
- >= (Greater than or equal to)
- = (Equal to)
- <= (Less than or equal to)
- < (Less than)
- <> (Either less than or greater than)

Between: When "Between" is selected, a box labeled "And" will appear to the right of the Operator. This will allow you to input the range.

Contains: Enter a value that must be in the expression for the flight to be included in your results. For example, enter **PETTY** if you are looking for flights whose filed fix list contains the fix PETTY.

Value(s) : This field defines the alphanumeric value of the selected performance metric.

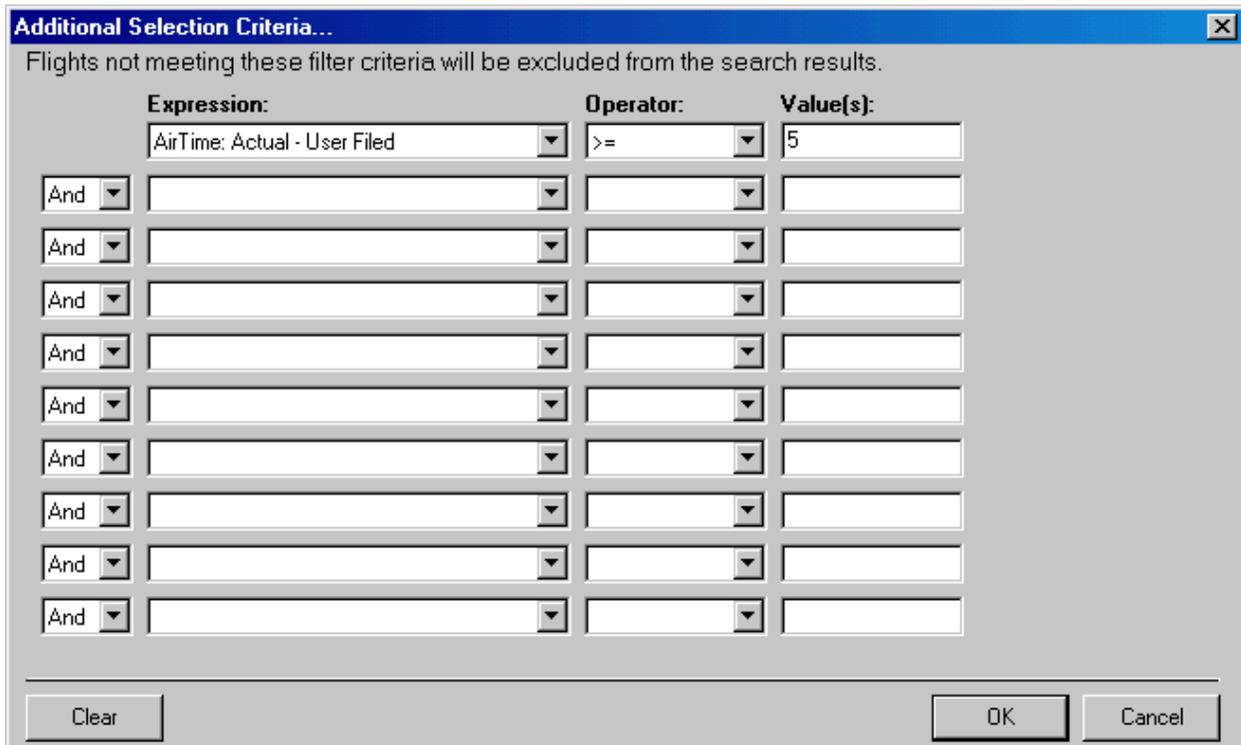


Figure 53: Additional Selection Criteria

Example: In Figure 53, we are looking for flights whose Actual and Filed air times have a difference of 5 minutes or greater. In the Additional Selection Criteria window, we used the pull-down menus to select

Airtime: Actual-User Filed and the operator for "greater than or equal to." In the Value field, we entered **5**. This means that our search results will return only those flights whose Actual-User Filed Airtime has a value greater than or equal to 5 minutes.

Keyboard Shortcuts for the Selection Criteria Tab

When entering your search parameters, keep in mind the following keyboard shortcuts. They will help you move through the search fields easily.

Tab key - Use the tab key on your keyboard to move from one search field to another.

Typing - In the Airline and Airport search fields, you can type the letters of the 3-letter code for a particular airline or airport. This will move the cursor to the selection that matches your typing. To use this feature, you must type the airport letters quickly (e.g., ATL). Otherwise, the code highlighted will jump from those codes that match the first letter you type to those codes that match the second letter you type and so on. **Note** that once the option you entered is enclosed by a square, you must select it by clicking on it or pressing the *spacebar* on your keyboard. **Do NOT press the Enter key unless you are ready to run your search.**

Flight Groupings Tab

The parameters set in the Flight Groupings tab determine how POET groups the flights in your search results. You can select both top-level flight groupings and additional sub-groupings for your flights. Note that in general we do not recommend you use sub-groupings until you have run your search results.

Top-Level Flight Groupings

There are two fields in the Flight Groupings Tab: **Available** and **Selected** (Figure 54). The Available field lists all of the Flight Grouping options that you can apply to your results. The Selected field lists all of the Flight Grouping options that you have actually chosen for grouping your search results.

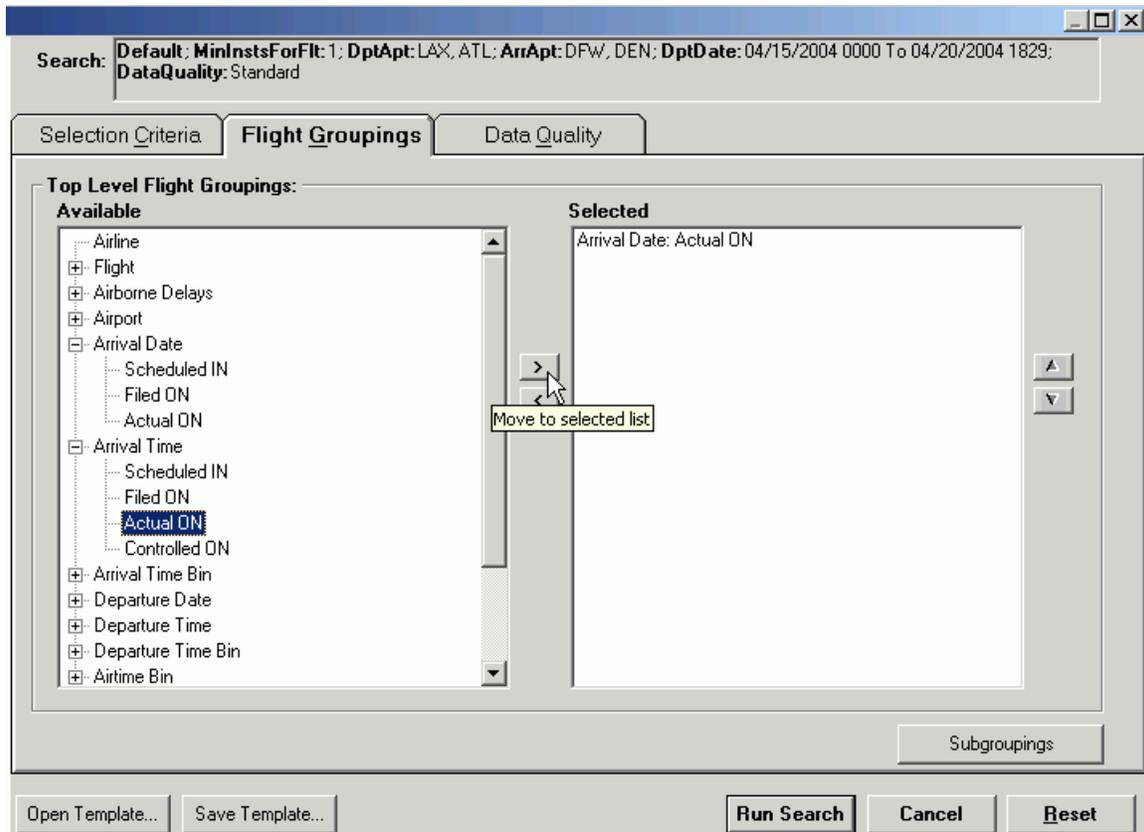


Figure 54: Adding Flight Groupings

You can move any flight grouping option (such as Filed Route) from one field to the other in one of two ways:

- Click the option and click either the right or left arrow button in the middle of the window
- Double-click the option. The option automatically moves to the other field.

Flights are grouped in your search results in the order you set in the **Selected** field. To change the ordering of the flight groups, use the up/down arrows to the right of the **Selected** field (see Figure 54). Click on an option in the **Selected** field. Then click the up or down arrow to move the option above or below the other options in the **Selected** field.

Flight Grouping Hierarchy

For user ease, the flight grouping options are bundled into related groups under a main heading. For example, any grouping option directly related to the flight arrival time is under the heading "Arrival Time." This would include information such as the Scheduled IN, Filed ON, and Actual ON times for the flight. To expand the headings and view the grouping options available under that heading, either double-click the heading itself or click the plus symbol (+) next to the heading. To hide the options under each heading, either double-click the heading itself or click the minus symbol (-) next to the heading.

Example: In our example search, we will group our search results according to Actual Arrival Date, Actual and Filed Arrival Times, and Actual Arrival Fix. Therefore, we first need to remove the unnecessary groupings from our search. In Figure 55, we have selected **Airport: Departure (actual)** to remove. Note that the cursor is on the arrow to move the grouping to the **Available** field, which will delete it from the **Selected** field. We will do the same thing with **Airport: Arrival (actual)**.

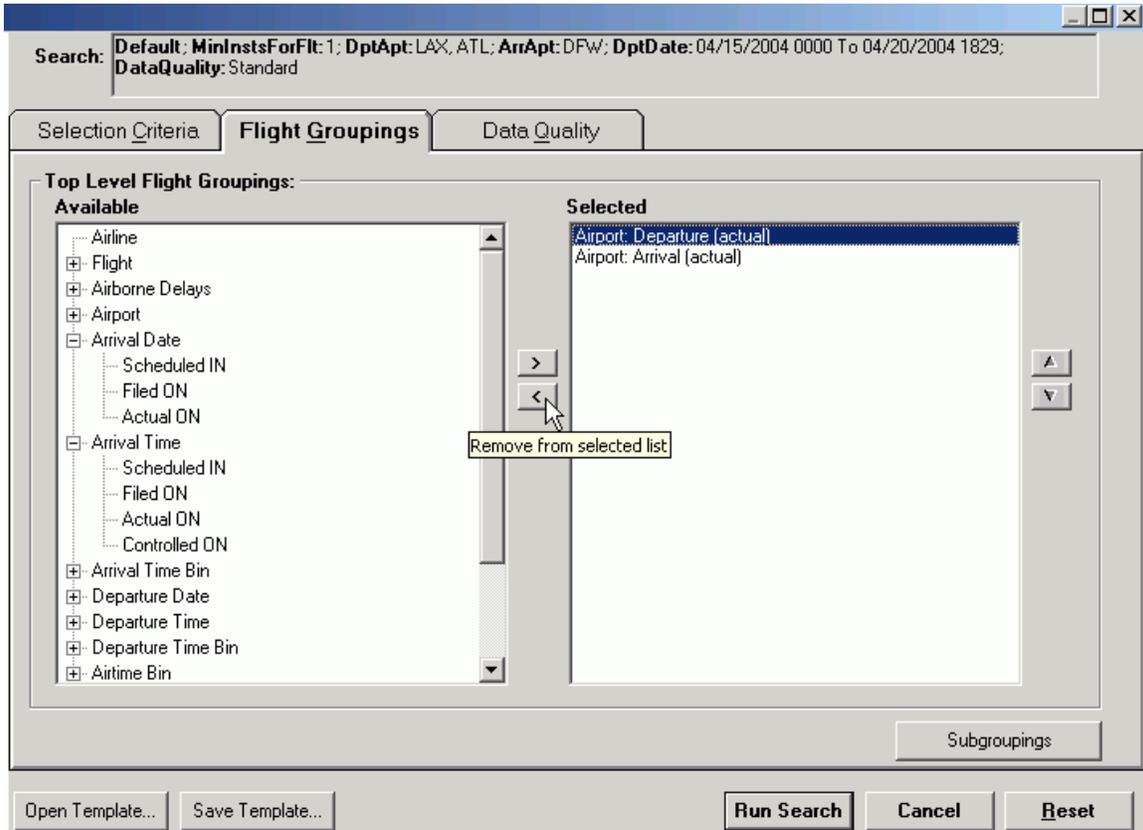


Figure 55: Remove Flight Groupings

Example: Once we remove the necessary groupings from the **Selected** field, we must choose groupings from the **Available** field to use in grouping our search results. In Figure 54, we have already placed Arrival Date: Actual into the **Selected** Field and are in the process of adding Arrival Time Actual. Note that the cursor is on the arrow to move Arrival Time: Actual to the **Selected** Field. Our final Flight Groupings in the **Selected** field will look like Figure 56.

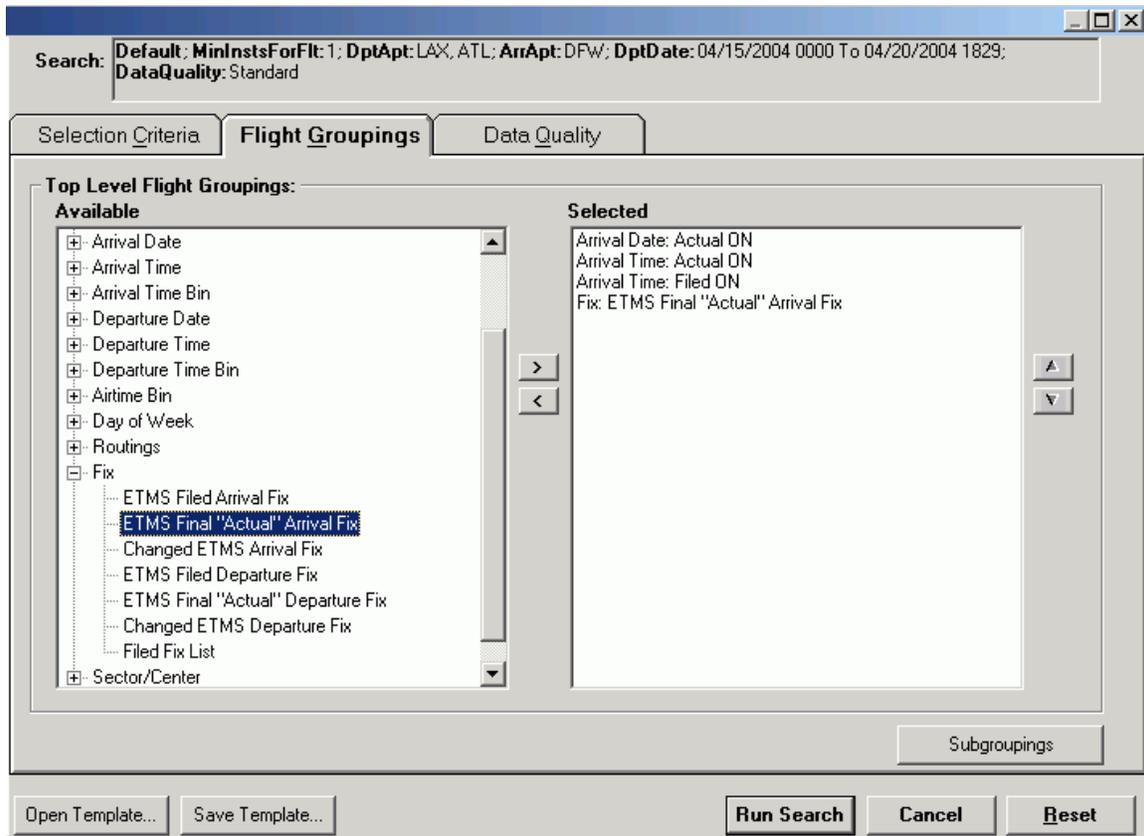


Figure 56: Selected Groupings for the Working Example

Sub-groupings

Whereas top-level flight groupings determine the primary flight groups, Sub-groupings are used to further divide the top level groups and find patterns or inconsistencies in the data. To subgroup your flights, you can click **Subgroupings** at the bottom of the Flight Groupings tab. Sub-grouping flights as part of your search criteria will apply the sub-grouping criteria to *each* top-level flight group in your search results and may result in a substantially longer search time. Additionally, your analysis most likely will not require that each flight group be sub-grouped according to the same criteria, if at all.

POET also gives you the option of applying sub-groupings *after* you complete your search. If you wait to apply sub-groupings until you view your search results, you can choose to apply the sub-groupings to specific flight groups. We recommend applying sub-groupings after you complete your search, as this is often the most efficient analysis tactic. This section describes accessing sub-grouping criteria from the Flight Groupings tab. For information on the specific sub-grouping options, see Data Mining on page 91.

Applying Sub-groupings in Search Criteria

On the Flight Groupings tab, click **Subgroupings**. This opens the Subgroupings window (Figure 57). This window works much like the Flight Groupings tab.

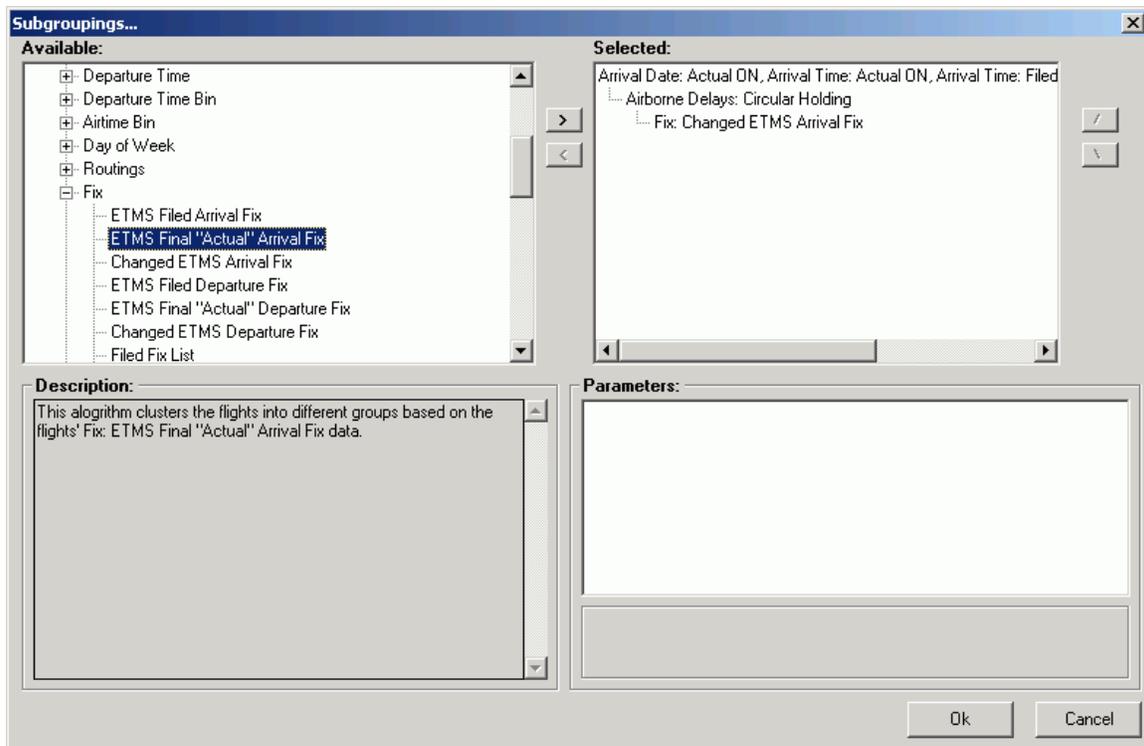


Figure 57: Subgroupings window

There are four fields in the Subgroupings window. The **Available** and **Selected** sections show which sub-grouping options are *available* for you to use and which options you have actually *selected* to use in your search. The **Description** section describes the sub-grouping option you have selected (highlighted) in the Subgroupings window. The **Parameters** field allows you to change any parameters that may be associated with the sub-grouping option you choose. The parameters vary with each sub-grouping option and in some cases are not available at all. If you can change the parameters for a particular sub-grouping option, the parameters and their current values are displayed in the text boxes in the **Parameters** field.

Only those sub-groupings in the **Selected** field will be applied to your search results. You can move a sub-grouping option between the **Available** and **Selected** fields in two ways:

1. Click on the option you wish to move. That option should be highlighted. Once the option is highlighted, click the right (>) or left (<) arrow button to move the option between the **Available** or **Selected** fields.
2. Double-click the option. If the option was **Available**, it should now be **Selected** and vice versa.

Note that those options with a plus symbol (+) to the left of the option name expand to display additional options. For example, if you want to subgroup your results by Circular Holding, you need to expand the options under the heading "Airborne Delays". Either double-click the Flight heading or click the plus symbol (+) left of the Flight option to view the sub-grouping options under that heading.

Flights are sub-grouped in your search results in the order set in the **Selected** field. To change the order of the sub-groupings, click a grouping name in the **Selected** field. Then click the up or down arrow to the right of the **Selected** field to move the option above or below the other options. The arrows are only activated when you have selected an option to move.

In Figure 57, **Circular Holding** and **Changed ETMS Arrival Fix** are selected as options by which to sub-group the top-level flight groups in the search results. In the **Available** field, ETMS Final “Actual” Arrival Fix is still highlighted. You can see the description of this sub-grouping option and also see that there are no parameters to set for this particular option.

Note: We will not use sub-groupings as search criteria. DO NOT apply any sub-groupings if you are following the example. Click **Cancel** to close the Subgroupings window without applying any changes.

Data Quality Tab

Data quality settings filter your search to remove flights that have missing or invalid data. If a flight's data does not meet the data quality setting you specify, it will not be included in your results. You can select an existing POET data quality setting or create a custom data quality setting of your own. The default data quality setting will be the setting you used in your most recent search.

Example: In our example, we will exclude flights whose planned and actual airtime differs by more than 120 minutes. (Actual airtime - planned airtime = >120).

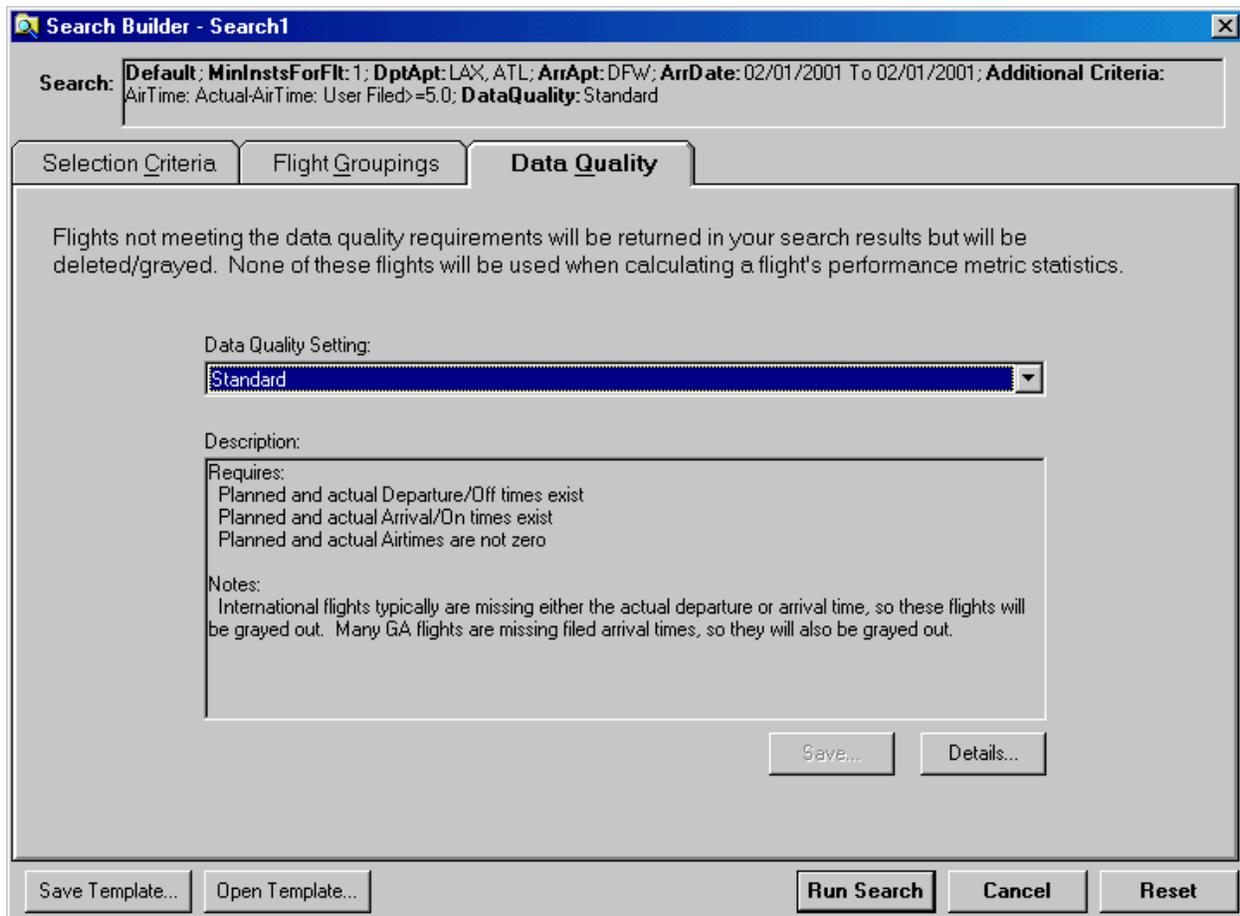


Figure 58: Data Quality Tab

The pre-programmed settings are:

Standard - Requirements for this setting: (1) planned and actual departure times exist; (2) planned and actual arrival times exist; (3) planned and actual airtimes are not zero. Note that international flights typically are missing either the actual arrival or departure time and will be grayed out in your results display.

Arrivals Only - This setting requires that planned and actual arrival times exist. Typically this setting is useful for searches that focus on arrival statistics. Note that the departure and airtime statistics may be unreliable when using this setting.

Departures Only - This setting requires that planned and actual departure times exist in the flight data. Typically this setting is useful for searches that focus on departure statistics. Note that the arrival and airtime statistics may be unreliable when using this setting.

Flights that Flew Only - This setting filters out flights for which POET has any kind of in-air data indicating that the flight actually flew (TZ message). It will not delete flights because of missing Arrival

and or Departure time information. Note that the arrival and departure statistics may be unreliable when using this setting.

None - This setting does not use data quality filters for your search results.

Viewing Data Quality Details

To view the specific filters for each data quality setting, click **Details** from the Data Quality tab. The **Data Quality Details** window appears (Figure 59), which describes the parameters for the currently selected data quality setting. In this window you can view the expressions and values defined to filter your search results for a particular data quality setting.

Example: In Figure 59, we see details for the **Standard** data quality setting. We would like to use this setting, as well as add our own filter for: **Airtime: Actual - Planned**. To do this, we will need to customize a data quality setting.

Expression:	Operator:	Value(s):
AirTime: User Filed	>	0
AirTime: Actual	>	0
Departure Time (OFF): Filed	<>	Null
Departure Time (OFF): Actual	<>	Null
Arrival Time (ON): Filed	<>	Null
Arrival Time (ON): Actual	<>	Null
AirTime: User Filed	<>	Null

Figure 59: Data Quality Details (Standard Setting)

Creating Custom Data Quality Settings

To create a custom setting for Data Quality, click **Details** to open the **Data Quality Details** window and fill in the following information to your preferred settings.

Expression: This field contains all the actual data elements you can define a quality range. For example, to look for flights that had a particular actual en route time, you would select **Air Time: Actual** as your

expression and then enter a valid range for that data element. There are several expressions available, including arrival and departure times and circular holding.

Operator: This field allows you to determine the parameters for the selected data element in the **Expression** field (e.g., **Filed Air Time**). The following operators may be available, depending on the selected Expression:

- = (Equal to)
- < (Less than)
- > (Greater than)
- <= (Less than or equal to)
- >= (Greater than or equal to)
- <> (Either less than or greater than)

Between: When "Between" is selected, a box labeled "And" will appear to the right of the Operator. This will allow you to input the range.

Value(s): This field defines the actual numeric value of the selected performance metric.

Once you change the Data Quality ranges to your liking, click **OK** to accept the changes. The **Data Quality Setting** field on the Data Quality tab should now read **Custom**.

Click **Cancel** on the Custom Data Quality Settings window to close the window without applying any changes. Click **Reset** to clear all fields.

Example: Remember, we want to filter flights whose actual air time is more than 120 minutes greater than their planned (user-filed) air time. To do this, click the Data Quality tab in the Search Builder Window. Your Data Quality setting should be **Standard**. If not, use the pull-down menu to view the Data Quality options and click **Standard**. Now, click **Details** to view the Data Quality Details window. We want to use the Standard setting with an additional modification. In the Data Quality Details window, use the pull-down menu next to a blank field under the Expression column to view all the options for Expressions and click **Air Time: Actual - User Filed** (Figure 60).

Expression:	Operator:	Value(s):
AirTime: User Filed	>	0
AirTime: Actual	>	0
Departure Time (OFF): Filed	<>	Null
Departure Time (OFF): Actual	<>	Null
Arrival Time (ON): Filed	<>	Null
Arrival Time (ON): Actual	<>	Null
AirTime: User Filed	<>	Null
AirTime: Actual - User Filed	<	120
AirTime: User Filed		
Arrival Time (ON): Actual		
Arrival Time (ON): Actual - Filed		
Arrival Time (ON): Filed		
Arrival Time Bin: Actual ON		
Arrival Time Bin: Controlled ON		
Arrival Time Bin: Filed ON		

Figure 60: Creating Custom Data Quality Settings

Example: Once you have chosen your Expression, choose the < (less than) symbol from the Operator column and under the Value(s) column enter **120** (Figure 60). Now you should have a data range that means the actual minus planned air time is less than 120 minutes. Click **OK** to accept changes and return to the Data Quality tab. Your Data Quality Setting should read **Custom**. In the next section you will learn how to save your custom setting.

Saving Custom Data Quality Settings

To save your custom parameters click **Save** on the Data Quality tab. The Save Data Quality window appears (Figure 61). Enter a name for your customized setting in the **Name** field and any text description you feel necessary in the **Description** field. POET saves the custom setting under that name. Your setting name now appears as an option in the Data Quality Settings pull-down menu.

Example: Since we added additional criteria to the Standard Data Quality Setting, we now have a setting called **Custom**. We will save our custom setting as **Air Time Difference** so that this setting can be used in the future. Click **Save** on the Data Quality Tab. In the Save Data Quality window, type **AirTime Difference** in the **Name** field. We have also added descriptive text in the **Description** field to let other users know that this setting is based on the Standard setting, with the exclusion of flights whose Air Time: Actual - Filed > 120 (Figure 61). Click **OK** to save the setting. You will be returned to the Data Quality Tab and the name **Air Time Difference** should be showing in the Data Quality Setting field (Figure 62).

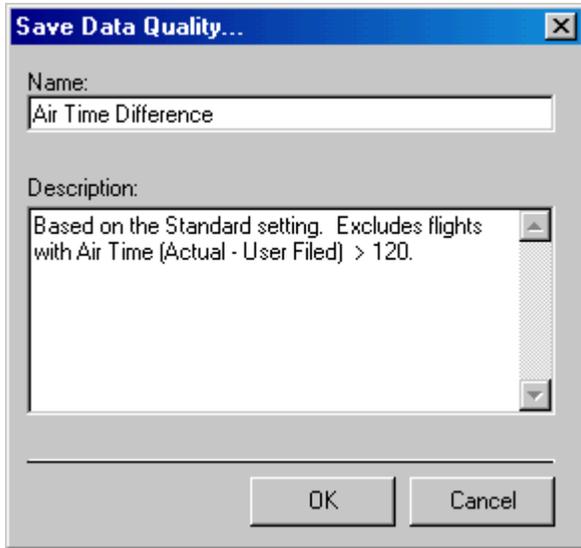


Figure 61: Save Data Quality Custom Settings



Figure 62: Data Quality Setting Now Reads Air Time Difference

Reviewing Search Parameters

Once you have entered your search criteria, grouping parameters, and data quality settings in the Search Builder tabs, you are ready to run your search. Before you run your search, you may want to review the parameters you entered. To review your parameters, look in the box marked **Search** at the top of the Search Builder Window. This box contains all the parameters you set for your search. To change any parameters, click on the appropriate tab and make changes to the fields as necessary.

Example: Note that in Figure 63, the criteria for our example search is summarized, including the information we entered in the Selection Criteria and Data Quality tabs.

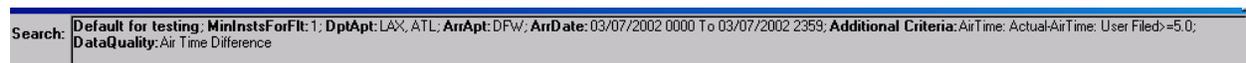


Figure 63: Search Criteria Summary

Creating an Airspace-Based Search

Airspace-based searches use POET algorithms to provide detailed information about flights that were filed or flown through specific airspace regions such as fixes, centers, sectors, or FCAs. For example, if you needed to analyze congestion in a particular sector, you would want to conduct an airspace-based search. A flight-based search is used when finding information about different flight groups into or out of particular airports. Refer to page 40 for more information on performing flight-based searches.

Starting an Airspace-Based Search

To begin an airspace-based search, select **Airspace-Based** under **Searches** on the POET Home menu. The Airspace-Based Search Builder window appears (Figure 64).

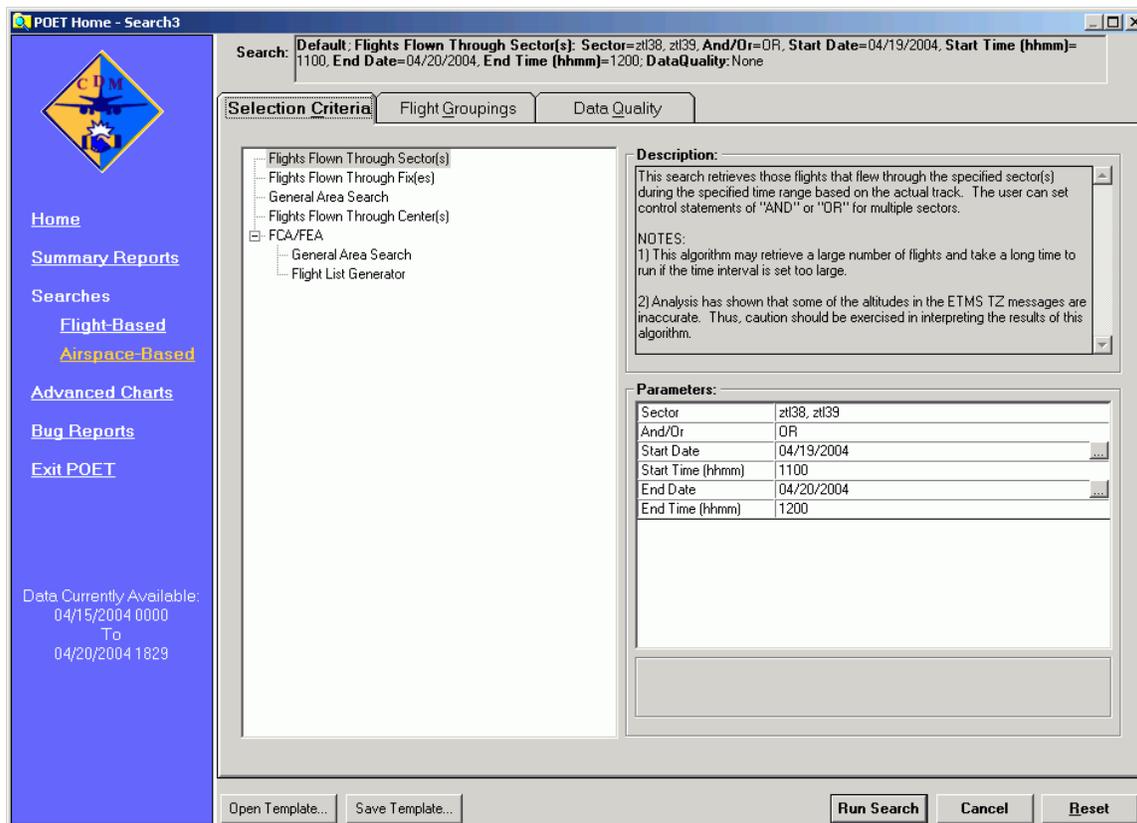


Figure 64: Airspace-Based Search Builder Window

The Search Builder window for Airspace-Based Searches contains three tabs, search parameters in the Selection Criteria tab, additional data quality parameters in the Data Quality tab, and flight grouping criteria in the Flight Groupings tab. Use as many or as few of the tabs and fields to narrow your search. Refer to Flight Groupings Tab settings and Data Quality Tab settings starting on page 50 for more information.

Search Options

In the POET 2.2 release, there are several algorithms embedded in the Airspace-Based search: (1) Flights Flown Through Selected Sector(s), (2) Flights Flown Over Specific Fix(es), (3) General Area Search, (4) Flights Flown Through Selected Center(s), and two FCA/FEA algorithms, (5) FCA/FEA General Area Search and (6) FCA/FEA Flight List Generator. Under the Selection Criteria tab, click the name of the search algorithm or query to perform.

Flights Flown Through Sector(s) - This algorithm retrieves flights that flew through the specified sector or sectors during the specified time range based on the actual track. It is important to note that analysis has shown that some of the altitudes in the ETMS TZ messages are inaccurate; therefore caution should be exercised in interpreting the results of this algorithm.

If a sector was not in its baseline state and had taken on additional FPAs during the time period of the search the results display would show the sector name and the text **(+ FPA(s) Added)**. If the sector was not in its baseline state and gave up FPAs during the specified time period, then the search results display would show the sector name and the text **(-FPA(s) Subtracted)**, next to it.

	Flights Included	Flights Deleted (By Data Quality)	Performance Metrics	Planned	Actual	Difference (Actual - Planned)	
ZTL38 (+/- FPA(s) Added and Subtracted)	269	0	AirTime (mins)	91.9	89.3	-2.6	-2.8%

Figure 65: Flights Flown Through Sector Search Results

The search results (Figure 65) and charts display the sector name and the text **(+/- FPA(s) Added and Subtracted)**. In this example, ZTL38 was not in its baseline state since it both took on and gave up FPAs between 0000Z and 1800Z on 04/18/2004. Use the Flight Groupings feature to customize search results and get more details. Refer to page 50 for more information. Use the Dynamic Sector viewer under **Tools > Data Viewers** on the toolbar to determine the changes to the sector during the specified time. Refer to page 13 for more information on the Dynamic Sector Data Viewer.

Flights Flown Through Fix(es) - This algorithm will find those flights that flew within X miles of the specified fix(es) during the specified time.

General Area Search – This algorithm searches for any specified group of filed, flown, scheduled, or amended flights that are associated with a user-defined polygon during the specified date and time range using TZs, scheduled, filed, and amended routes.

Flights Flown Through Center(s) – This algorithm searches for flights that flew through specified center or centers during the specified time range based on the actual track.

FCA/FEA General Area Search – This algorithm finds all or any group of filed, flown, scheduled, or amended flights that are associated with any FCA or FEA.

FCA/FEA Flight List Generator – This algorithm creates a flight list of all flights that actually go through a specified FCA or FEA during a specified date and time with the optional ability to specify two different times and view any changes in results. Then, you can determine which flights were impacted by that FEA/FCA at that time.

Search Parameters

The first step to create a new Airspace-Based search in POET is to define your search parameters. For Airspace-Based searches, this means you must select a search *algorithm* and set the *algorithm parameters* to conduct a search. Define your search using the Airspace-Based Searches **Search Builder Window** (Figure 66). Some algorithms may retrieve a large number of flights and take a long time to run if the date and time intervals or the size of the geographic area are set too large.

Once you select an algorithm its parameters appear in the lower right of the Search Builder window. The parameter fields are filled in with default values that you can change as necessary. Figure 66 shows the algorithm parameters for a **General Area Search**.

Parameters:	
Start Date	04/19/2004 ...
Start Time (hhmm)	1100
End Date	04/19/2004 ...
End Time (hhmm)	1200
Route Type	Flown
Altitude Filter	OFF
Min Altitude	0
Max Altitude	100000
Area Coordinates	map

Figure 66: General Area Search Parameters

Date Parameters

Start Date - POET will search for flights that flew on or after the date you enter in this field. The default date is the most recent day for which POET has data. You can type a date directly into the field in MM/DD/YYYY format or select a date from the calendar.

End Date - POET will search for flights that flew on or before the date you enter in this field. The default date is the most recent day for which POET has data. You can type a date directly into the field in MM/DD/YYYY format or select a date from the calendar.

Timestamp Date – For the FCA/FEA Flight List Generator, POET will search for flights that flew on this date. You can type a date directly into the field in MM/DD/YYYY format or select a date from the calendar.

2nd Timestamp Date (optional) – For the FCA/FEA Flight List Generator, POET may search for flights that flew on this date that differs from the original Timestamp Date specified in the field above. You can type a date directly into the field in MM/DD/YYYY format or select a date from the calendar.

Note: Timestamp Date parameters differ from the Start and End Date parameters. A timestamp date is an individual static date, and not part of a time range. The FCA/FEA Flight List Generator returns a list of flights impacted by the FCA/FEA during the timestamp selected.

SHORTCUT ALERT!

To input dates, POET provides a pop-up calendar. To access the calendar, click  to the right of any date fields. By default, the calendar displays the date currently entered in the **Date** field. Use the right and left arrow buttons to scroll through the months for which POET contains data. Click a date to enter the date into the current field.

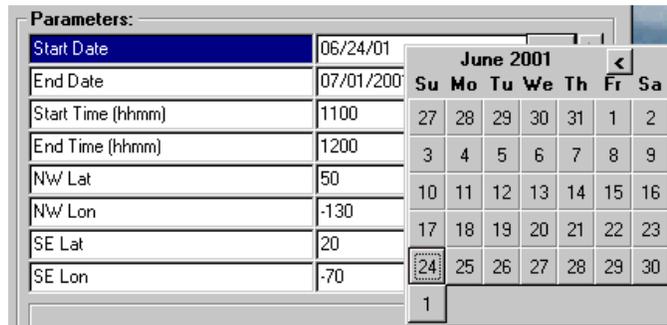


Figure 67: Airspace-Based Searches Pop-up Calendar

Time Parameters

Start Time (hhmm) - POET will search for flights that flew on or after this time until the end time for each date you specified in your date range. For example, to analyze the congestion pattern between 1200Z and 2200Z, enter **1200** in this field. Note that times are in Zulu.

End Time (hhmm) - POET will search for flights that flew on or before this time for each date you specified in your date range. From the Start Time example above, to analyze the congestion pattern between 1200Z and 2200Z, enter **2200** in this field. Note that times are in Zulu.

Timestamp Time (hhmm) – When performing a FCA/FEA Flight List Generator airspace-based search, POET will search for flights that flew at this time. For example, if you are analyzing flights around a specific FEA or FCA area at 1200Z, enter **1200** in this field. Note that times are in Zulu.

2nd Timestamp Time (hhmm) optional – When performing a FCA/FEA Flight List Generator Airspace-based search, POET will search for flights that flew at a different time from the original Timestamp Date Time you specified in the previous field. For example, if you are analyzing flights around a specific FEA or FCA area at 1200Z and 1205Z, you would enter **1205** in this field. Note that times are in Zulu.

Note: As with the Timestamp Date parameters, the Timestamp Time parameter is an individual static time and not part of a time range. The **FCA/FEA >Flight List Generator** returns a list of flights impacted by the FCA/FEA during the specified timestamp date and time.

Geographic Parameters

Area Coordinates - Some algorithms require you to define latitudes and longitudes such that they form a boundary around a specific airspace region. You can enter values by typing directly into a field or use the map to draw an airspace region with your cursor.

SHORTCUT ALERT!

To use the map, click  to the right of the Area Coordinates field. This displays a U.S. map for you to define an airspace region (Figure 68). Click at the starting location of the area polygon. Move the cursor to the next vertex and click to set the second vertex. Continue this process till you have defined all the vertices in your polygon.

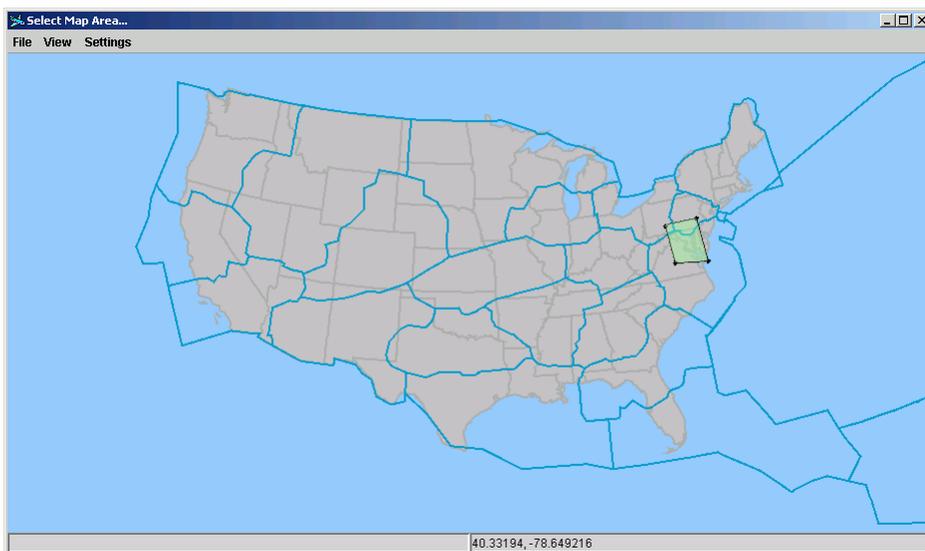


Figure 68: Airspace Region on the Map

Double-click to complete your polygon. The map disappears and the latitude and longitude fields are automatically filled in the **Area Coordinates** field with the values that match the area you defined.

Once you complete your polygon, a pop-up window appears (Figure 69). Click **Yes** to accept your selection of coordinates and use them in your analysis or click **No** to clear the map and draw a new polygon.



Figure 69: Customized Area Polygon Coordinates

Sector – Enter the specific sector code or sector codes whose traffic is part of your analysis. The sector name should comprise the 3-character center code and sector number. For example, ZOB48 indicates that you are interested in the traffic that transits ZOB center's sector 48. Separate sector names with a comma or a space in between, for example, **ZOB48, ZOB49**. Use the AND or the OR option in your search parameters when analyzing multiple sectors.

Center – Type the 3-character center code or center codes whose traffic is part of your analysis. Separate center names with a comma or a space in between, for example, **ZDC, ZTL**. Use the AND or the OR option in your search parameters when analyzing multiple centers.

FixName – When performing a Flights Flown Through Fixes search, enter the name of the fix or fixes whose area traffic is part of your analysis. Separate fix names with a comma or a space in between, for example, **PALEO, SWANN**. When selecting multiple fixes, use the AND or the OR option when analyzing multiple fixes.

Threshold (miles) – Enter a value equal to the number of miles within a certain geographic point to define a traffic region. For example, if you are studying traffic within a 5 mile radius of a certain fix, enter **5** in the Threshold field.

FCA/FEA – When performing a FCA/FEA General Area Search or a FCA/FEA Flight List Generator Search click  to the right of the **FCA/FEA** field to open the Find FCAs/FEAs window and locate the specific FCA or FEA (see Figure 70). Enter an FCA/FEA into the **Name** field and click **Find Now** to find the desired FCA/FEA, or leave the Name field blank and click **Find Now** to find all FCAs/FEAs that fall within the selected time range. Select the FCA/FEA name from the list and click **OK**. The FCA or FEA details are automatically inserted in FCA/FEA parameters field. Refer to POET Tools on page 15 for more information on the FCA/FEA Data Viewer.

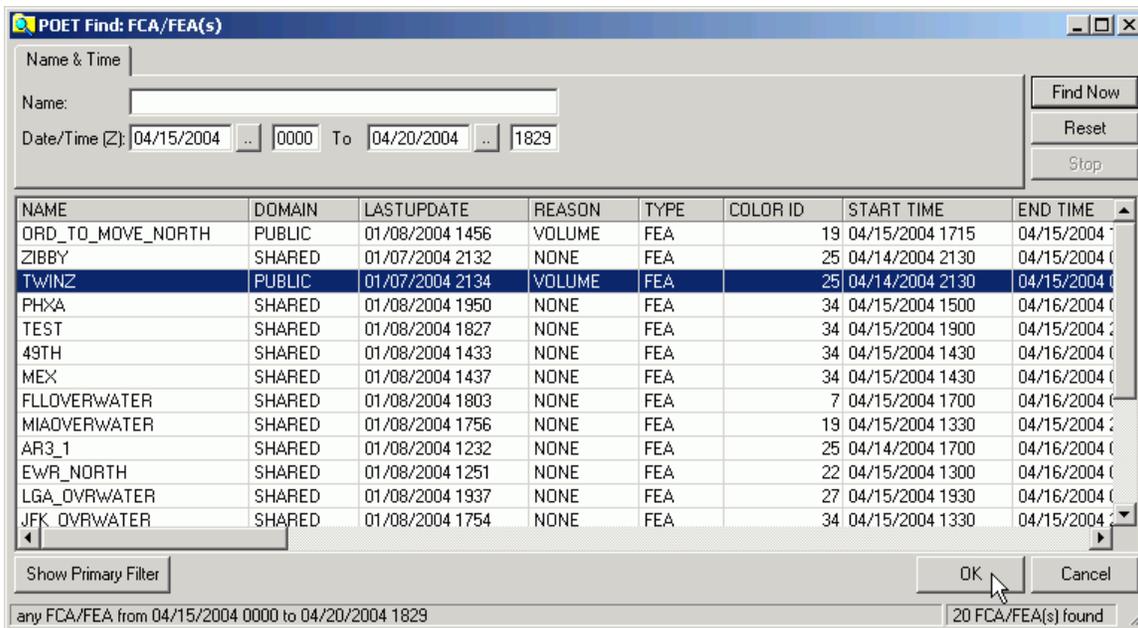


Figure 70: POET Find: FCA/FEA(s) Window

Altitude Filter – Select the Altitude Filter field. When highlighted, click the pull-down menu to the right of the Altitude Filter field. Select one of the two options to turn the Altitude Filter on or off. When you turn on the Altitude field, use the Minimum and Maximum Altitude fields below this field to narrow your search.

Min and Max Altitude – Enter the minimum and maximum altitudes for Flights Flown Through Fix(es) and General Area Searches. Note that POET does not automatically assume the altitude value entered is in thousands. If you enter **34**, POET will search for flights that utilize an altitude of 34. To enter thirty-four thousand in the Maximum Altitude field, you must enter **34000**.

It is important to note that analysis has shown that some of the altitudes in the ETMS TZ messages are inaccurate; therefore caution should be exercised in interpreting the results of the altitude filter.

Route Type – Select the Route Type field. When highlighted, type **F** for **Flown** or **Filed**, **S** for **Scheduled**, or **A** for **Amended-Latest** or **All** for General Area Searches, or click the pull-down menu to the right of the **Route Type** field and select the parameter you want.

FCA/FEA Filter – When performing a FCA/FEA General Area Search or a FCA/FEA Flight List Generator Search, select the (primary) Filter field. When highlighted, either type **O** for **ON** or **OFF**, or click the pull-down menu to the right of the Filter field, to consider the primary filter in your search results. Select one to either turn the FCA/FEA Filter option on or off.

Running and Saving Reports, Charts, or Searches

Even though POET provides several functions from its Home window, including Summary Reports, Advanced Charts, and Searches, each of these functions is meant to assist you in analyzing the NAS. Although it may occur in the background, each of the POET functions requires POET to conduct a search for data that fit the parameters you input. To view the results, you need to *run* your search. Once you run your search, you can choose to save that search for later use. This chapter discusses the details of running and saving a search, as well as opening a saved search and working with search templates. Note that in this chapter, the word "search" refers to the search POET must conduct to perform the function you choose (Summary Reports, Advanced Charts, or Flight-Based or Airspace-Based Searches).

Running Searches

After you have specified all the parameters for your POET function, you are ready to actually run the search. Note that the broader the parameters you set, the longer the search will take and the more flights you will receive in your search results. To run a search:

- Click **Run Search** at the bottom right of a Search Builder window or press Enter on your keyboard.

As POET is running your search, you should see the Executing Search window (Figure 71). This window tells you the percentage of your search that has been completed, as well as gives a summary of your search criteria. Because of the size of the database, the search may take several minutes.

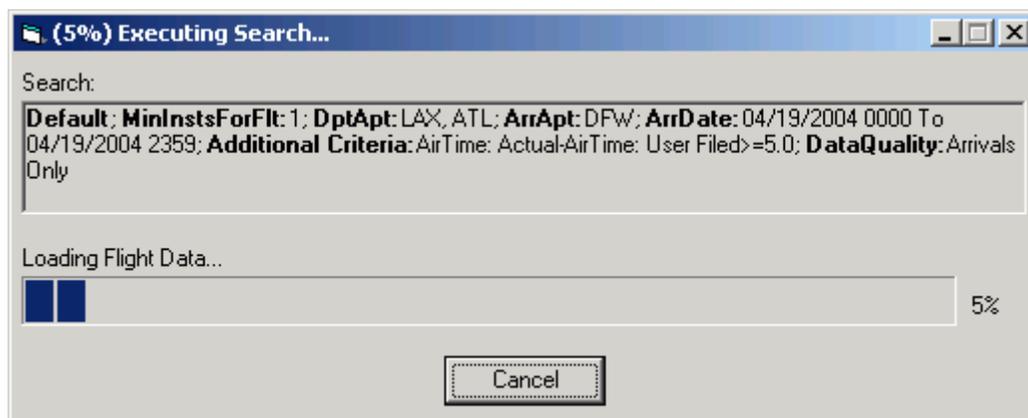


Figure 71: Executing Search Window

If your search is successful, your results should appear in the appropriate format according to the function you selected (i.e. if you ran an Advanced Chart, you should see your results in the form of a chart).

Interrupting a Search

You can always interrupt a search at any point during your POET session by pressing **Esc** on your keyboard or clicking **Cancel** on the Executing Search window. You can use this to stop a search from the Search Builder Window or any process in the course of viewing data in your search results.

No Search Results

If no flights match your search parameters, POET will give you a warning message (Figure 72). Click **OK** to return to the Search Builder Window. Using the Search Builder Window, you will need to broaden your search parameters (e.g., larger departure date range, more departure and arrival airports, etc.) to yield results.

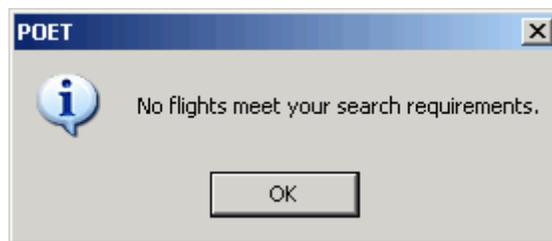


Figure 72: No Matching Record Dialog Box

Large Search Results

If your search parameters are very broad, POET will warn you that the search may take a long time to complete. The warning will appear any time a search is estimated to take a few minutes to complete. Note that the actual search time can take more or less time than what the warning dialog anticipates. POET cannot exactly determine the search time without actually running the search. The warning dialog gives you the option to abandon your search and go back to the Search Builder Window to adjust your parameters.

Adding Notes to Your Search

When you save your search, you can attach a note with the search. The note will appear the next time you open the search. This can serve as a convenient reminder if you close a search that you will be working with later. However, please note that once you close the note window, the note is deleted.

You should create a note right before you save a search. To save a note with a search, select **Edit > Insert Note** from the main menu or click **Note** on the POET toolbar. Enter text in the Notes window (Figure 73). Keep the Notes window open, then save and close your search.

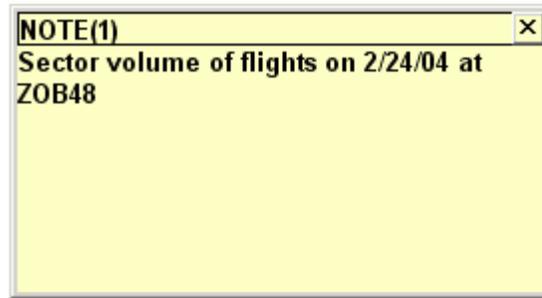


Figure 73: Sample Note

Saving Searches

You can save a search you have just run. To do this, you must be in the **Search Results display**, which appears after you have actually *run* a search. Note that when you save a search, POET creates a folder called **My Searches** in the POET directory. This is the default folder for saving your searches. If you do not want your searches saved in this folder, make sure you define a new file location when you save your search.

To save a search for the first time or save your search under a new file name: Click **File > Save As...** A pop-up window appears. Enter a file name in the **File name** field and click **Save**. By default, POET will name Summary Reports and Flight-Based or Airspace-Based Searches as **Search X.sch**, where X is a numerical value equal to the number of searches you have run. It will name Advanced Charts as **Chart X.sch**, where X is a numerical value equal to the number of Charts you have run.

To save changes to an existing search, click **Save** on the POET toolbar, or select **File > Save**.

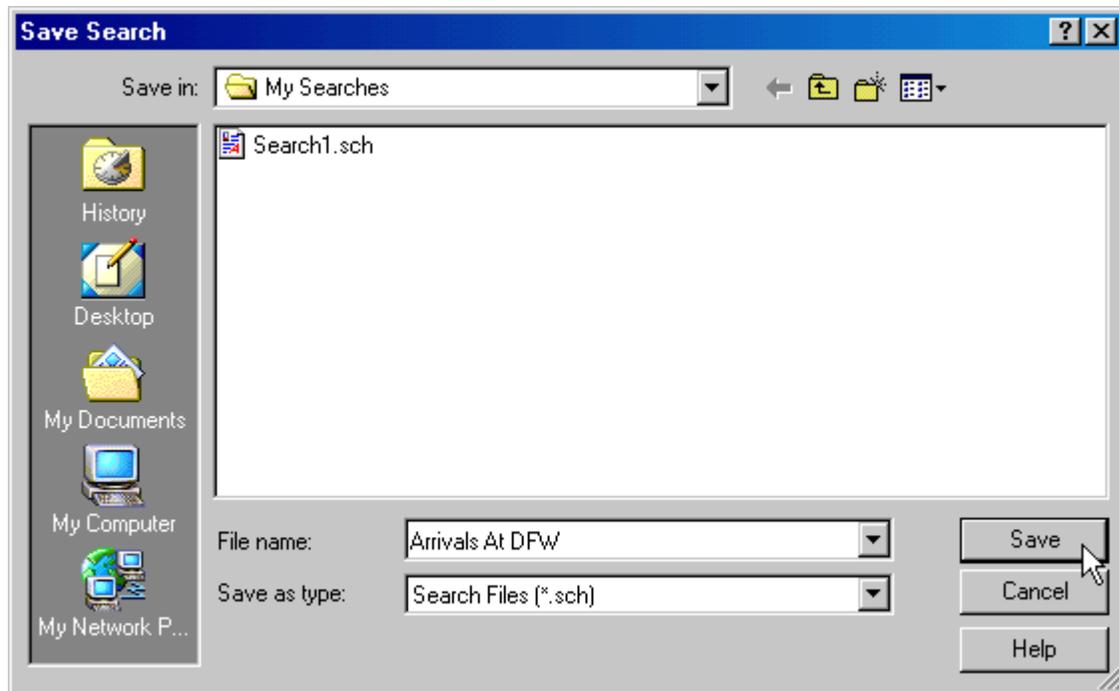


Figure 74: Save File (Windows/NT)

Saving Summary Reports

When you generate a Summary Report, POET generates a search and displays the results in a 3-window Search Results display that is the same as the results for an Airspace-Based or Flight-Based search. Using the **File > Save** option described above will save only this portion of the Summary Report as an ".sch" file.

The Summary Report also generates several HTML files, which make up the actual report. This portion of the Summary Report is automatically saved to the My Reports folder in your POET directory. The main page of your report is saved with a name that matches the type of Summary Report you generate. The rest of the report pages are stored in a folder with the same name as the main report page. For example, in, Figure you can see that the user generated a Summary Report on Changed Arrival Fix on 07/10/2001. The main page of the report is named **ChangedArrFix.htm**. The pages that supplement that report are in the folder named "**ChangedArrFix_res**."

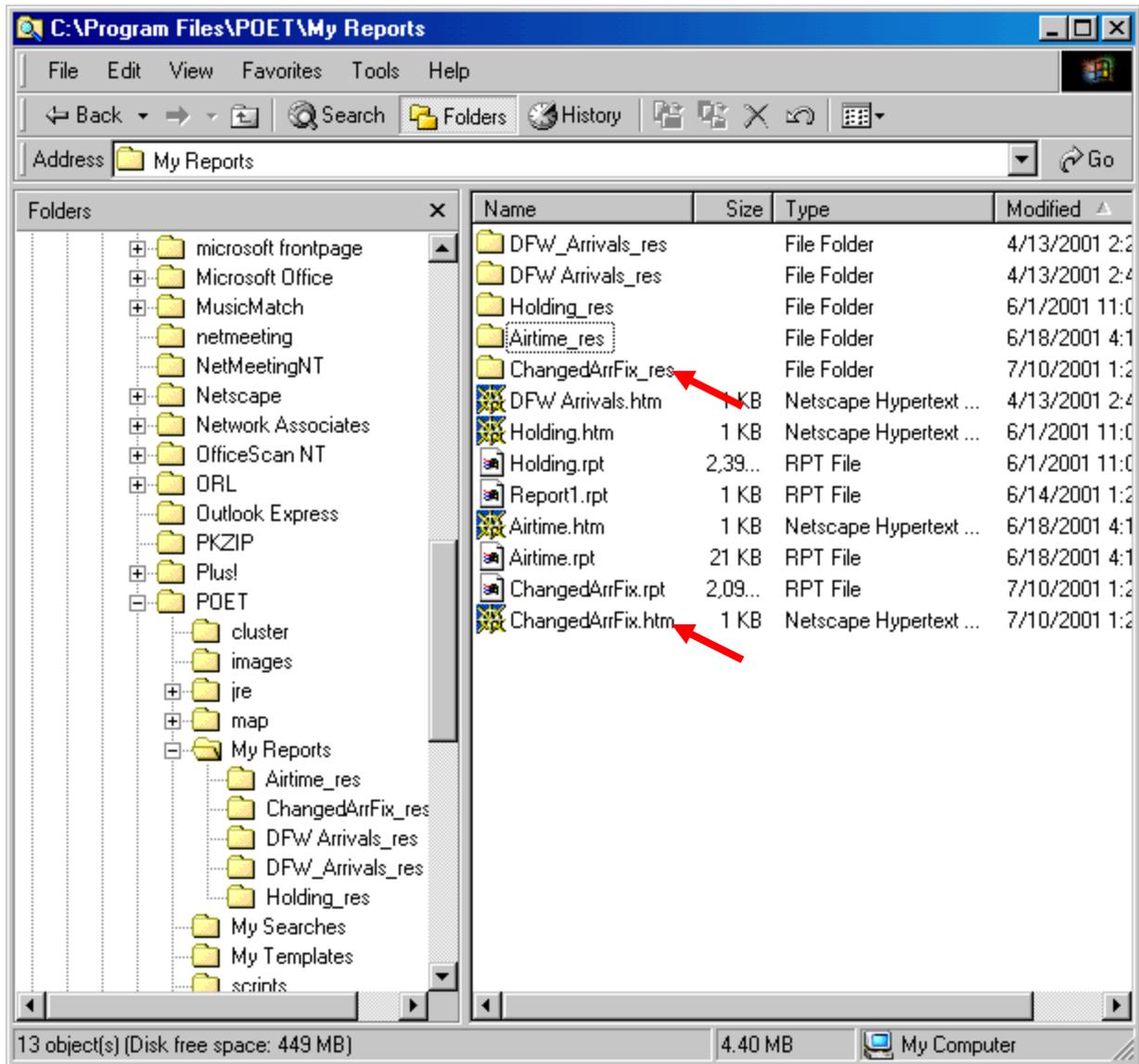


Figure 75: Saved Summary Reports in the POET Directory

Opening Saved Searches

Once you have saved a search, you can always open that search in another POET session. To open a previously saved search, click **Open** on the POET toolbar, or select **File > Open Search**. The Open Search window appears (Figure 76). The window will open your POET folder called My Searches by default. Select the appropriate search file and click **Open**. You will see either three search results window or a single chart, depending on the POET function you saved.

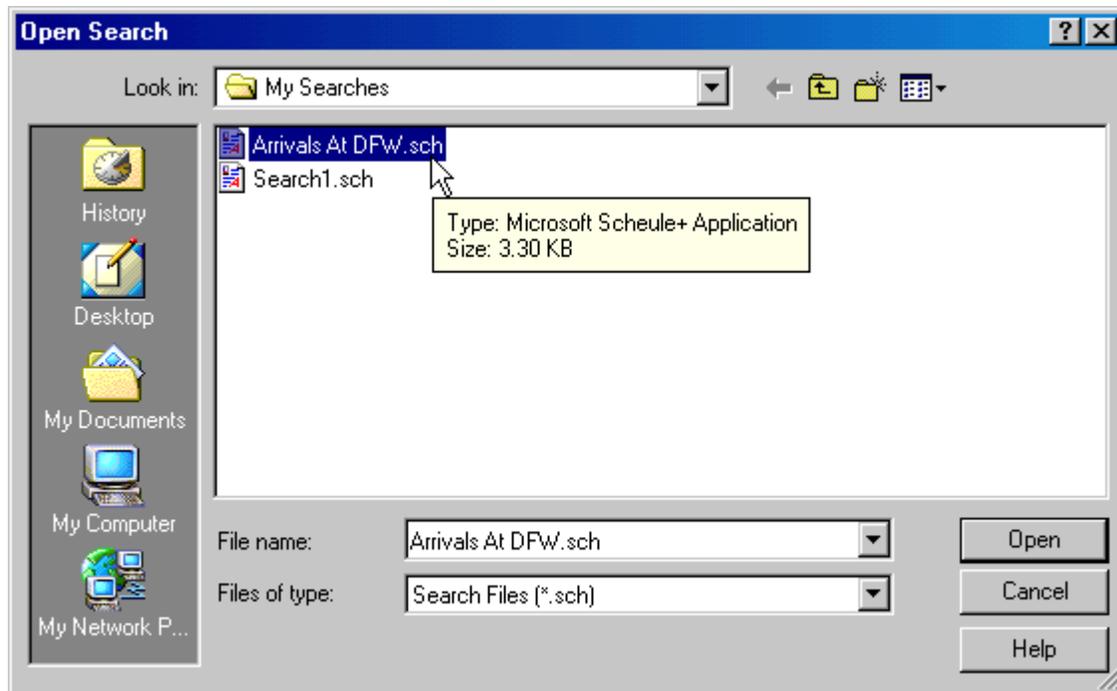


Figure 76: Open a Saved Search (Windows/NT)

Opening Summary Reports

To open the search portion of a Summary Report, follow the directions above.

To open the report portion of the Summary Report, you will need to open the files using an Internet browser. Remember that POET saves the Summary Report as HTML files. Use your menu to explore your computer and open the HTML file of the Summary Report you want. Your Summary Report files are found in the **My Reports** folder in your POET directory.

Changing Search Setup

In some cases you may want to change the POET default settings for your search, search results, or log files. To enter new default settings, click **Edit > POET Properties**. The POET Properties window opens. Figure 77 illustrates the default settings for POET Properties.

Example: Keep the default values in the POET Properties window.

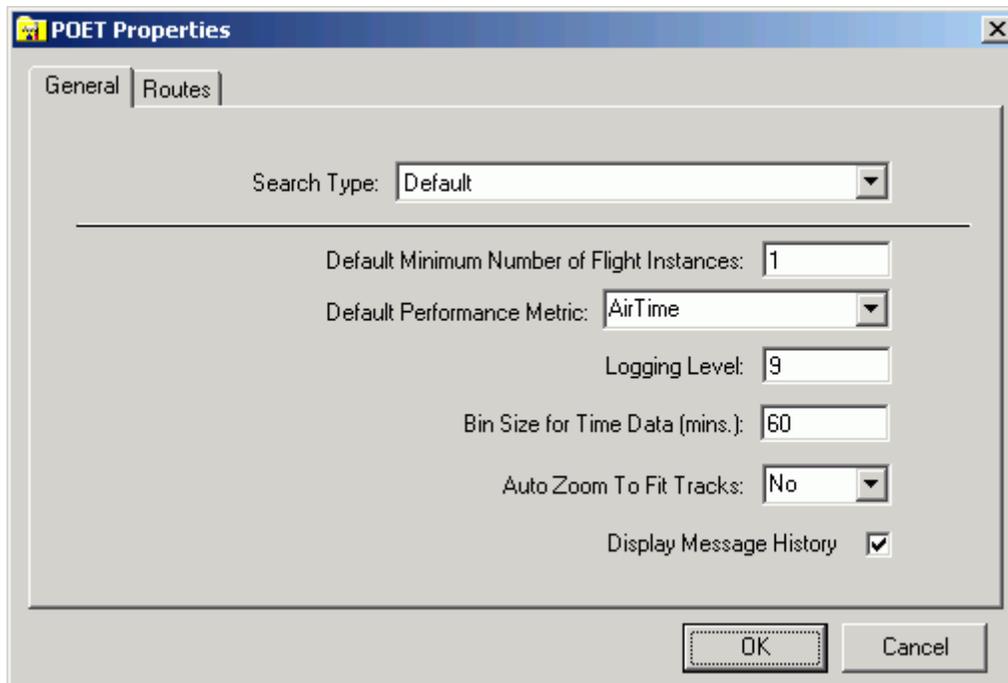


Figure 77: POET Properties General tab

From the General tab of the POET Properties window, you can change the following:

Search Type – In some cases you may have more than one search type available. Most users will not use this feature. However, if you do have multiple search types available, click to pull-down the Search Type menu and click the desired option to select it.

Default Minimum Number of Flight Instances – In the Search Builder window's Selection Criteria tab, the default minimum number of flight instances defines how many flights must be present to make up a flight group in the search results. The default value is 1. To change the setting, type a new value into this field.

Default Performance Metric –The default performance metric will be displayed automatically in your search results table. Other metrics are always available, but hidden until you choose to display them. To select a default performance metric, click to see the pull-down menu and click the option you want.

Logging Level – The logging level affects POET's error logging. This field defines the amount of messages included in the log.txt file while you use POET. Defining a logging level does not affect POET's appearance. You will probably not need to change this value unless directed by POET Technical Support when help diagnosing a problem is needed. To change the logging level, type a value between and 1 and 10 into this field.

Bin Size for Time Data (mins) – The bin size (in minutes) will change the bin size for any data elements that include a time bin option (these are found in the Flight Groupings tab in the Search Builder window). For example, if you want your flights grouped according to their Arrival Time Scheduled Bin and your

default bin size is 60 minutes, POET will group your flight results according to the hour in which they arrived. As an example, all flights that arrived in the 1200 hour would be grouped in the same "bin." To change the default bin size, type a new value into this field.

Auto Zoom to Fit Tracks – Use the pull-down menu to select **Yes** or **No**. Selecting **Yes** will force the POET Map to automatically set its display to zoom in as closely as possible on flight tracks as soon as tracks are displayed. Selecting **No** will prevent the POET Map from performing any zoom automatically. Instead, you will have to manually set the zoom level.

Display Message History – Click the checkbox to have POET display the flight messages received by ETMS.

In the Routes tab of the POET Properties window, you can change the display settings of flight routes on the POET Map by selecting the route type from the list provided and then selecting the line width and/or color type.

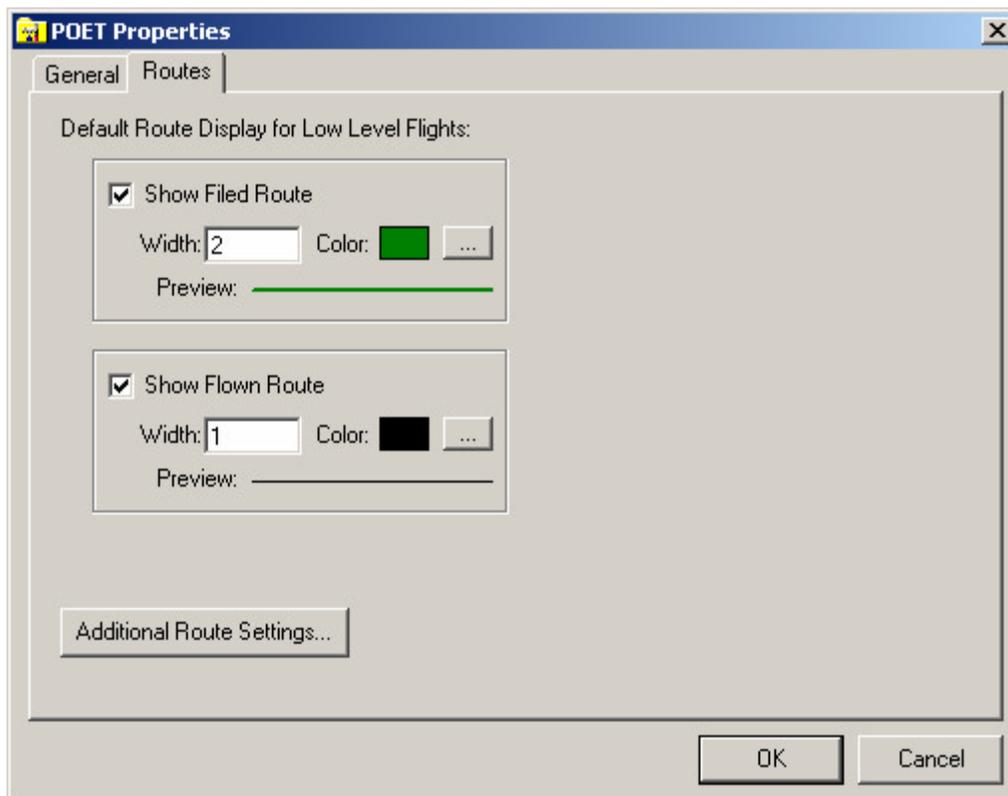


Figure 78: POET Properties— Routes tab

The default is to display the flown and filed routes on the POET Map when your search results appear. To have POET automatically not display these flights, clear the Show Filed Route and Show Flown Route checkboxes. Refer to page 126 for more information on viewing routes on the POET Map.

To set in detail which filed and flown routes to automatically show by subgroups, click the Additional Routes Settings button in the lower right, to open the Subgroup Route Settings window shown in Figure 79. Most users will not require this functionality.

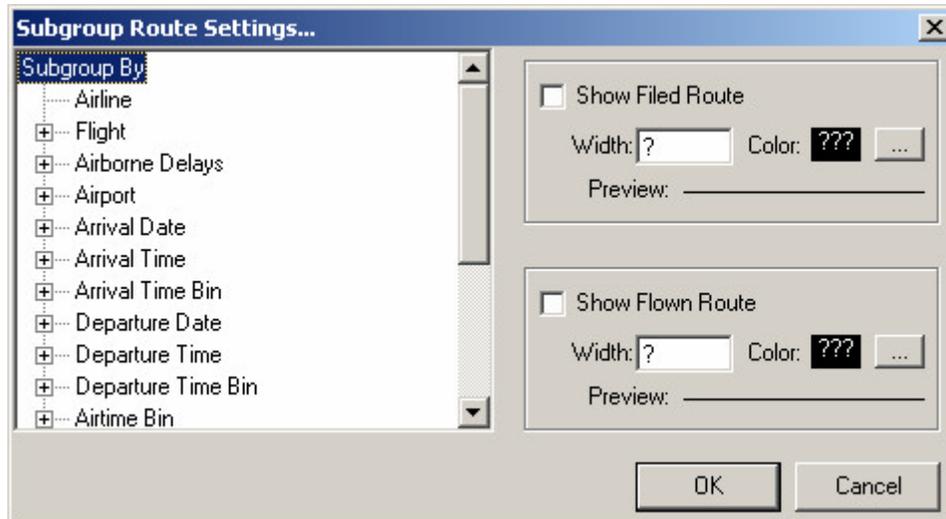


Figure 79: POET Properties— Additional Routes Settings . . .

Using Search Templates

Search Templates are a function specific to flight-based searches and allow you to save your search parameters so you can run the same search without reentering the parameters. Unlike the Save Search option, saving a search template saves only the parameters you set for your data in the Search Builder window without actually saving the search results. Likewise, when you open a search template, POET opens the Search Builder window with the template parameters automatically set. However, you will still need to run the search to view your results.

Saving a Search Template

If you want to reuse your search parameters in the future, you can save your search template before you run your search. However, if you are already in the Search Results display in POET, you can use **Back** on the POET toolbar to return to the Search Builder Window and save your search template.

To save your search criteria as a template, click **Save Template** on the bottom-left of the Search Builder window (Figure 76). You can save your search criteria at any time by clicking this button.

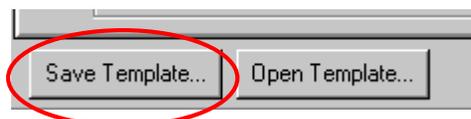


Figure 80: Save Template Button

A Save Search Template window opens. Note that when you save a search template, POET creates a folder in the POET directory called **My Templates**. This becomes the default location to which your templates are saved. To choose another location for your template file, you must browse your computer directory. Enter a file name for your search template and click **Save**. If you name the file **Default**, it becomes your default template and those parameters will automatically appear when you click **Reset** on the Search Builder window or start a new search.

Example: In your example search, navigate back to the Search Builder window. Click **Save Template**. When the Save Template window opens, enter **Arrivals at DFW** into the file name field and click **Save** (Figure 81).

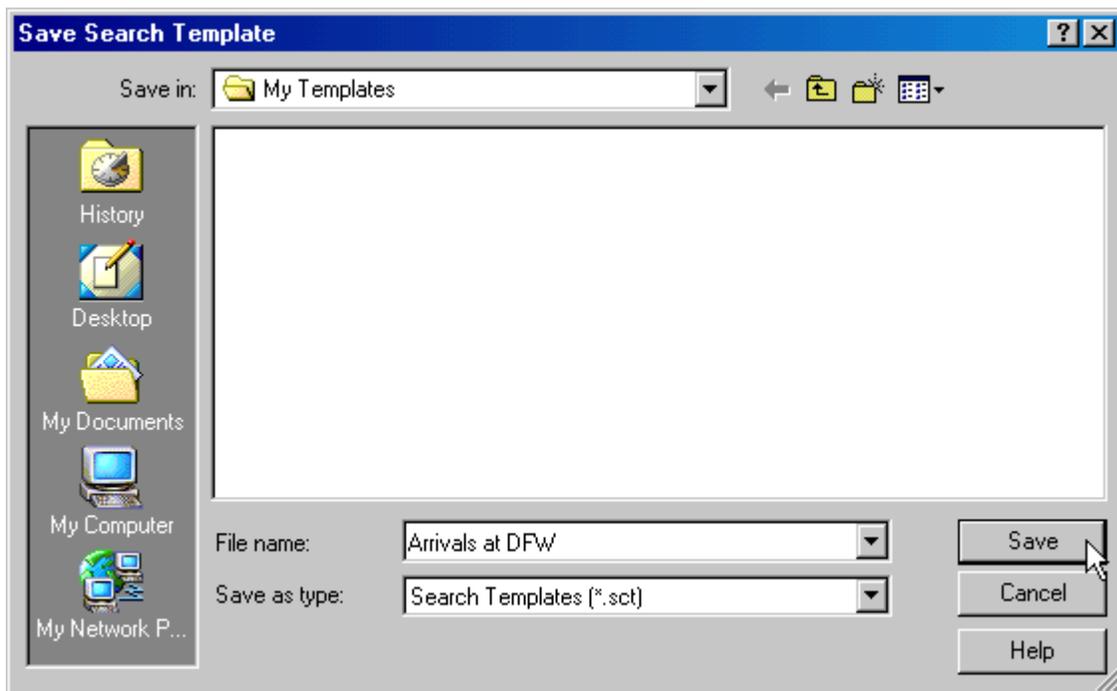


Figure 81: Save Search Template

Opening Search Templates

Instead of entering search and grouping parameters for a new search, you can use a previously saved template that contains the parameters you want. Click **Open Template** at the bottom of the Search Builder window (Figure 82).

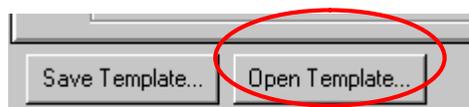


Figure 82: Open Template Button

POET will open the Search Builder window with all the parameters from the template entered in the appropriate fields. You can make changes to any of the search or grouping parameters *after* you open the template.

Example: To use your search criteria again, open your **Arrivals at DFW.sct** file that you saved in the Flight-Based Searches example. Click **Open Template** in the Search Builder Window. When the Open Template window opens, select **Arrivals at DFW.sct** and click **Open**. (Figure 83).

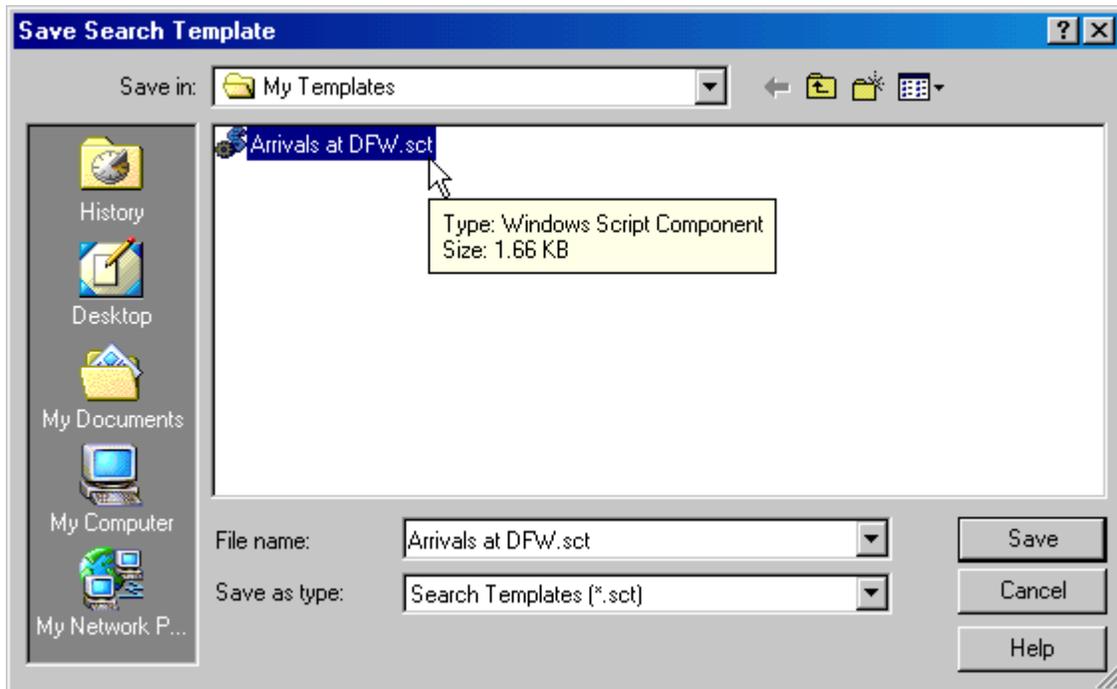


Figure 83: Open Search Template

Viewing History of Searches

Because you may have run any number of functions during a single POET session, it is sometimes useful to go back to view a previous POET screen from one of your earlier searches. You can do this through the **History** function. You can access the History function in one of two ways:

- Select **View > History** from the POET menu.
- Select **History** from the POET **Tool Bar**.

A window appears on your screen listing the searches run in POET by name (Figure 84).

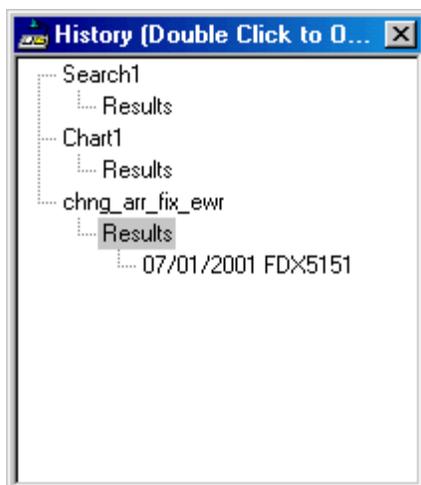


Figure 84: History Window

In the History window, each screen you viewed in a previous search is listed under its search name. If you did not save your searches under a particular name, your searches will be listed as Search 1, 2, 3, etc. Advanced Charts will be listed as Chart 1, 2, 3, etc. Double-click any search name or any of the search screen names to pull up that particular screen for the search under which it is listed.

Double-clicking the *search name* (e.g. Search 1) will take you back to the Search Builder Window for that search. From this display, you could review the search parameters you used for the search.

Likewise, let's say in Search 1 you searched for all flights on 12/16/2000 for XYZ airline. If you pulled up the Flight Details window for XYZ1234 you would see '12/16/2000XYZ1234' listed under Search 1. Double-clicking that listing would bring up the Flight Details window again.

Example: Note that in Figure 84, we have run two searches and an Advanced Chart. You can tell from the History window that we ran a search named **chg_arr_fix_ewr**, viewed the results, and looked at flight details for FDX5151 on 07/01/2001.

Viewing Search Results

When you run a Summary Report, Flight-Based Search, or Airspace-Based Search, POET displays the results in the Search Results window. The Search Results display is made up of three windows that each gives a different view of your search results: The Search Results Table, Search Results Chart, and the Search Results Map. You will use the Search Results display windows to not only look at your results, but also analyze those results. This chapter discusses viewing the results in the Search Results table and the detailed flight information POET contains. To learn more about analysis using the table, charts, and map, see later chapters on those subjects.

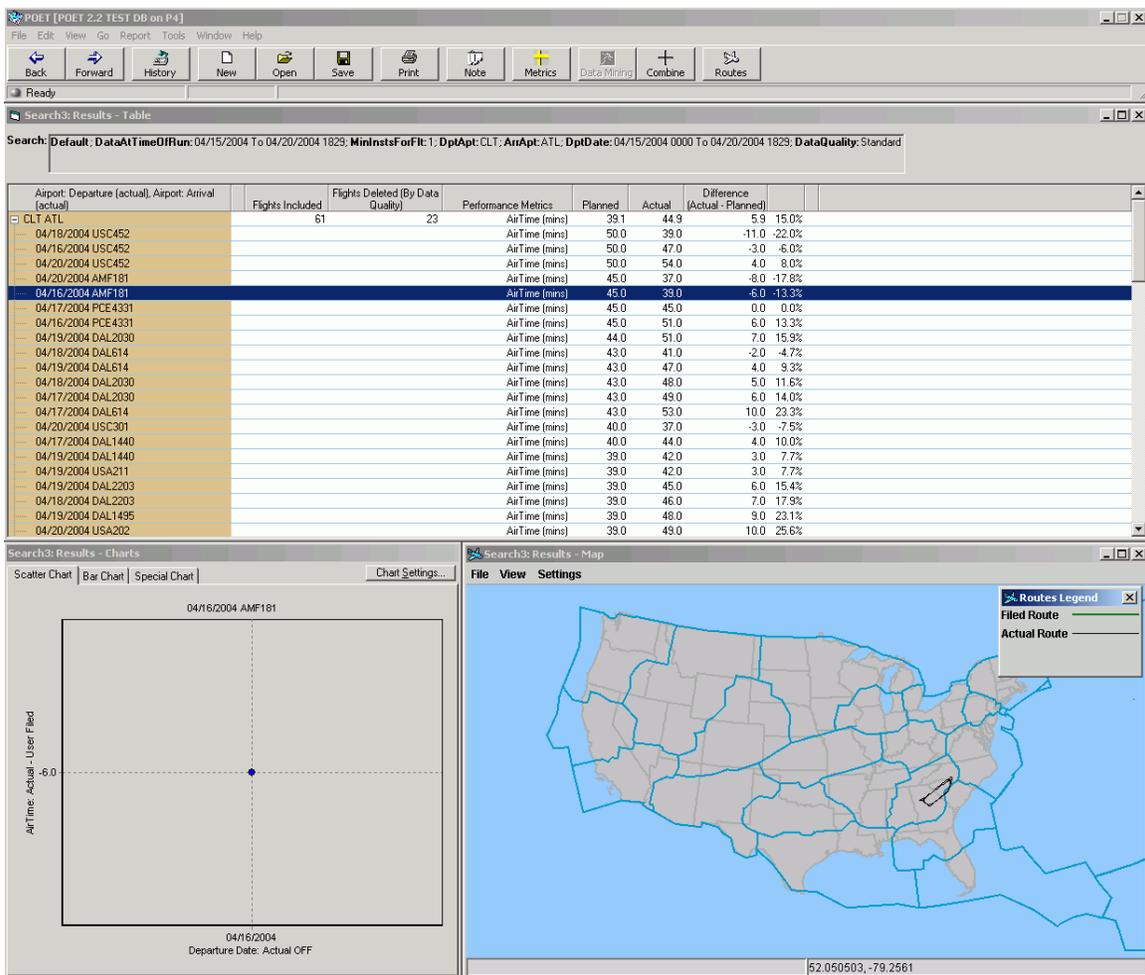


Figure 85: Search Results Display

Search Results Table

The Search Results table is the top window in the Search Results display (in the POET default view). Flights that match your search criteria are listed in rows and grouped according to the flight group parameters you set in your search. You can expand the rows to "drill down" to a particular flight as well

as delete and reinstate flights in the table. You can customize the way you view your results in this window as well as view detailed information for each flight using POET's customization functions.

Customizing the Search Results Table

In the Search Results table, your flight results appear as flight groups in rows ordered from best to worst in terms of the difference between performance metrics. You can further modify your display by changing column spacing, sorting the data, and eliminating or reinstating flights in the table.

Changing Column Size

Drag the edge of a column header in order to change the column size. To do this, place your mouse pointer on the divider of the column heading that you want to resize. A double arrow (\ll) will appear. You can then widen or narrow the column by dragging it until the columns are the desired size. See Figure 86 for an example of how to change column sizes.



Figure 86: Changing Column Spacing

Sorting Column Data

Double-click on a particular column name to sort the results according to that column in either ascending or descending order. When the column contains more than one field to sort by, double-clicking on the column name will pop-up a small window that lists the fields in the column. Click the particular field you want to use for sorting. In Figure 87, the user has sorted their flights according to Planned Air Time. Notice that the results are sorted in ascending order, from those flights whose Planned Air Time is unavailable, to those flights with the longest Planned Air Time.

Planned
<null>
110.0
110.0
116.0
119.0
123.0
144.0
145.0
148.0

Figure 87: Sort by Air Time (Planned)

Viewing Flight Groups

When the Search Results Table first appears, flights meeting the criteria that you designated in the Selection Criteria tab will be displayed in groups according to the parameters you selected in the Flight Groupings tab.

To get information about individual flights, you must drill down to the flight instance level. To do this, simply double-click the row when a plus symbol (+) appears the left of the flight group. You will then see individual flights listed in each row according to date and call sign.

Airport: Departure (actual), Airport: Arrival (actual)	Flights Included	Flights Deleted (By Data Quality)	Performance Metrics	Actual	Difference (Actual - Planned)	
[-] DCA PHL	4	0	AirTime (mins)	28.3	8.3	41.3%
02/07/2002 USA2425			AirTime (mins)	29.0	11.0	61.1%
02/07/2002 USA751			AirTime (mins)	30.0	11.0	57.9%
02/07/2002 USA949			AirTime (mins)	28.0	6.0	27.3%
02/07/2002 USA1145			AirTime (mins)	26.0	5.0	23.8%

Figure 88: View Flights that Make Up a Flight Group

Example: In Figure 88, we clicked on the flight group at the top of the Search Results Table after we ran our search. This flight group was only made up of 4 flights, which are listed directly below the flight group heading.

To hide the individual flights, double-click the flight group heading that contains those flights.

Flight Tracks on the Map

Once you expand the rows in the Search Results Table to reveal individual flights, the flight tracks for that group of individual flights will appear automatically on the map. Note that while in most cases, flight tracks do not appear until you get to the flight instance level in the Search Results table, tracks may automatically appear at other times. To change the appearance of flight tracks using the Search Results Table, right-click anywhere on the table and select **Routes** from the pop-up menu. For more information on flight track colors, see the section titled "**Viewing Flight Information on the Map**" on page 120.

Deleting and Reinstating Flights

After a search is run, some flights or flight groups may have been deleted (grayed out) from the analysis by the data quality filters. You may choose to delete additional flights or flight groups from your analysis. Deleting flights/flight groups is useful if you want to remove outlying data points from the analysis. Once a flight or flight group has been deleted, you also have the option to reinstate it into your analysis.

Deleting Flights

Select the flight(s) or flight group(s) you wish to delete. To select a single flight or flight group, click on the flight or flight group row. To select multiple flights or flight groups, click and drag your cursor across a

range of flights or flight groups or **Ctrl**+click the flights or flight groups you want to delete. Your selection should be highlighted. Select **Edit > Delete** from the POET main menu or simply press **Delete** on your keyboard.

Deleted flights and/or flight groups are grayed out in the Search Results Table and will be removed from your analysis. Deleted flights also affect your scatter chart, bar chart and map. Deleting a flight from the Search Results Table will gray out the corresponding points from the scatter chart and remove them from the bar chart and the map.

Reinstating Flights

Select the deleted flight(s) or flight group(s) you wish to reinstate. Remember deleted flights and flight groups are grayed out in the Search Results Table. To select a single flight or flight group, click on the flight or flight group row. To select multiple flights or flight groups, click and drag your cursor across a range of flights or flight groups or **Ctrl**+click the flights or flight groups you want to reinstate. Your selection should be highlighted. Press **Delete** on your keyboard. You can reinstate individual flights or flight groups at any level in the Search Results Table. Your reinstated flights and/or flight groups should appear in black in the Search Results Table and are included in your analysis.

Detailed Search Results- the Flight Window

Double-click the desired flight groups in the Search Results Table until you see individual flights listed in rows according to date and call sign. When you view individual flight information in the Search Results Table, you can get detailed information about that flight in the Flight window. The Flight window provides the most detailed flight information for an individual flight in POET. The Flight Window contains three tabs, each with different information about the flight: **General Information** (Call Sign, Airline, Arrival Fix, Bin, etc), **Performance Metrics**, **Routing Information**, and **Message History**.

To view the Flight Window, double-click on a flight in the Search Results Table or double-click on a point in the Scatter Chart (see Scatter Chart on page 106).

General Information Tab

General Information includes everything from the flight's call sign to the departure center (filed) (Figure 89). Note the track of the flight selected is also shown on the POET Search Results Map.

Example: Double-click a flight group to drill down to individual flights. Double-click an individual flight to get to the Flight Window, which details Flight Level Search Results. Figure 89 illustrates the General Information Tab in the Flight Level Results for USA1406.

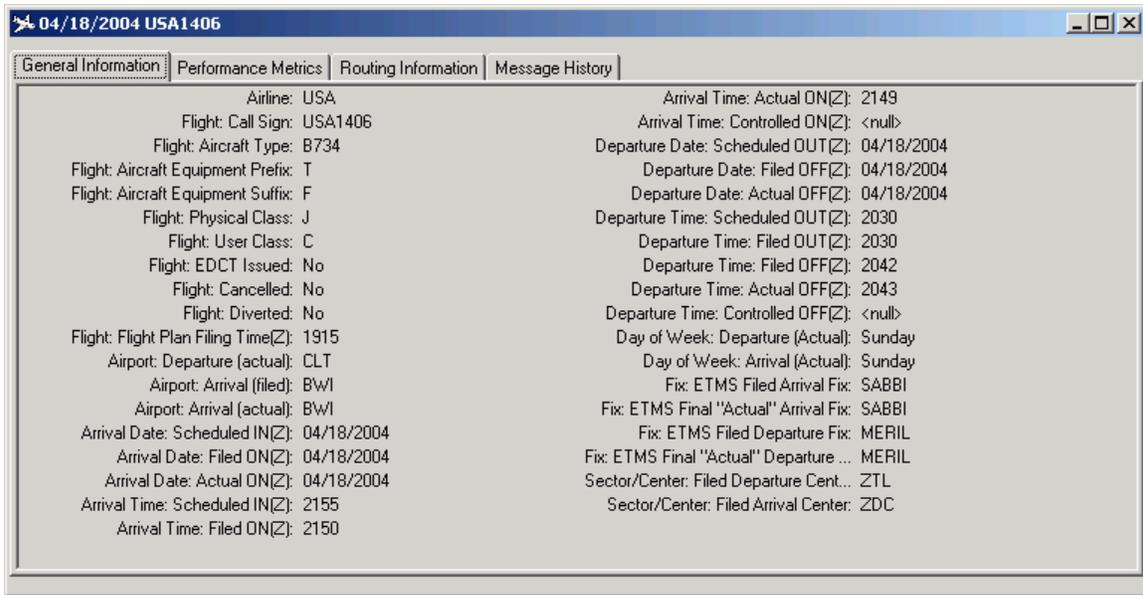


Figure 89: General Information Tab for USA949

Performance Metrics Tab

The Performance Metrics tab includes information on the flight's **Planned versus Actual** performance for a variety of metrics. Note that **NRP, Circular Holding, Changed Arrival Fix, and EDCT** will always be either Yes or No. The EDCT performance metric indicated if the flight was EDCT compliant. See **Figure 90** for an example of the Performance Metrics Tab.

Example: Figure 90 illustrates the Performance Metrics Tab in the Flight Window for USA1406.

Performance Metrics	Planned	Actual	Difference (Actual - Planned)	
Departure Time (OFF)Z	2042	2043	1.0	
AirTime(mins)	59.0	66.0	7.0	11.9%
Arrival Time (ON)Z	2150	2149	-1.0	
NRP(%)				No
Circular Holding(%)				No
Changed ETMS Arrival Fix(%)				No
Distance(miles)	350.0	371.0	21.0	6.0%
EDCT(%)				No

Figure 90: Performance Metrics Tab

Routing Information Tab

The Routing Information tab includes information about a flight's filed route, any amendments made to the route, and the actual route. Clicking the filed route, route amendments or the actual route in the Route Information Tab will highlight the appropriate track on the Search Results Map. To highlight multiple tracks on the map, you can **Ctrl**+click or click and drag through the routes in the Routing Information Tab.

Example: Note that the Routing Information tab in Figure 91 indicates several route amendments for a flight. This information can be very important, depending on the type of analysis being conducted.

Route Type	Time	Route	Fix List	Airway List	Sector List
Scheduled Route(1)	04/18/2004 0530	CLT.PAN5.MERIL..RDU..RIC.OTT6.BWI/2155	MERIL RDU RIC EPICS PEGBY JIMBE GRUBY SABBI OTT RAVNN JANNS	J55 J52	ZTLCLT ZTL31 ZTL32 ZDC27 ZDC14 ZDCMT1 ZDCCH1
Filed Route(1)	04/18/2004 1915	CLT.PAN5.MERIL..RDU..RIC.OTT6.BWI/0059	MERIL RDU RIC EPICS PEGBY JIMBE GRUBY SABBI OTT RAVNN JANNS	J55 J52	ZTLCLT ZTL29 ZTL33 ZDC36 ZDC16 ZDC12 ZDC14 ZDCMT1 ZDCCH1
ARTCC Crossing Route(1)	04/18/2004 2050	CLT.PAN5.MERIL..RDU.J52.RIC.OTT6.BWI/2142	MERIL RDU HAKOK JADEE ZITTO RIC EPICS PEGBY JIMBE GRUBY SABBI OTT RAVNN JANNS	J55 J52	ZTLCLT ZTL30 ZTL33 ZDC36 ZDC16 ZDC20 ZDC14 ZDCMT1 ZDCCH1
Amendment(1)	04/18/2004 2054	CLT.PAN5.MERIL..RDU.J52.RIC.OTT6.BWI/2142	MERIL RDU HAKOK JADEE ZITTO RIC EPICS PEGBY JIMBE GRUBY SABBI OTT RAVNN JANNS	J55 J52	ZTLCLT ZTL30 ZTL33 ZDC36 ZDC16 ZDC20 ZDC14 ZDCMT1 ZDCCH1
Amendment(2)	04/18/2004 2054	CLT./3529N/7953W..RIC.OTT6.BWI	MERIL RIC EPICS PEGBY JIMBE GRUBY SABBI OTT RAVNN JANNS	<null>	ZTLCLT ZTL30 ZTL33 ZDC36 ZDC16 ZDC12 ZDC14 ZDCMT1 ZDCCH1
W Route(1)	04/18/2004 2111	CLT./3529N/7953W..RIC.OTT6.BWI	MERIL RIC EPICS PEGBY JIMBE GRUBY SABBI OTT RAVNN JANNS	<null>	ZTLCLT ZTL30 ZTL33 ZDC36 ZDC16 ZDC20 ZDC12 ZDC14 ZDCMT1 ZDCCH1
Actual Route					

Figure 91: Routing Information Tab

Message History Tab

The Message History Tab contains flight messages received by ETMS. The Message Type and Message Subtype columns indicate where the message originated.

fid	Msg Time	Msg Type	Msg Subtype	Departure Time	Arrival Time	Dept Airport	Arr Airport	Altitude	Speed
267186	4/18/2004 5:30:45 AM	Route	S	2004-04-18 20:44:00	2004-04-18 21:48:00	CLT	BWI	290	445
267186	4/18/2004 4:39:29 PM	Airline	N	2004-04-18 20:42:00	2004-04-18 21:50:00	CLT	BWI	-	-
267186	4/18/2004 7:15:30 PM	Route	F	2004-04-18 20:42:00	2004-04-18 21:50:00	CLT	BWI	290	440
267186	4/18/2004 7:15:30 PM	Time	G	2004-04-18 20:42:00	2004-04-18 21:50:00	CLT	BWI	-	-
267186	4/18/2004 8:43:17 PM	Time	D	2004-04-18 20:43:00	2004-04-18 21:51:00	CLT	BWI	-	-
267186	4/18/2004 8:43:39 PM	TZ	T	-	2004-04-18 21:51:00	-	-	<null>	176
267186	4/18/2004 8:44:00 PM	TZ	T	-	2004-04-18 21:51:00	-	-	<null>	214
267186	4/18/2004 8:44:21 PM	TZ	T	-	2004-04-18 21:51:00	-	-	<null>	238
267186	4/18/2004 8:44:42 PM	TZ	T	-	2004-04-18 21:51:00	-	-	<null>	248
267186	4/18/2004 8:45:03 PM	TZ	T	-	2004-04-18 21:51:00	-	-	<null>	253
267186	4/18/2004 8:45:24 PM	TZ	T	-	2004-04-18 21:51:00	-	-	<null>	262
267186	4/18/2004 8:45:45 PM	TZ	T	-	2004-04-18 21:51:00	-	-	<null>	268
267186	4/18/2004 8:46:06 PM	TZ	T	-	2004-04-18 21:51:00	-	-	<null>	272
267186	4/18/2004 8:46:27 PM	TZ	T	-	2004-04-18 21:51:00	-	-	<null>	271
267186	4/18/2004 8:46:48 PM	TZ	T	-	2004-04-18 21:51:00	-	-	<null>	268
267186	4/18/2004 8:47:09 PM	TZ	T	-	2004-04-18 21:51:00	-	-	<null>	271
267186	4/18/2004 8:47:30 PM	TZ	T	-	2004-04-18 21:51:00	-	-	<null>	269
267186	4/18/2004 8:47:51 PM	TZ	T	-	2004-04-18 21:51:00	-	-	<null>	265
267186	4/18/2004 8:48:11 PM	TZ	T	-	2004-04-18 21:51:00	-	-	<null>	271
267186	4/18/2004 8:48:32 PM	TZ	T	-	2004-04-18 21:51:00	-	-	<null>	283

Figure 92: Message History Tab for USA949

Exporting Flight Information

Once you get to the Flight Window and view data for an individual flight, you can export that information. Select **File > Export Instance as HTML**. This exports each tab in the Flight Window to an HTML page. You can open the HTML page using an Internet browser. In addition to saving the Flight Information, you can also save the associated map. Select **File > Export Map as GIF**. This saves the map as a GIF file to view off-line.

Analysis Using the Search Results Table

Effective flight analysis is the primary goal of POET. Because the options and tools available in the program allow you to fully view and customize your search results, analysis can be as general or as specific as you want. In this section you will learn how to use **Performance Metrics** and **Data Mining** in the Search Results Table to gain more information about your flight groups and individual flights.

Viewing Performance Metrics

Performance Metrics provide descriptive information about the actual performance of a flight or flight group (departure/arrival times, total time in the air) as compared to the planned performance. The list of performance metrics is constantly growing and currently includes **EDCT**, **Distance**, **Air Time**, **Departure Time (OFF)**, **Arrival Time (ON)**, **NRP**, **Circular Holding**, and **Changed ETMS Arrival Fix**.

Available FAA Performance Metrics

Air Time is the difference between the estimated time en route from the user-filed flight plan and the actual time air time (calculated using AZ-DZ). A "+" indicates longer than planned; "-" indicates shorter than planned.

EDCT tells how many flights within a flight group were issued an EDCT.

Distance compares the filed flight track (calculated using the length of the ground track of the filed route) to the flown flight track (calculated using the length of the ground track actually flown). Distance is calculated in miles.

Changed ETMS Arrival Fix indicates whether the flight was rerouted over a different arrival fix than what was filed.

Circular Holding tells you how many flights within a flight group experienced circular holding (i.e., a circular holding pattern was detected in the actual flight track).

NRP tells you how many flights within a flight group filed an NRP route.

Arrival Time (On) is the difference in minutes between the estimated arrival times (using the ETMS-modeled ON time based on the filed flight plan [FZ]) and the actual arrival time (AZ). A "+" indicates later than planned; "-" indicates earlier than planned.

Departure Time (OFF) is the difference in minutes between the planned departure time (calculated using the ETMS-modeled OFF time based on the filed flight plan [FZ]) and the actual departure time (DZ). A "+" indicates later than planned; "-" indicates earlier than planned.

Showing Performance Metrics

There are several ways to select the Performance Metrics you want to view in the Search Results Table.

- Select **View > Performance Metrics** from the POET menu.
- Right-click in the Search Results Table and select **Performance Metrics** from the resulting pop-up menu.
- Click **Metrics** on the POET toolbar

The **Performance Metrics** window appears (Figure 93). To view a specific performance metric in the Search Results Table, you must move the metric from the **Available** to the **Selected** column. You can move any metric from one column to the other in one of two ways: highlight the metrics one at a time and click the appropriate arrow button (< or >), or double-click an individual metric. Move *all* fields from one column to the other by clicking once on any metric in the appropriate column and click << or >>. Click **OK** to view the **Selected** metrics in the Search Results Table.

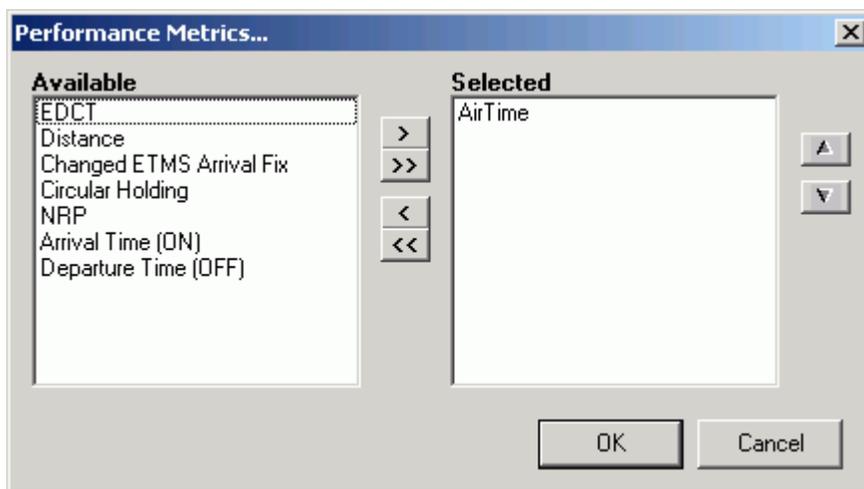


Figure 93: Performance Metrics Window

The performance metrics appear in the Search Results Table in the same way they are ordered in the **Selected** column of the Performance Metrics window. To change the order in which the performance metrics appear in the Search Results Table, click on a metric name in the **Selected** column of the Performance Metrics window. Use the up and down arrow buttons to move the selected metric up or down the list.

Example: Let's look at Arrival Time (ON) in the Search Results Table. Open the Performance Metrics window. Click **Arrival Time (ON)** in the **Available** column (Figure 94).

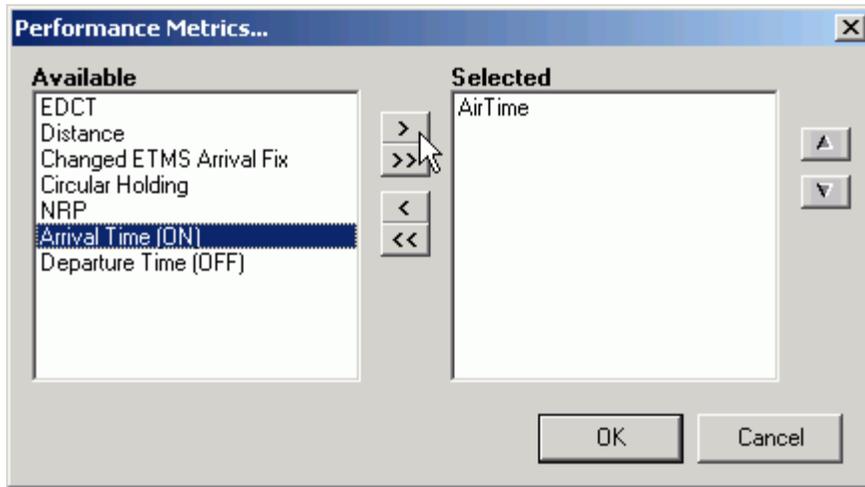


Figure 94: Arrival Time (ON) Performance Metric

Click the right arrow (>) button to move Arrival Time (ON) to the **Selected** column (Figure 95).

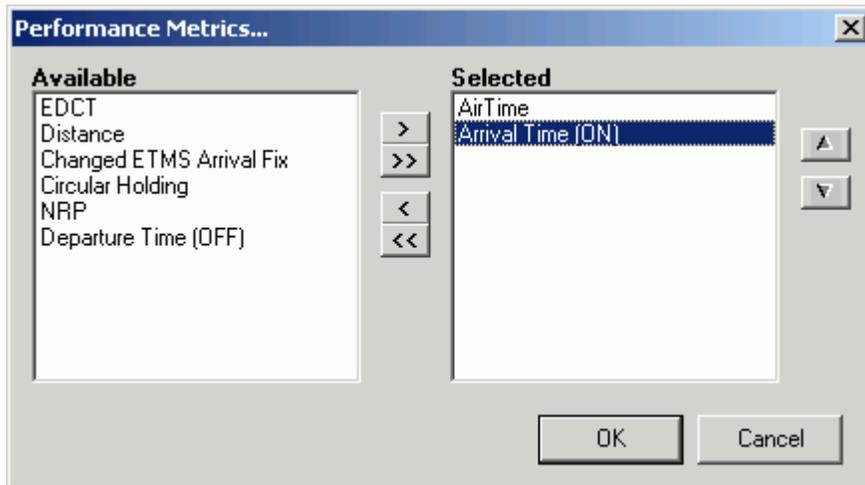


Figure 95: Arrival Time (ON) in the Selected Column

Click **OK**, your Search Results Table should look like Figure 96.

Search: Default: DataAtTimeOfRun: 04/15/2004 To 04/20/2004 1829; MinInstsForFlt: 1; Airline: USA; DptApt: BWI, DCA; ArrApt: PHL, PIT; Filed_DptDate or DptDate: 04/15/2004 1200 To 04/16/2004 1200; DataQuality: Standard

Airport: Departure (actual), Airport: Arrival (actual)	Flights Included	Flights Deleted (By Data Quality)	Performance Metrics	Planned	Actual	Difference (Actual - Planned)	
DCA PHL	4	1	AirTime (mins)	23.0	33.5	10.5	45.7%
			Arrival Time (ON) [Z]	1943	1940	-3.3	
04/16/2004 USA125			AirTime (mins)	21.0	42.0	21.0	100.0%
			Arrival Time (ON) [Z]	1235	1241	6.0	
04/15/2004 USA9160			AirTime (mins)	21.0	32.0	11.0	52.4%
			Arrival Time (ON) [Z]	2248	2239	-9.0	
04/15/2004 USA1126			AirTime (mins)	25.0	32.0	7.0	28.0%
			Arrival Time (ON) [Z]	2037	2045	8.0	
04/15/2004 USA350			AirTime (mins)	25.0	28.0	3.0	12.0%
			Arrival Time (ON) [Z]	2251	2233	-18.0	

Figure 96: Arrival Time (ON) in the Search Results Table

Removing Performance Metrics

To remove performance metrics, open the Performance Metrics window and select the metric you want to remove and move it from the **Selected** to the **Available** column using the left arrow button (Figure 97).

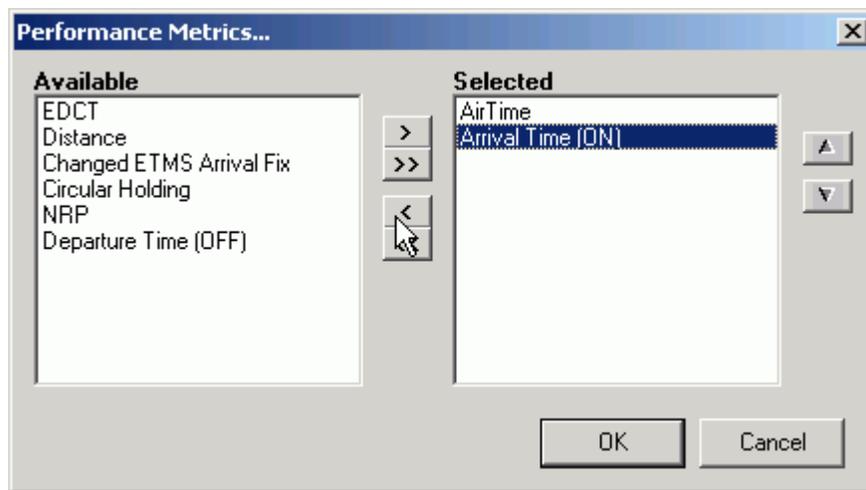


Figure 97: Remove Arrival Time (ON)

Example: For our example, let's remove the performance metric Arrival Time (ON), which we had previously added to our Search Results Table. In the Performance Metrics window, click **Arrival Time (ON)** so that it is highlighted (Figure 97). Then click the left arrow (>) button to move Arrival Time (ON) so that it is in the Available column. Click **OK** to complete the action and your Search Results Table should only include Air Time as a performance metric.

Data Mining

As you get deeper into your analysis, you may want to further categorize flight groups according to their behavior in the NAS. In the Search Results Table, Data Mining allows you to do this by using a variety of categories and algorithms that further subdivide or combine particular flights or flight groups. The Data

Mining options selected will be applied only to the flights or flight groups that are *highlighted* (selected) in the Search Results Table. The POET Data Miner is primarily made up of 2 functions: **Subgroup by** and **Combine Selected Into New Flight Group**.

To open the Data Mining window (Figure 98):

- Select **View > Data Mining** from the POET Menu.
- Right-click in the Search Results Table and select **Data Mining** from the pop-up menu.
- Click **Data Mining** on the POET toolbar.

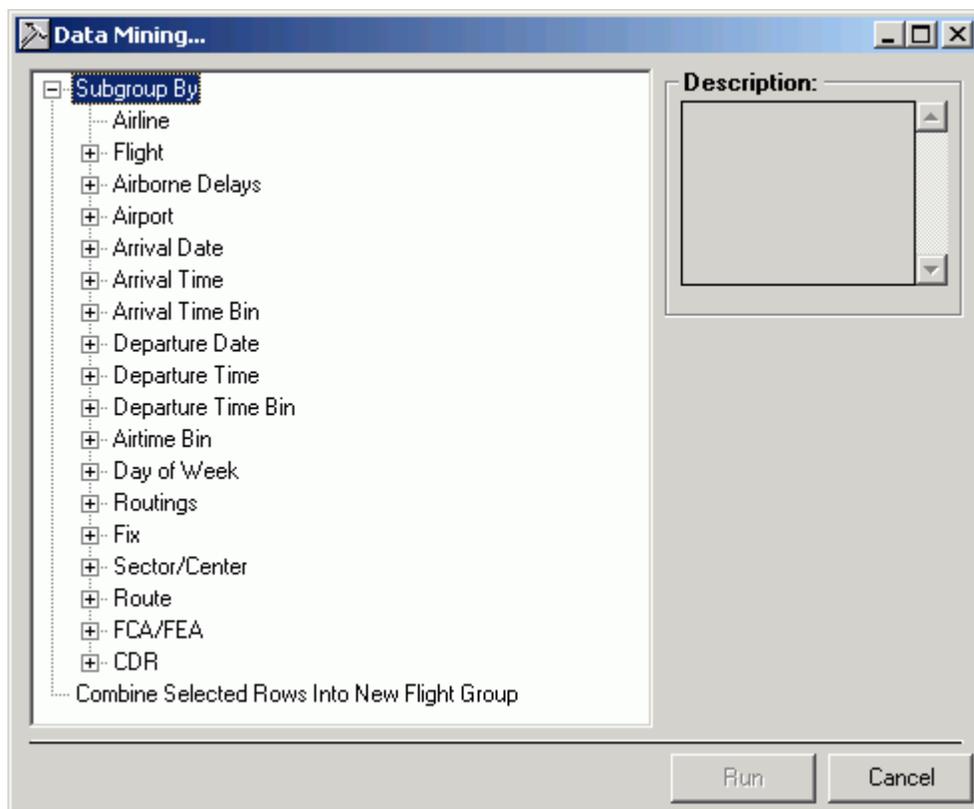


Figure 98: Data Mining Window

Subgroup By

The POET data mining function provides additional levels of flight grouping in the Search Results Table through the **Subgroup By** option. Sub-grouping options only apply to flight *groups* in the Search Results Table, not individual flights.

Describing Sub-groupings

You can subgroup according to a variety of data as well as use several POET algorithms for sub-grouping. Many of the subgroup options are listed as a main heading, with additional options under the heading. For example, the Airport subgroup option includes **Departure (actual)**, **Arrival (filed)**, and **Arrival (actual)**. Any heading with additional options is displayed with a plus symbol (+) to the left of the heading. Click the plus symbol to view the options under that heading. Click an option to select it. The option you select will be highlighted. When the options under a heading are visible, the plus symbol changes to a minus symbol (-) to the left of the heading. Click the minus symbol to hide the options under a heading. You can subgroup your flights using the following criteria:

Applying a Sub-grouping

Select one or more flight groups in the Search Results Table. Select a single flight group by clicking the flight group row. To select more than one flight group, **Ctrl**+click several rows or click and drag your cursor across several flight group rows. Your selected flight groups should be highlighted.

Open the Data Mining window. The left side of the Data Mining window lists the available data mining options. Scroll through the **Subgroup By** options. Click the Subgroup By option you want to use.

When you select a Subgroup By option, the right side of the Data Mining window will display a description of that option and list its editable parameters. If a selected Subgroup parameter(s) can be modified, they are displayed under the **Parameters** section of the Data Mining window.. To change a parameter, click the parameter row. Delete the current information and enter a new parameter.

Click **Run** to perform the sub-grouping function. In the Search Results Table, you should see your flight group(s) sub-grouped according to the option you ran. Note that you can always interrupt a data mining process by clicking **Esc** on your keyboard.

Example: See which flights deviated from their planned route and which flights flew their planned route. To do this, we will apply a data mining algorithm to all the valid flights in the Search Results Table (those flights which are grayed out are considered "deleted."). To select all the flights, click and drag across all the rows, or click the first row of flights and then **Shift**+click on the last row of flights. All your flights should be highlighted (Figure 99Figure 99).

Airport: Departure (actual), Airport: Arrival (actual)	Flights Included	Flights Deleted (By Data Quality)	Performance Metrics	Planned	Actual	Difference (Actual - Planned)		
+ DCA PHL	4	1	AirTime (mins)	23.0	33.5	10.5	45.7%	
+ BWI PHL	3	0	AirTime (mins)	25.3	29.3	4.0	15.8%	
+ DCA PIT	3	1	AirTime (mins)	33.3	37.0	3.7	11.0%	
+ BWI PIT	3	1	AirTime (mins)	37.3	39.0	1.7	4.5%	

Figure 99: Flights selected for Data Miner

Right-click anywhere in the Search Results Table and select **Data Mining** from the resulting menu. Select **Route: Spatial Comparison of Filed to Flown Routes** from the Data Mining options (Figure 100). Click **OK** to perform the Data Mining. Your Search Results Table should now look like Figure 101.

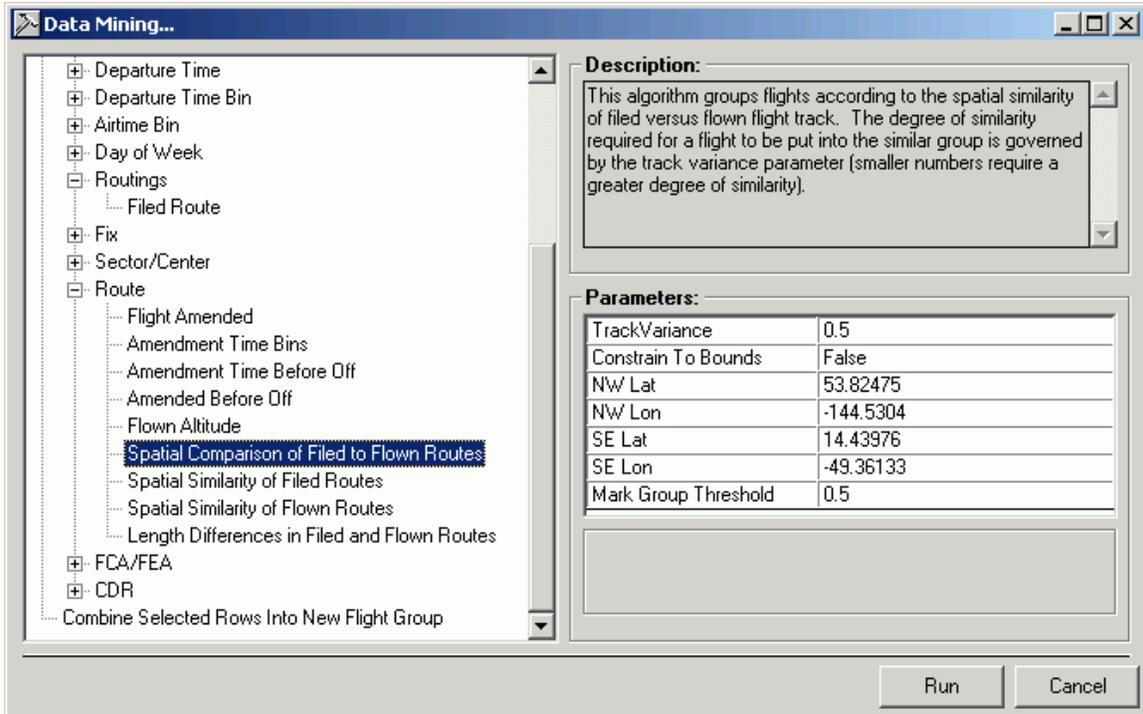


Figure 100: Select Data Miner

For each flight group in the Search Results Table (in this case, each flight group only consists of one flight), you can tell whether the filed route was similar to the route actually flown or a different route was taken.

Search: Default; DataAtTimeOfRun: 04/15/2004 To 04/20/2004 1829; MinInstsForFlt: 1; Airline: USA; DptApt: BWI, DCA; ArrApt: PHL, PIT; Filed_DptDate or DptDate: 04/15/2004 1200 To 04/16/2004 1200; DataQuality: Standard

Airport: Departure (actual), Airport: Arrival (actual)	Flights Included	Flights Deleted (By Data Quality)	Performance Metrics	Planned	Actual	Difference (Actual - Planned)		
DCA PHL	4	1	AirTime (mins)	23.0	33.5	10.5	45.7%	
Route: Spatial								
Comparison of Filed to Flown Routes								
+ Dissimilar (100.00%)	4	0	AirTime (mins)	23.0	33.5	10.5	45.7%	
+ NoFiledRoutes (0.00%)	0	1	AirTime (mins)	<null>	<null>	<null>	<null>	
BWI PHL	3	0	AirTime (mins)	25.3	29.3	4.0	15.8%	
Route: Spatial								
Comparison of Filed to Flown Routes								
+ Dissimilar (100.00%)	3	0	AirTime (mins)	25.3	29.3	4.0	15.8%	
DCA PIT	3	1	AirTime (mins)	33.3	37.0	3.7	11.0%	
Route: Spatial								
Comparison of Filed to Flown Routes								
+ Similar (100.00%)	3	0	AirTime (mins)	33.3	37.0	3.7	11.0%	
+ NoFlownRoutes (0.00%)	0	1	AirTime (mins)	<null>	<null>	<null>	<null>	
BWI PIT	3	1	AirTime (mins)	37.3	39.0	1.7	4.5%	
Route: Spatial								
Comparison of Filed to Flown Routes								
+ Similar (100.00%)	3	0	AirTime (mins)	37.3	39.0	1.7	4.5%	
+ NoFlownRoutes (0.00%)	0	1	AirTime (mins)	<null>	<null>	<null>	<null>	

Figure 101: Data Miner Results

Example: To determine the sector load of flights that flew through sector ZTL38 between 0800Z and 1400Z on 04/18/2004 and group flights into 15-minute time bins, we will apply the **Time Bins in Specific Sector** Data Miner to the Search Results Table. Open the Data Mining window by right-clicking anywhere in the Search Results Table and select **Data Mining** from the resulting menu (Figure 102).

Search: Default; DataAtTimeOfRun: 04/15/2004 To 04/20/2004 1829; Flights Flown Through Sector(s): Sector=ztl38, And/Or=OR, Start Date=04/19/2004, Start Time (hhmm)=0800, End Date=04/19/2004, End Time (hhmm)=1400; DataQuality: None

Airspace Search Result	Flights Included	Flights Deleted (By Data Quality)	Performance Metrics	Planned	Actual	Difference (Actual - Planned)		
ZTL38_ (+_FPA(s)_Added)	86	0	AirTime (mins)	85.4	85.6	0.1	0.2%	

- ✓ Toolbar
- ✓ Status Bar
- Performance Metrics... Ctrl+M
- Data Mining... Ctrl+D**
- Routes... Ctrl+R
- History Ctrl+H

Figure 102: Select Sector to Apply the Data Miner

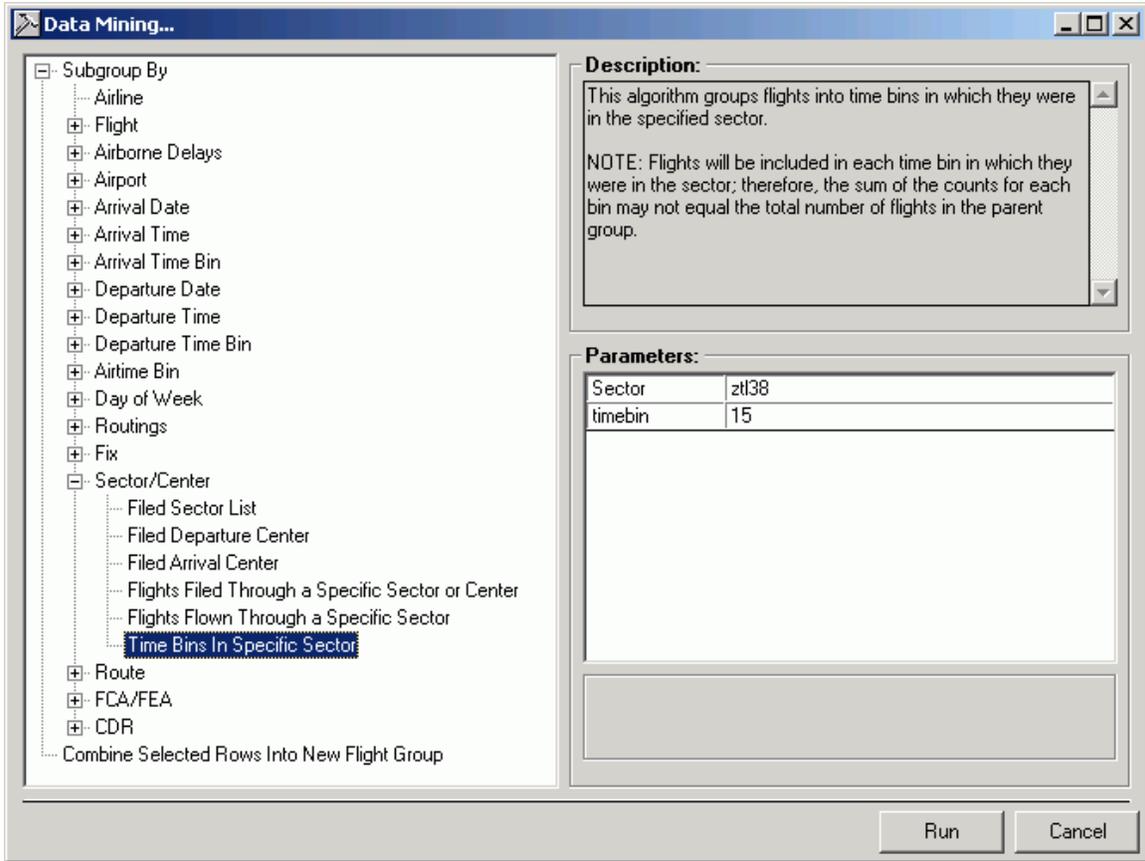


Figure 103: Select Data Miner

Select **Sector/Center > Time Bins In Specific Sector** from the Data Mining options (Figure 103). Enter the sector and time bin in the parameter fields. For this example, enter **ZTL38** as the sector name and 15 as the time bin size to see the number of flights in ZTL38 for each 15 minute time bin. Click **Run** to perform the data mining operation. Your Search Results Table should now look like Figure 104

Search: Default: DataAtTimeOfRun: 04/15/2004 To 04/20/2004 1829; Flights Flown Through Sector(s): Sector=ztl38, And/Or=OR, Start Date=04/19/2004, Start Time (hhmm)=0800, End Date=04/19/2004, End Time (hhmm)=1400; DataQuality:None

Airspace Search Result	Flights Included	Flights Deleted (By Data Quality)	Performance Metrics	Planned	Actual	Difference (Actual - Planned)	
ZTL38 (+ FPA(s) Added)	86	0	AirTime (mins)	85.4	85.6	0.1	0.2%
Sector/Center: Time Bins In Specific Sector							
04/19/2004 14:00 (+ FPA(s) Added) (5.81%)	5	0	AirTime (mins)	137.6	148.5	10.9	7.9%
04/19/2004 09:45 (+ FPA(s) Added) (1.16%)	1	0	AirTime (mins)	40.0	43.0	3.0	7.5%
04/19/2004 12:45 (+ FPA(s) Added) (13.95%)	12	0	AirTime (mins)	79.8	85.3	5.6	7.0%
04/19/2004 11:45 (+ FPA(s) Added) (3.49%)	3	0	AirTime (mins)	54.3	56.0	1.7	3.1%
04/19/2004 10:45 (+ FPA(s) Added) (4.65%)	4	0	AirTime (mins)	90.3	93.0	2.8	3.0%
04/19/2004 10:15 (+ FPA(s) Added) (1.16%)	1	0	AirTime (mins)	81.0	83.0	2.0	2.5%
04/19/2004 11:00 (+ FPA(s) Added) (6.98%)	6	0	AirTime (mins)	91.0	93.0	2.0	2.2%
04/19/2004 10:30 (+ FPA(s) Added) (2.33%)	2	0	AirTime (mins)	103.5	105.5	2.0	1.9%
04/19/2004 12:30 (+ FPA(s) Added) (17.44%)	15	0	AirTime (mins)	83.3	84.1	0.9	1.0%
04/19/2004 11:30 (+ FPA(s) Added) (6.98%)	6	0	AirTime (mins)	68.5	69.2	0.7	1.0%
04/19/2004 11:15 (+ FPA(s) Added) (5.81%)	5	0	AirTime (mins)	87.4	88.2	0.8	0.9%
04/19/2004 13:15 (+ FPA(s) Added) (12.79%)	11	0	AirTime (mins)	75.0	75.5	0.5	0.7%
04/19/2004 13:45 (+ FPA(s) Added) (15.12%)	13	0	AirTime (mins)	103.8	103.7	-0.1	-0.1%
04/19/2004 13:00 (+ FPA(s) Added) (12.79%)	11	0	AirTime (mins)	88.0	87.8	-0.2	-0.2%
04/19/2004 12:00 (+ FPA(s) Added) (5.81%)	5	0	AirTime (mins)	73.0	71.6	-1.4	-1.9%
04/19/2004 13:30 (+ FPA(s) Added) (11.63%)	10	0	AirTime (mins)	89.2	86.2	-3.0	-3.4%
04/19/2004 12:15 (+ FPA(s) Added) (13.95%)	12	0	AirTime (mins)	89.1	85.9	-3.2	-3.6%
04/19/2004 09:30 (+ FPA(s) Added) (1.16%)	1	0	AirTime (mins)	<null>	94.0	<null>	<null>
04/19/2004 08:30 (+ FPA(s) Added) (1.16%)	1	0	AirTime (mins)	<null>	<null>	<null>	<null>

Figure 104: Data Mining Results

For each 15-minute time bin in the Search Results Table (Figure 104), the POET Data Miner groups all flights that flew through ZTL38 during the specified date range.

The subgroup labels also display whether this particular sector took on or gave up any FPAs during the specified time bin (date and time) followed by the text **(+ FPA(s) Added)** when FPAs were added, **(- FPA(s) Subtracted)** when FPAs were taken away, or **(+/- FPA(s) Added and Subtracted)** when FPAs were given to and taken from this sector.

The Dynamic Sector viewer feature under the **Tools > Data Viewers** menu of the toolbar provides a snapshot of the sector at any given point in time. Use the Dynamic Sector viewer to determine which FPAs were added to or subtracted from the specified sector's baseline state. Refer to the page 13 for more information.

Removing Sub-groupings

To remove a sub-grouping, click the row that lists the sub-grouping option You should find the name of the sub-grouping under the top-level flight group to which you applied the sub-grouping. Once you select the sub-grouping and it is highlighted in the table, click **Edit > Remove Subgroupings** in the main menu bar (Figure 105).

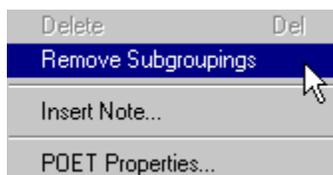


Figure 105: Edit > Remove Subgroupings

Combining Groupings

There may be certain situations when you want to create a new flight group consisting of flights or flight groups already listed in the table. In this case, the Data Mining's **Combine** function allows you to create your own flight groups by combining several individual flights or flight groups of your choosing.

Applying the Combine Function

Select several individual flights or flight groups in the Search Results Table. To do this either click and drag your cursor across several flight or flight group rows or **Ctrl**+click the desired flights or groups. The flights and/or flight groups you select should be highlighted. Click **Combine** on the POET toolbar to create a new flight group.

When you select the Combine option, you will be prompted to enter a name for your new flight group. Overwrite the default name, 'Combined Flights,' by typing a new name (Figure 106).

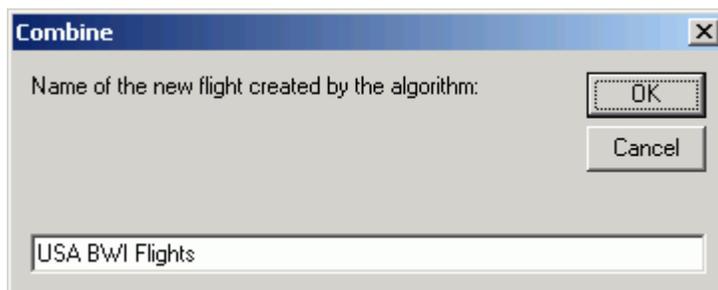


Figure 106: Combine Flight Group window from the POET toolbar

Select **View > Data Mining** or right-click anywhere in the Search Results Table and select **Data Mining** from the pop-up menu. The Data Mining window appears. Scroll through the options until you see **Combine Selected into New Flight Group** (Figure 107).

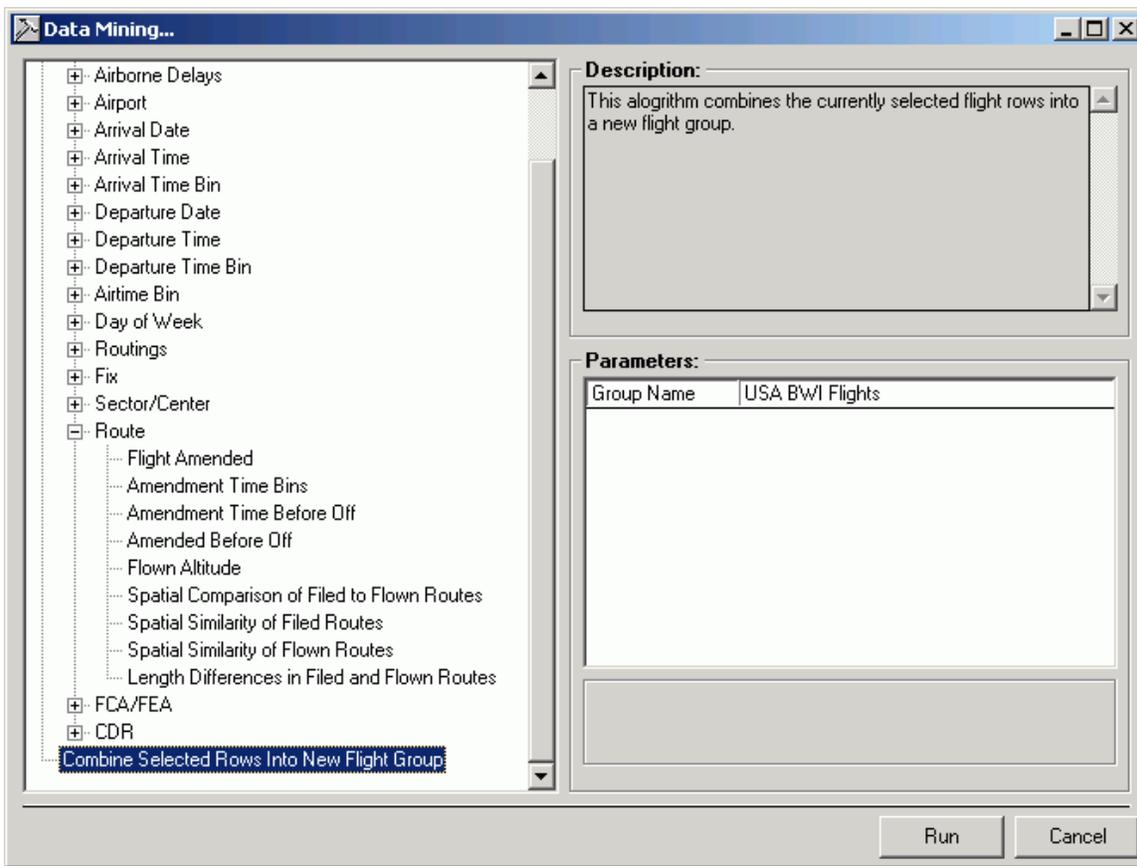


Figure 107: Combine Flight Group Using the Data Mining Window

Once you enter a group name, click **Run**. Your new flight group appears in the Search Results Table. Note that you can always interrupt a data mining process by clicking the **Esc** key on your keyboard.

Exporting the Table

You can export the Search Results Table to use in another program. POET gives you three options for exporting the table, all which can be accessed from the POET File menu (Figure 108).

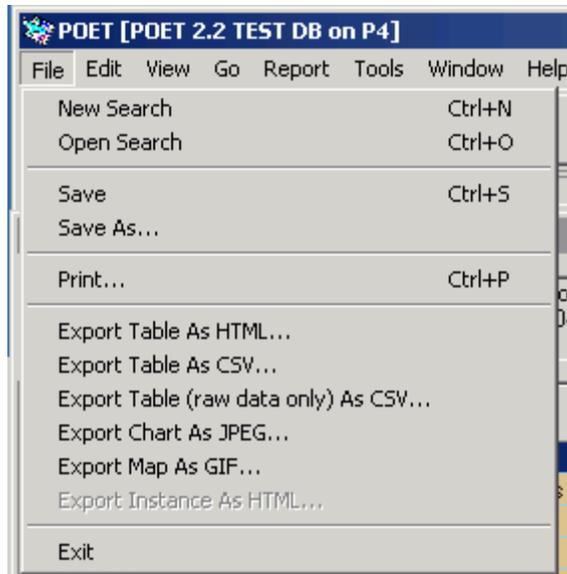


Figure 108: POET File Menu

File > Export Table As HTML will export your table in HTML format. Saving the Search Results Table in HTML allows you to view the table in an Internet browser.

File > Export Table As CSV will save your table as data with comma-separated values. This is a good option when you want to view the table in Microsoft Excel or a similar spreadsheet program. The results will appear at the same level of detail (expansion) as they did in POET.

File > Export Table (raw data only) As CSV will save your table as data with comma-separated values. Sub-grouping table records are expanded to the flight level and exported to their appropriate sub-sections when viewed in an Excel spreadsheet, regardless of whether or not they were expanded in POET.

Whichever way you decide to export your table, you should be prompted to enter a file name and location (Figure 109). POET will then save the file to the directory you specify, where you can access it for later use.

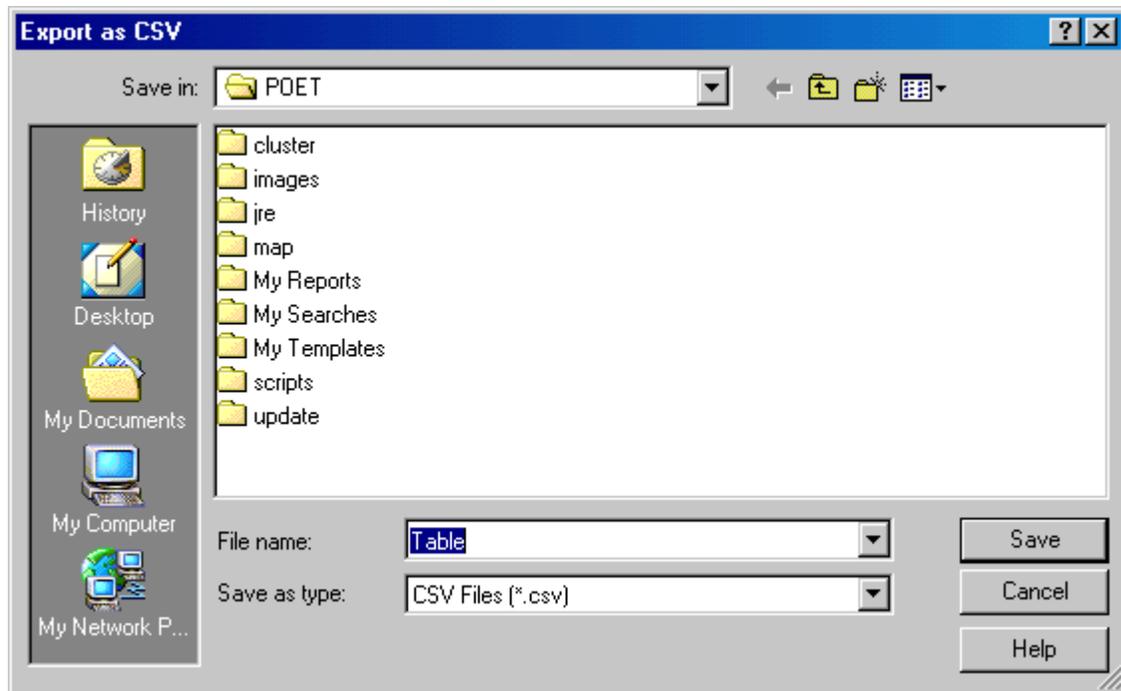


Figure 109: Export as CSV window

Analysis Using the Charts

The charts shown as part of the Search Results Window present performance parameter data for each flight group in a graphical form to help you visualize relationships between parameters as well as to detect unusual values. In the Search Results display you can view a **Scatter Chart**, **Bar Chart**, or **Special Chart** for each flight or flight group. The Special Charts will not display any dynamic sectorization changes.

Manipulating the Charts

The charts can be customized in a variety of ways. While some customization is specific to each chart type, others are common to all the charts. In any of the charts you can zoom in on or pan across the data, identify outlying data points and delete flights from your analysis, and access detailed flight information.

Zooming Information

You can use the zoom function to focus on specific data within the Charts.

To **Zoom In** on a cluster of data in the chart, click and drag your cursor to form a square around the area you want to see. Start your square above and to the left of the area, dragging down and to the right.

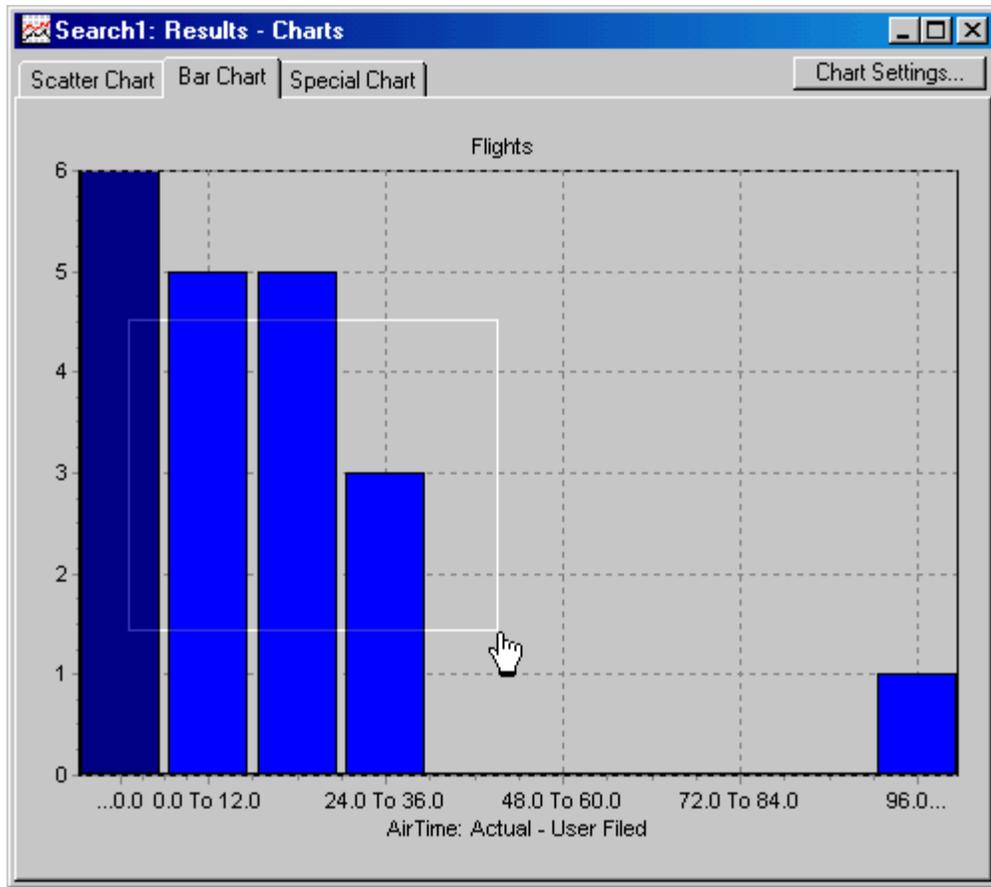


Figure 110: Zoom feature in Bar Chart

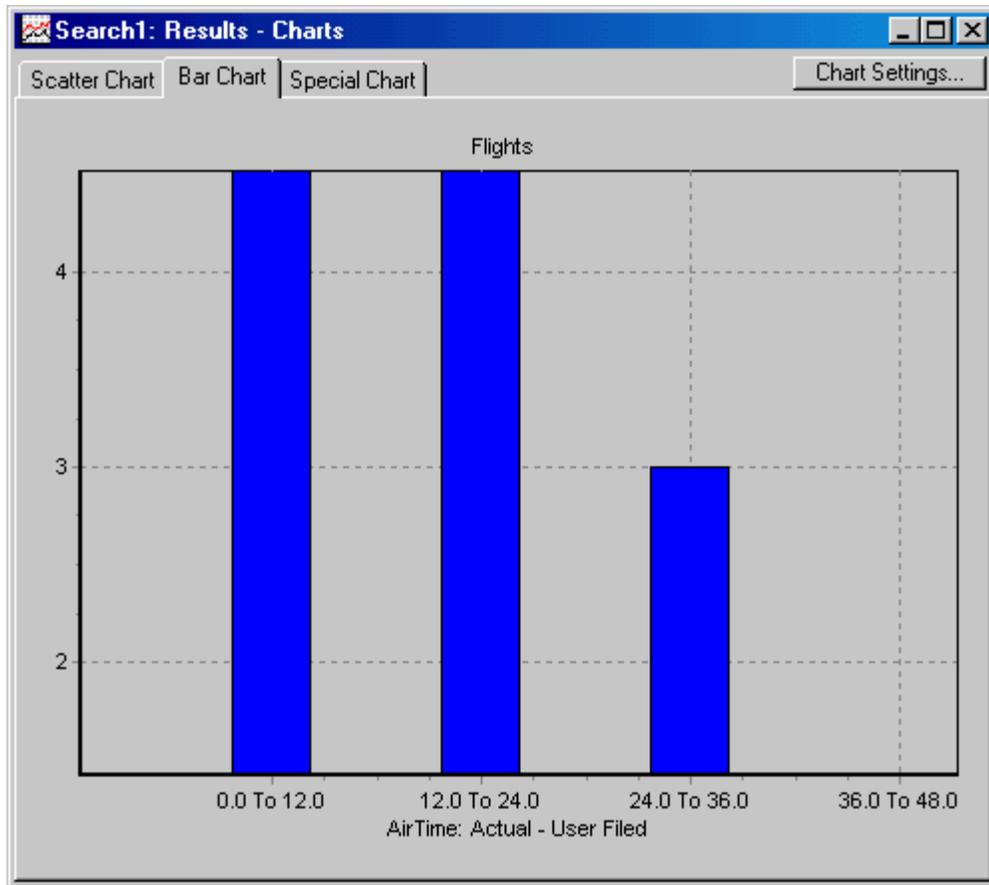


Figure 111: Bar Chart after Zooming

To reset the zoom function, simply reverse your actions. Click and drag your cursor anywhere in the chart, dragging up and to the left. The size of the square that your cursor creates is not important when you reset the chart. Any reverse zoom will reset the chart to its original display.

Spanning the Charts

You can reposition the Chart display to suit your viewing needs. For example, if you want to center specific flight information, you can move the area more towards the center of the Chart. When you reposition the bars, the X and Y-axes move accordingly. To move the Chart display, use POET's pan function. Right-click anywhere in the Bar Chart and drag your cursor to move the bars to the desired position.

Deleting Flights with Bad or Outlying Data

You can use the charts to determine outlying data points or bad data. When you view flight data on the charts, data is often clustered in a single area. Those flights with bad data or outlying data points will be significantly outside of this area. You can remove these flights from your analysis using the charts. When you remove a flight in the charts, data on both the chart and the Search Results Table will be grayed out.

DO NOT use the Edit menu to delete your flights in the charts, as this will delete all the flights in the chart from your analysis. On the Scatter chart, click on the corresponding dot in the Scatter Chart and press **Delete** on your keyboard.

Reinstating Flights

To reinstate the flight into your analysis, click the flight's row in the Search Results Table (it should be grayed out) and press **Delete** on your keyboard.

Accessing Detailed Flight Information

Using the charts, you can view the Flight Window, which contains detailed information for a single flight. To get to the Flight Window, double-click on any dot, bar, or line that represents a single flight on your chart. The Search Results display will be replaced by the Flight Window (see page 83).

From a bar chart, you can access both Flight Lists and detailed flight information in the Flight Window.

A Flight List is the list of actual flights contained in a single bar on the Bar Chart. When more than one flight makes up a single bar in the Bar Chart, double-click on that bar to bring up the Flight List (Figure 112).

To view details for a single flight in the Flight Window, you can do one of two things:

- Double-click on any bar in the bar chart that represents only a single flight.
- Bring up a Flight List by double-clicking a bar in the Bar Chart that is made up of more than one flight (Figure 112). In the Flight List, double-click on any of the flights listed to bring up the Flight Window for that flight.

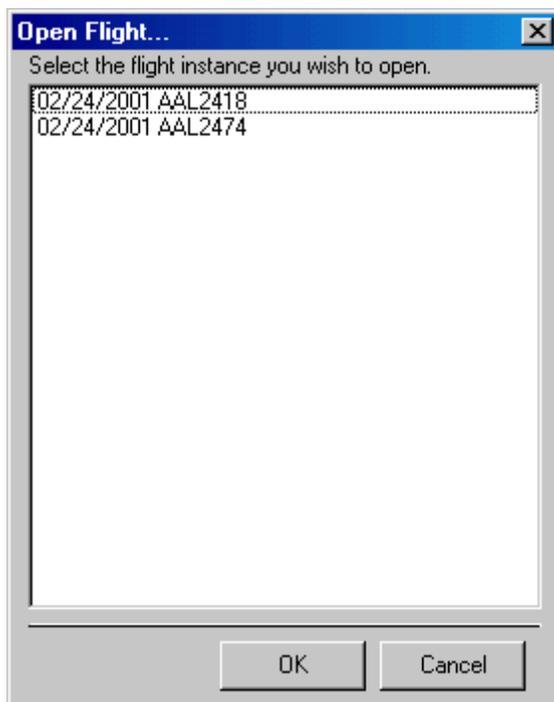


Figure 112: Flight List from the Bar Chart

The Search Results display will be replaced by the Flight Window (see page 83).

Scatter Chart

The Scatter Chart is the first tab displayed in the Search Results Charts Window.

To use the Scatter Chart, select one or more flight groups or individual flights in the Search Results Table. To select multiple flights or flight groups you can click and drag your cursor across a range of flights/flight groups or **Ctrl**+click the desired flights/flight groups. The flight(s) or flight group(s) you select should be highlighted.

The Scatter Chart immediately updates its display to show data for the selected flight(s) or flight group(s). If you select another set of flights or flight groups, the Scatter Chart will again change to display the new data. Each dot in the Scatter Chart represents a single flight.

Example: In your Search Results Table, click on the first row of flights. Note that the Scatter Chart changes its display immediately. Click and drag over several individual flights Search Results Table. The Scatter Chart is immediately updated and shows several differently colored dots (one for each flight).

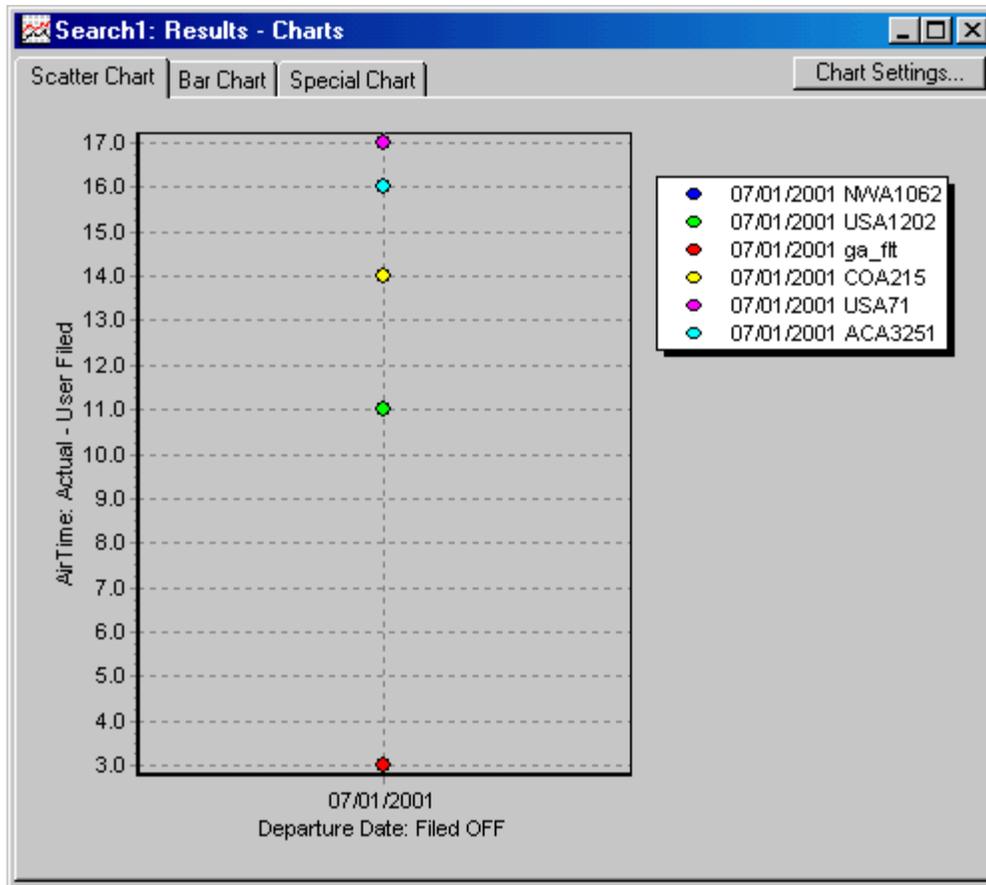


Figure 113: Scatter Chart With Multiple Flights

Scatter Chart Coloring

The dots in the scatter chart are colored according to whether you select flights or flight groups to display.

When you select a **single flight**, the default dot color is red. Only a single dot appears on the Scatter Chart and there is no legend in the Scatter Chart window.

When you select **multiple flights**, each dot on the Scatter Chart is a different color. A legend in the Scatter Chart displays the dot color next to its associated flight. (Figure 113).

When you select a **single flight group**, all the dots are the same color. No legend appears in the Scatter Chart window.

When you select **multiple flight groups**, different color dots are used for each flight group. A legend appears in the Scatter Chart and displays the dot color next to its associated flight group

Note that when you use the Routes window to apply **Rainbow** coloring to flight tracks on the map, your charts will utilize the same coloring scheme for flights that correspond to those on the map. For more information on Rainbow coloring, see the section titled "**Customizing Flight Tracks**" on page 122.

Scatter Chart Settings

Different performance metrics are displayed along the Scatter Chart's X and Y-axes. You can change the performance metrics displayed to meet your analysis needs.

On the Scatter Chart, click **Chart Settings**. The Chart Settings window appears (Figure 114).

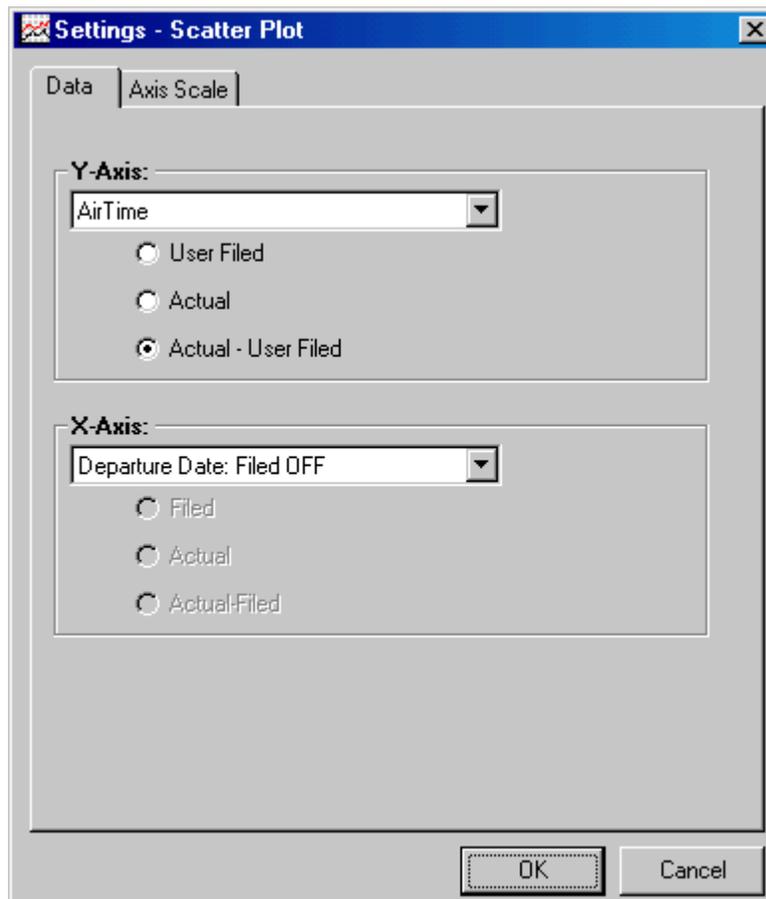


Figure 114: Chart Settings Window

Data

The Chart Settings window has two tabs: Data and Axis Scale. Using the Data tab, you can change the settings for both the X and Y-axes.

Use the pull-down menu under the Y-Axis or X-Axis field to view the available performance metrics. Click the metric you want and it should appear in the field. Under the pull-down menu, click the

appropriate radio button to display the **Filed**, **Actual**, or **Difference (Actual - Filed)** data for the selected metric.

Once you have selected which performance metrics to plot in the X and Y-axes for your chart, click **OK** at the bottom right of the Chart Settings window. If you made changes in the Chart Settings window but do not want the Scatter Chart to reflect those changes, click **Cancel**.

Axis Scale

Using the Axis Scale tab, you can manipulate the chart scale. This function may be useful when you are building a report and want to maintain the same scale throughout all your charts. By default, the scale is set at automatic. To replace the default setting, clear the **Automatic** checkbox under the **Y Axis** or **X Axis** fields. The Minimum and Maximum fields immediately become editable. You can see in Figure 115 that the user is about to set a new value for the Minimum setting under the Y Axis.

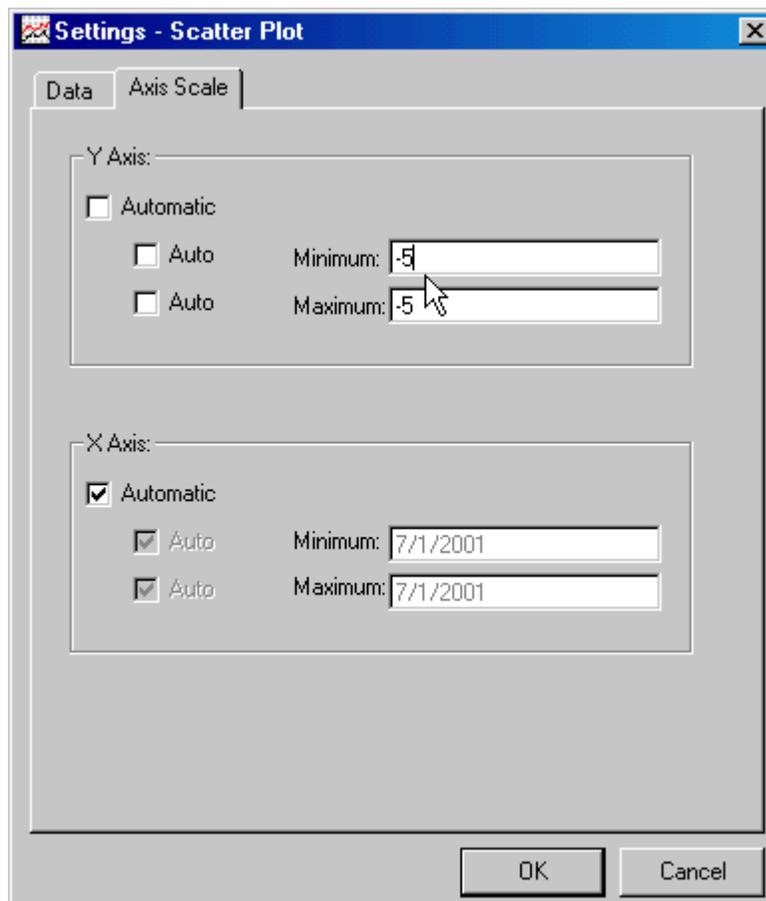


Figure 115: Scatter Chart Settings - Axis Scale Tab

Example: Let's see if Arrival Time (ON) is related to distance traveled. Select several flight groups in your Search Results Table. Pull up the Chart Settings window by clicking **Chart Settings** on the Scatter Chart. Click the Data tab. Under the Y-Axis, select **Arrival Time (ON)** and click the radio button that

says **Actual-Filed** (Figure 116). Under the X-Axis, select **Distance** (Figure 117) and click the radio button that says **Actual**. Click **OK** to make the changes to your chart.

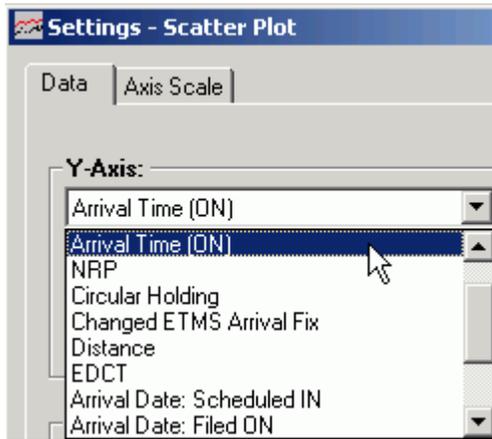


Figure 116: Select Arrival Time (ON) in the Y-Axis Options

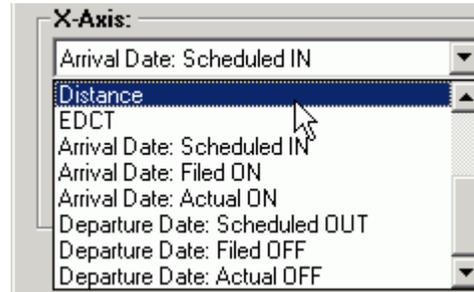


Figure 117: Select Distance Under X-Axis Options

Your chart should be similar to Figure 118. The example in our figures suggests that further analysis could show that short-haul flights tend to arrive early on good weather days.

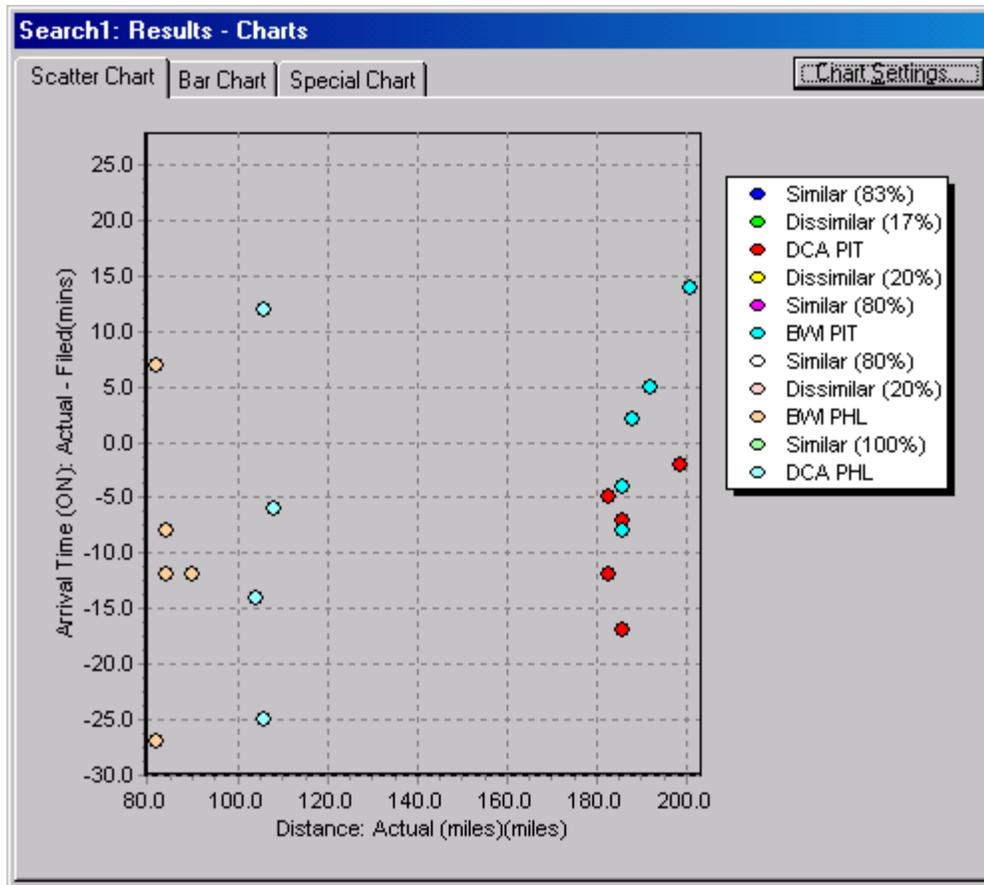


Figure 118: Scatter Chart with Changed Arrival Fix as a Function of Arrival Time

Bar Chart

The Bar Chart is a histogram of all of the flights in a particular flight group. To view a Bar Chart, click the Bar Chart tab in the Search Results: Charts window. The Bar Chart should appear (See Figure 119).

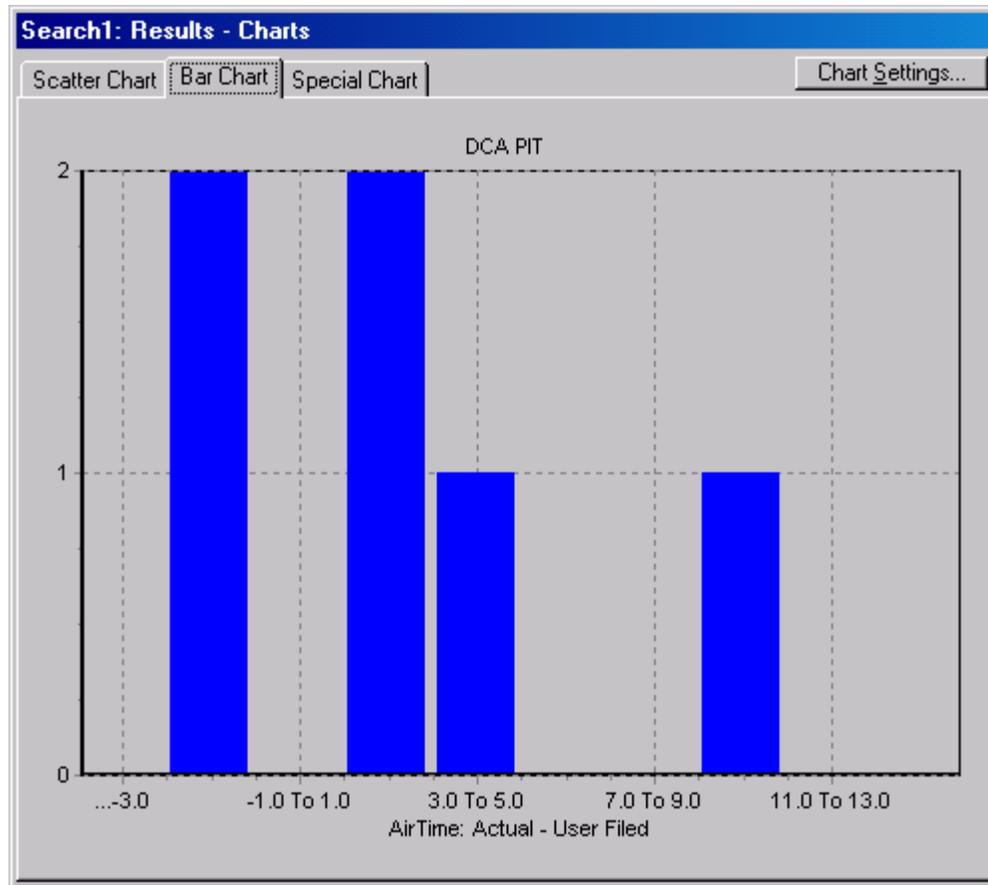


Figure 119: Bar Chart

For the Bar Chart, the Y-axis is always the number of flights whose value for the selected performance metric falls within the specified bins along the X-axis. Any of the available performance metrics can be plotted on the Bar Chart. Currently, the available metrics are **User Filed**, **Actual** or **Difference (Actual - User Filed)** for: Departure Time (OFF), Air Time, Arrival Time (ON), NRP, Circular Holding, Changed Arrival Fix, and Distance.

Changing the Bar Chart Settings

Different performance metrics are displayed along the Bar Chart's Y-axis. You can change the performance metrics, bin number, and bin size to meet your analysis needs. You can also change the scale of the chart. On the Bar Chart click **Chart Settings**. The Chart Settings window appears with two tabs: Data and Axis Scale. To change the performance metrics displayed on the chart, click the Data tab. The following fields are editable under the Data tab:

Data: Use the pull-down menu under the Data field to view the available performance metrics. Click the metric you want and it should appear in the field. Under the pull-down menu, click the appropriate radio button to display the **User Filed**, **Actual**, or **Difference (Actual - User Filed)** data for the selected performance metric.

Bin Settings: In the Bin Settings field, type in the **Number of Bins** you want to appear along the X-axis. The default is 10. Next to **Bin Sizes**, use the pull-down menu to select **Automatic** or **Manual**. If you select **Automatic**, POET will decide the start value for the bins and the bin size for the Bar Chart based on the flight data displayed. If you select **Manual**, you can decide where to place the bins along the X-axis. When you select manual, you must enter values into the fields at the bottom of the Chart Settings window: **Bin Size** and **Start Value**.

Plot Rows As Separate Series: By default this option is checked, which means that the bar chart will use differently colored bars to display information for individual flight rows in the Search Results Table (Figure 120).

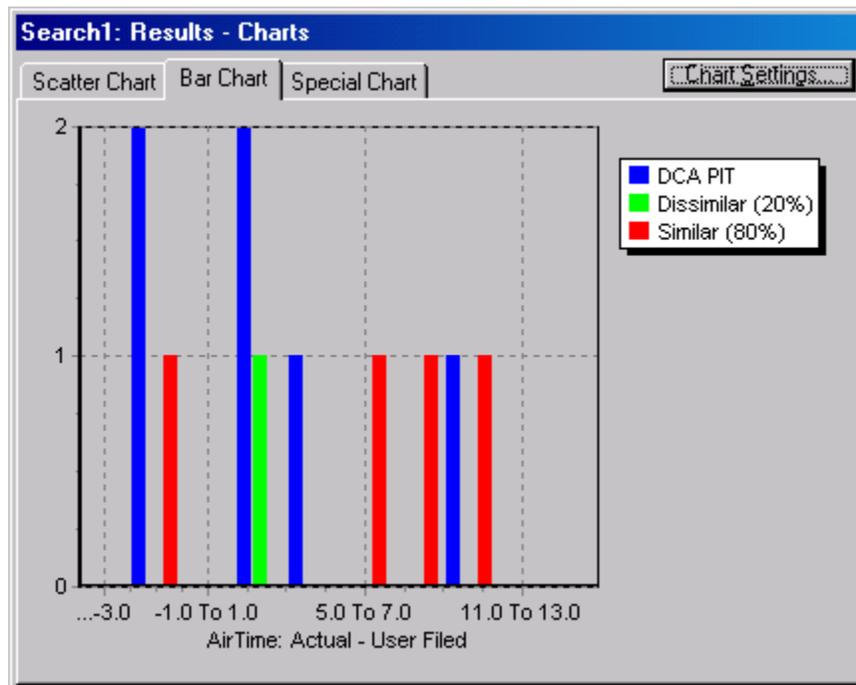


Figure 120: Bar Chart Using Plot Selected Rows As Separate Series

If you clear this option, POET displays one set of bars in a single color to create a histogram for the entire flight population (Figure 121).

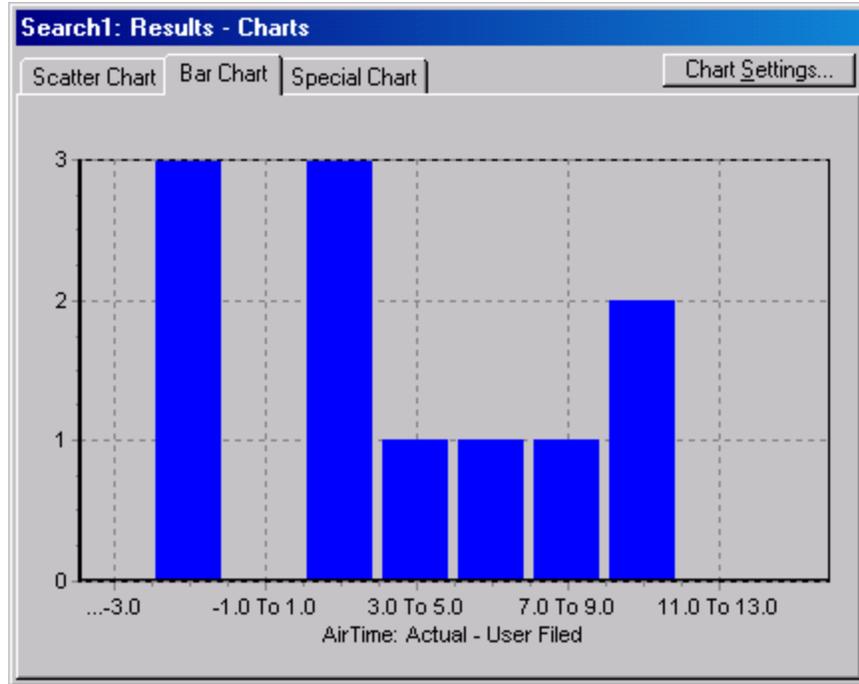


Figure 121: Bar Chart That Does NOT Plot Selected Rows as Separate series

To change the scale of your chart, click the Axis Scale tab. You can see in that only the Y-axis is editable. The scale is set according to default values. To change these values, clear the **Automatic** box under **Y-axis**. Enter your own values in the Minimum and Maximum fields.

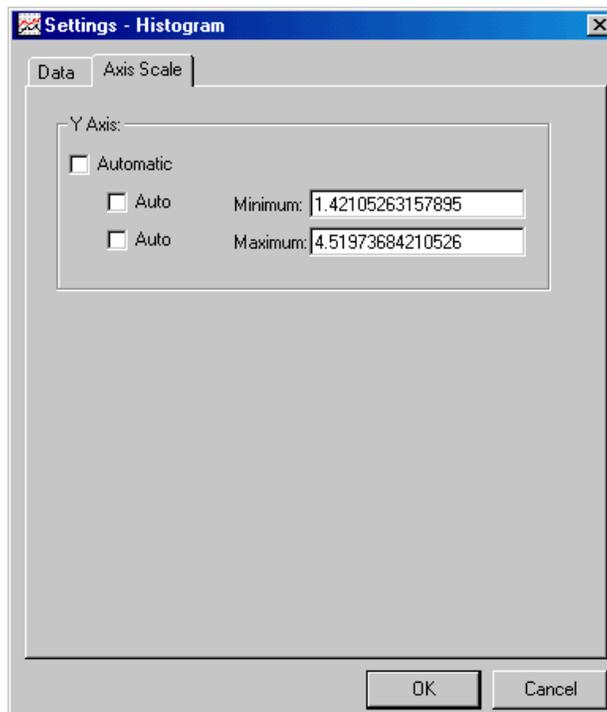


Figure 122: Bar Chart Settings - Axis Scale Tab

Once you make changes to the settings, click **OK** at the bottom right of the Chart Settings window. If you made changes in the Chart Settings window but do not want the Bar Chart to reflect those changes, click **Cancel**.

Example: Let's look at flight arrival times in the Bar Chart. In the Bar Chart, select Chart Settings button. In the Chart Settings window, select **Arrival Time (ON)** as your X-Axis metric. We have also decreased the number of bins by entering '5' next to the Bins field (Figure 123). Select a few flights in the Search Results Table.

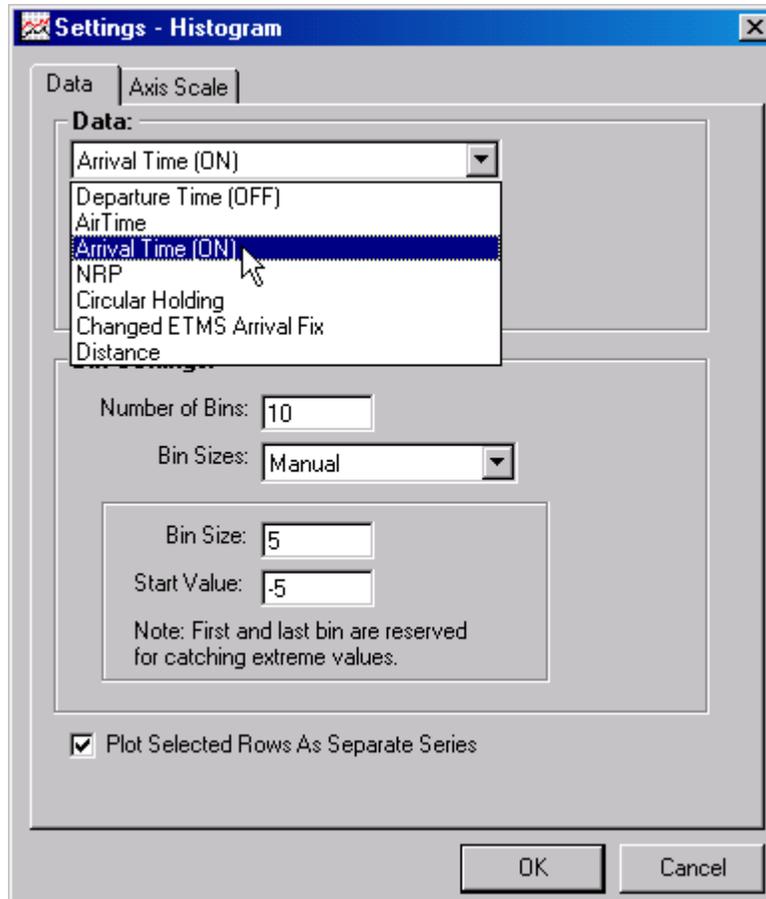


Figure 123: Changing the Bar Chart Settings

Your Bar Chart should look similar to Figure 124.

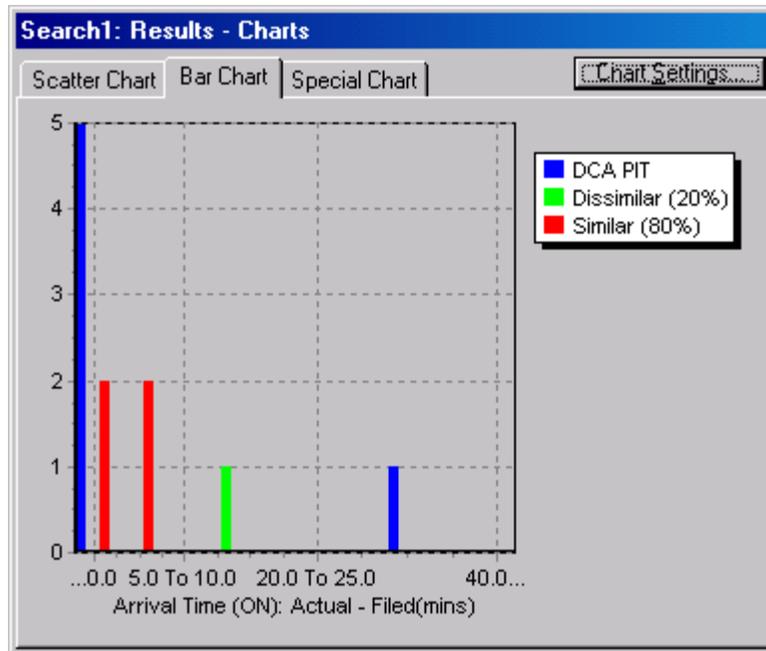


Figure 124: Bar Chart With Changed Settings

Special Charts

Special Charts provide specific analysis capabilities. Unlike the Scatter and Bar Charts, where you can change the type of analysis presented, Special Charts are pre-defined and perform a range of comparative analyses. Note that some of the Special Chart analyses require you to enter analysis parameters. Special Charts do not display any dynamic sectorization changes.

To access the Special Charts, click the **Special Charts** tab in the Search Results - Charts window. The Special Chart will appear, but will be empty until you choose which Special Chart to display.

Chart Settings

To access a Special Chart, you must choose a chart type from Chart Settings. Once in the Special Charts tab, click the **Chart Settings** button to see the chart types available. The Chart Settings window opens. Click a chart type to display. POET may take a moment to load the necessary data. Several chart types are available in POET, including comparisons of Percent Changed Arrival Fix vs. Filed Arrival Fix, Off Time Delay vs. Filed Departure Fix, and TZ ETA Error. Chart availability may change with future versions of POET.

Using the Chart Settings window, you select the chart you wish to view and set the scale for the chart. The Chart Settings window has two tabs: Data and Axis Scale. Using the Data tab, select a chart type from the pull-down menu. A description of the chart should appear in the Data tab once you select a chart (Figure 125).

In the Axis Scale tab, clear the "Automatic" checkbox under either the Y or X-axis. The Minimum and Maximum fields under each axis immediately become editable. You can enter new values to scale the chart to your specifications (Figure 126).

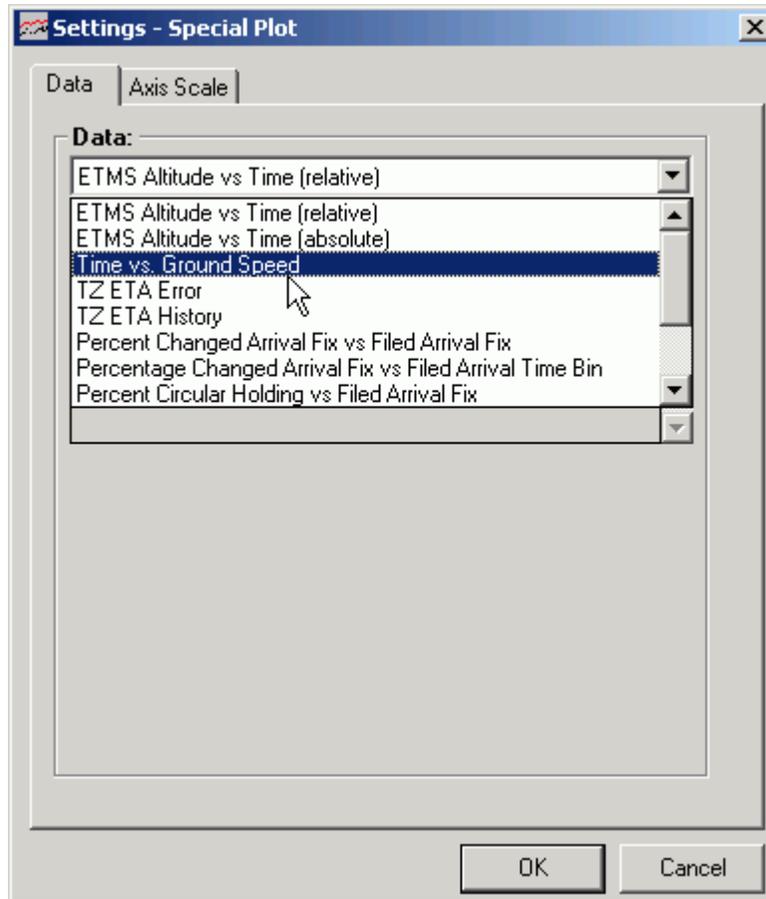


Figure 125: Special Charts - Data Tab in Chart Settings

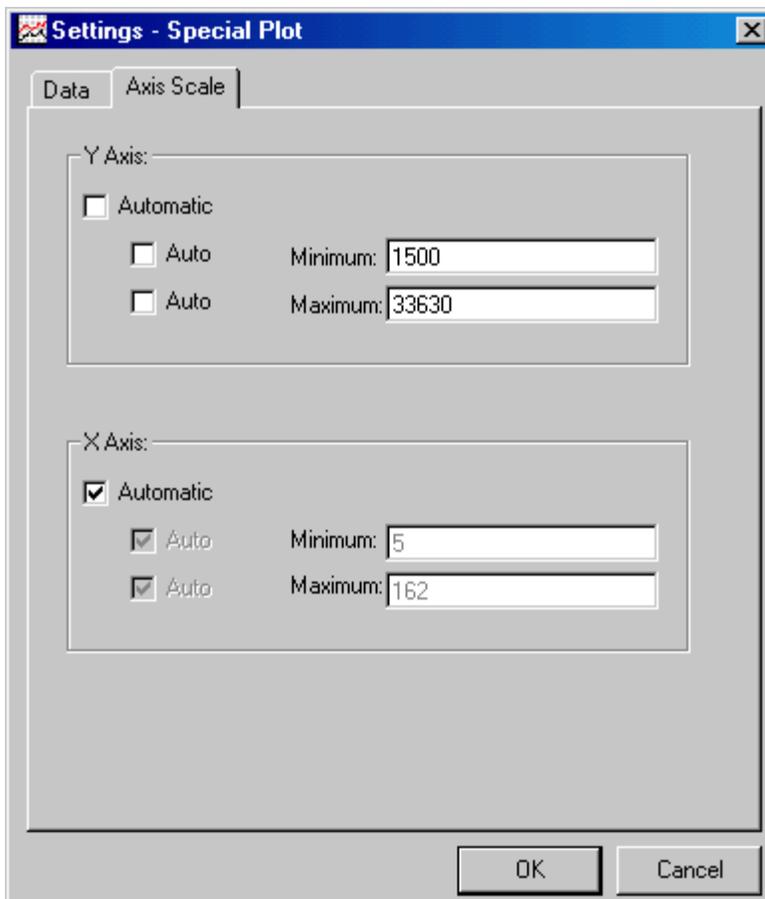


Figure 126: Special Chart - Axis Scale Tab in Chart Settings

Exporting Chart Data

After you customize a Chart, you may want to save the image for later analysis or reporting. You can do this by exporting the chart data. To export data from a Chart, select **File > Export Chart As JPEG** while in the main Search Results Window (see Figure 127). You will then be prompted for a file name and location to save the chart as a JPEG image.

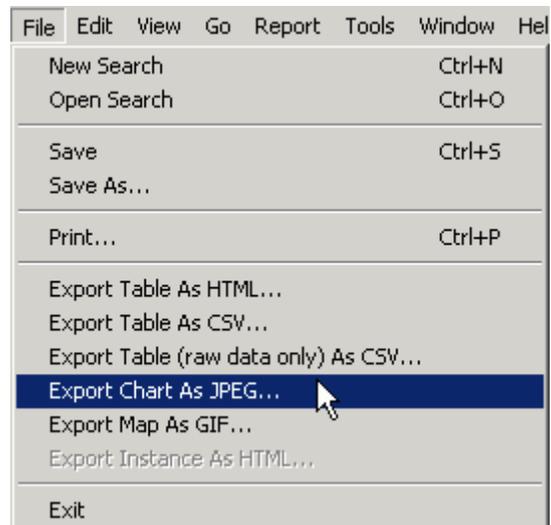


Figure 127: The File Menu: Export Chart As JPEG

For information on adding a picture of a chart to a POET Report, see Adding Chart on page 162.

Analysis Using the Map

The Search Results Map is a useful tool for analysis because it allows you to see flight track information in a geographical context with or without overlying NAS configuration data. The Search Results Map window loads automatically when the Search Results display is opened.

Note that the POET Search Results Map has its own menu. When this chapter talks about options in the **View and **File** menu, it will specify whether the option is available from the POET Map menu or POET main menu.

Viewing Flight Information on the Map

The Search Results Map is blank when it first appears in your Search Results Window. A flight track will not appear on the Map until you open flight groups to list individual flights in the Search Results Table by double-clicking on a particular row. (The setting to show planned and actual tracks when flight groups are expanded is the default in POET Properties—this setting can be changed if you prefer not to see tracks automatically.) You can view single or multiple flight tracks on the Map using the following procedures:

Open a flight group in the Search Results table by double-clicking its row. Flight tracks for all the flights in the group appear on the map. The default color for the Filed Route is Green, while the Actual Route is Black.

View flights in the Map by selecting flight rows from the Search Results Table. Click on a flight row and drag your cursor up or down in the list to highlight surrounding flights or press **Ctrl** + clicking to choose your flights individually. The Map displays the flight routes that correspond to the highlighted flights in the Table.

Right-click on a flight row and select **Routes** from the pop-up menu or click **Routes** on the POET toolbar. The Routes window appears (Figure 128).

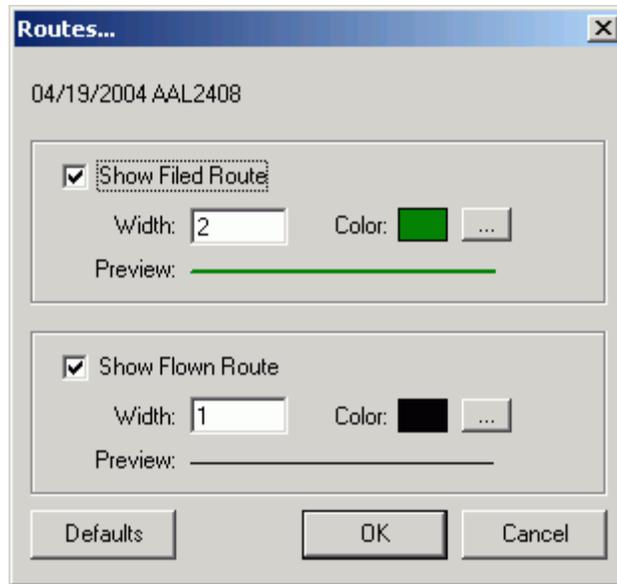


Figure 128: Routes Window

From the Routes window, select **Show Filed Routes** or **Show Flown Routes** checkboxes to view both sets of routes on the POET Map. This also displays routes without having to expand the table.

Example: We double-clicked on the first row of flight groups in the Search Results Table until we drilled down to a single flight. In this particular flight group, only one flight was included. The POET Map automatically updates to show the Filed and Flown Routes for that flight (see Figure 129).

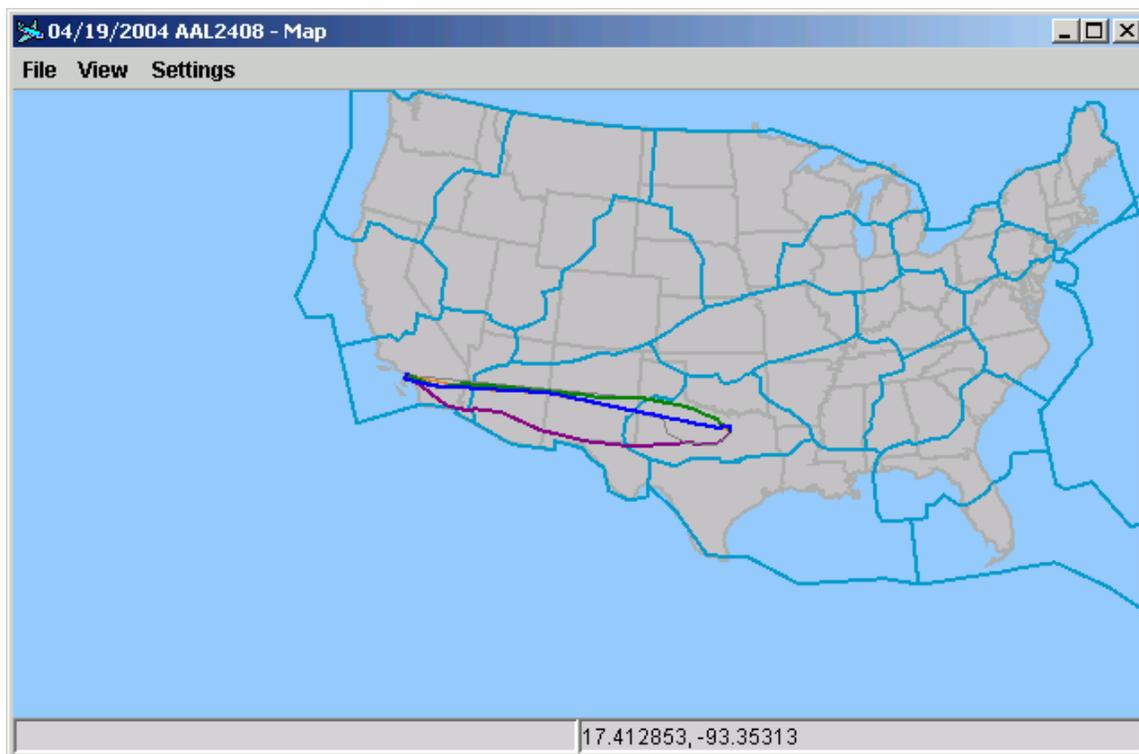


Figure 129: Routes on POET Map

Note: Clicking on a particular flight track on the Map will highlight the corresponding flight or flight group on the Search Results Table.

Customizing Flight Tracks

In addition to using the Routes window to display Filed and Flown routes on the Map, you can use this window to customize the appearance of flight tracks on the Map, by specifying the line width and color of flight tracks.

There are several ways to open the Routes window:

1. Right-click anywhere on the Search Results Table and then select **Routes** from the pop-up menu
2. Select **View > Routes** from the main menu
3. Click **Routes** from the toolbar

To change the line width, simply enter a new value into the Width field.

To change line color, click the button to the right of the color swatch and click a color to select it. Note that there is a rainbow coloring option included in the color swatch window (Figure 130). When you choose to use rainbow coloring for your flights, POET assigns a different color for each flight. The Map

Legend indicates which flight is assigned a particular color. This rainbow color scheme will automatically be applied to your Search Result charts so that flights on both the charts and the Map are assigned the same color.

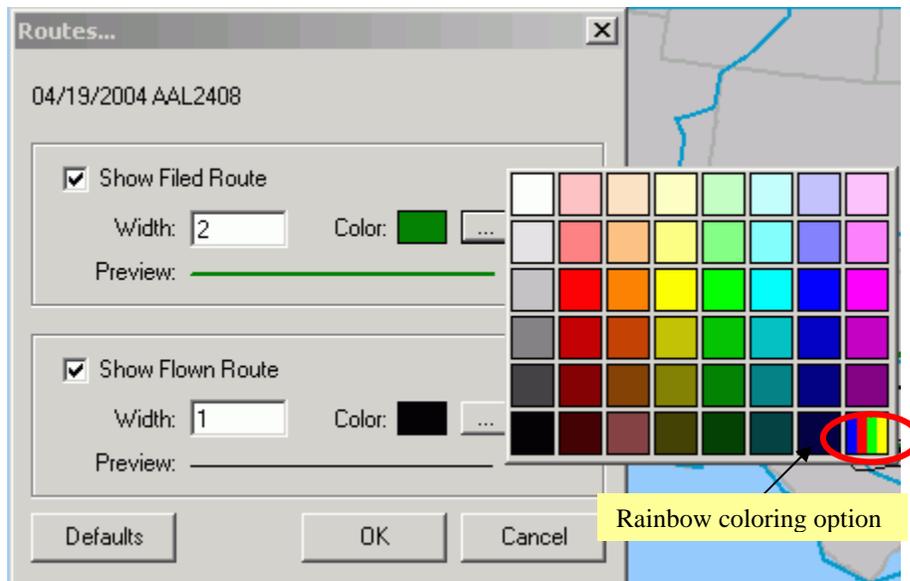


Figure 130: Available Colors for Flight Tracks

Click **OK** to apply your changes in the Routes window. Click **Defaults** to return to the default values. **Cancel** to close the window without making any changes.

Example: In our example search, let's say that the Flown Route is more important than the Filed route. For this reason, we want to make the line thickness and color of the Flown Routes tracks on the POET Map bolder than the Filed Route Tracks. To change the color we clicked the button next to the color swatch to bring up a color palette. In the color palette we clicked Black when selecting the color for the Filed Route tracks and Magenta when selecting the color for the Flown Route Tracks (Figure 131). In the Routes Editor we changed the line thickness for the Filed route to 1 and the Flown Route to 2 (Figure 132). Click **OK** to apply the changes. Figure 133 shows the end result.

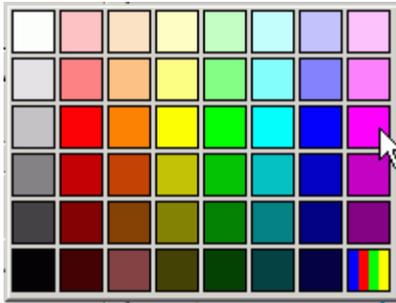


Figure 131: Selecting Magenta for Flown Routes

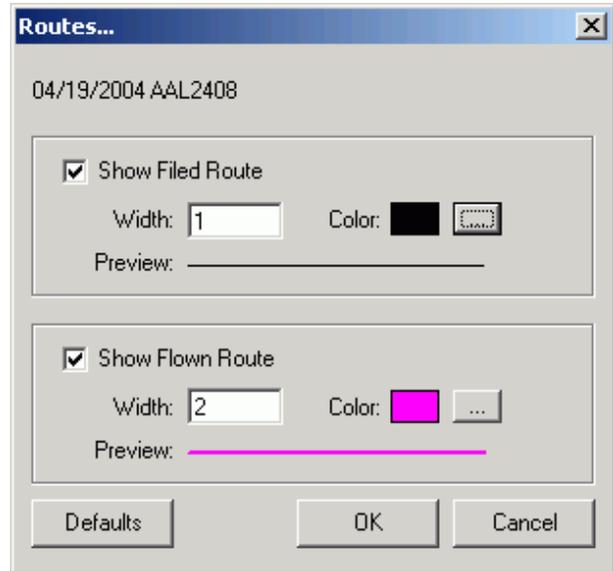


Figure 132: Route Editor Changes

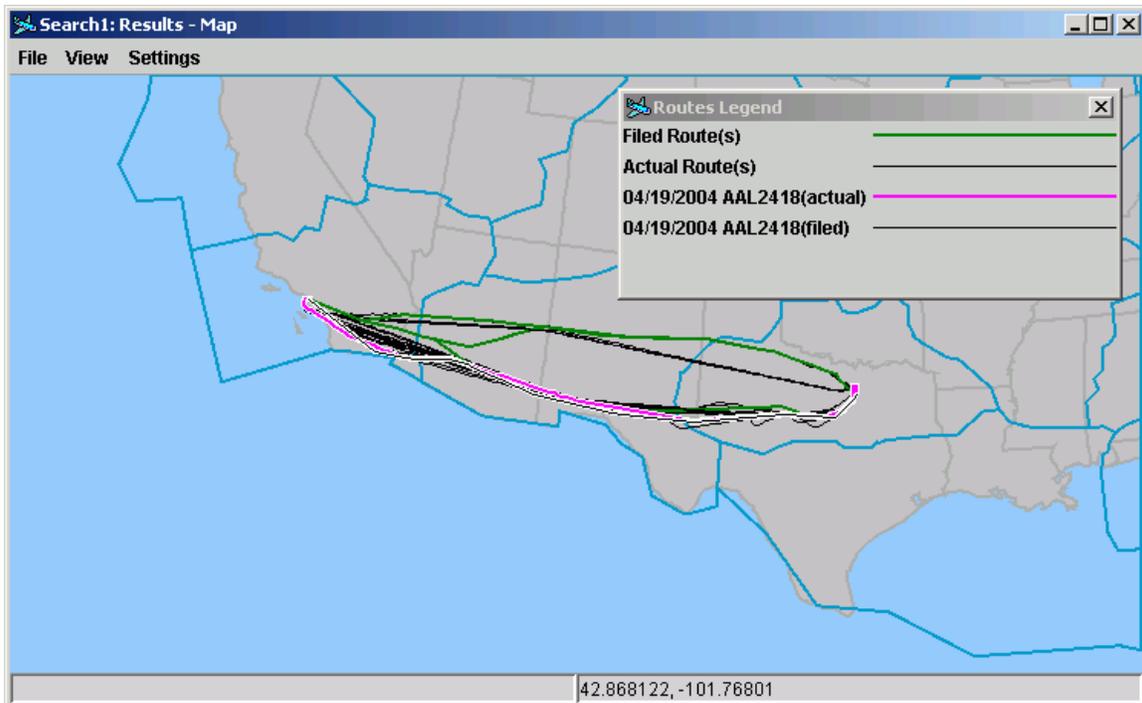


Figure 133: Map with New Route Colors Applied

Map Legend

The Map **Legend** opens automatically when the Search Results Map first appears on your screen. The legend illustrates the default flight route coloring (Figure 134). The Map Legend is automatically updated

when you apply colors to flights using the Routes window (Figure 135). You can close the Legend window by clicking **X** in the upper right corner of the Legend window. To display it again, select **View > Legend** from the POET Map menu.

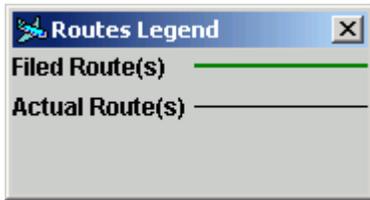


Figure 134: Map Legend Showing Default Colors

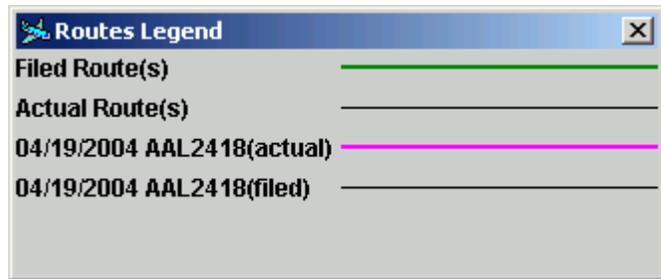


Figure 135: Legend Updated with Additional Colors

Animation

You can view events for a day in motion using the POET Map's animation capability. This allows you to play back the time/position history of selected flights and weather events. For example, you could examine what the arrival traffic situation looked like just prior to a ground stop at an airport of interest, or you could look at the complexity of traffic flowing through a sector of interest. Another use is to examine when and where flights entered a holding pattern.

Animation Settings

Select **View > Enable Animation Mode** from the POET Map menu to open the animation controls and Time Line at the bottom of the map. To customize your animation select **Settings > Animation Options** from the POET Map menu or click **Animation Options** from the animation controls to open the Animation Options window. There are six tabs in the Animations Options window that allow you to customize your animation (see Figure 136):

- Routes
- CCFP (Collaborative Convective Forecast Product) Weather
- NCWD (National Convective Weather Detection) Weather
- FCA/FEA
- ETMS Sectors
- Animation Time Control

Routes

The Routes tab defines the way in which icons will be displayed on the POET Map during animation and gives you the ability to apply “What If” scenarios using the **Time Offsets** feature.

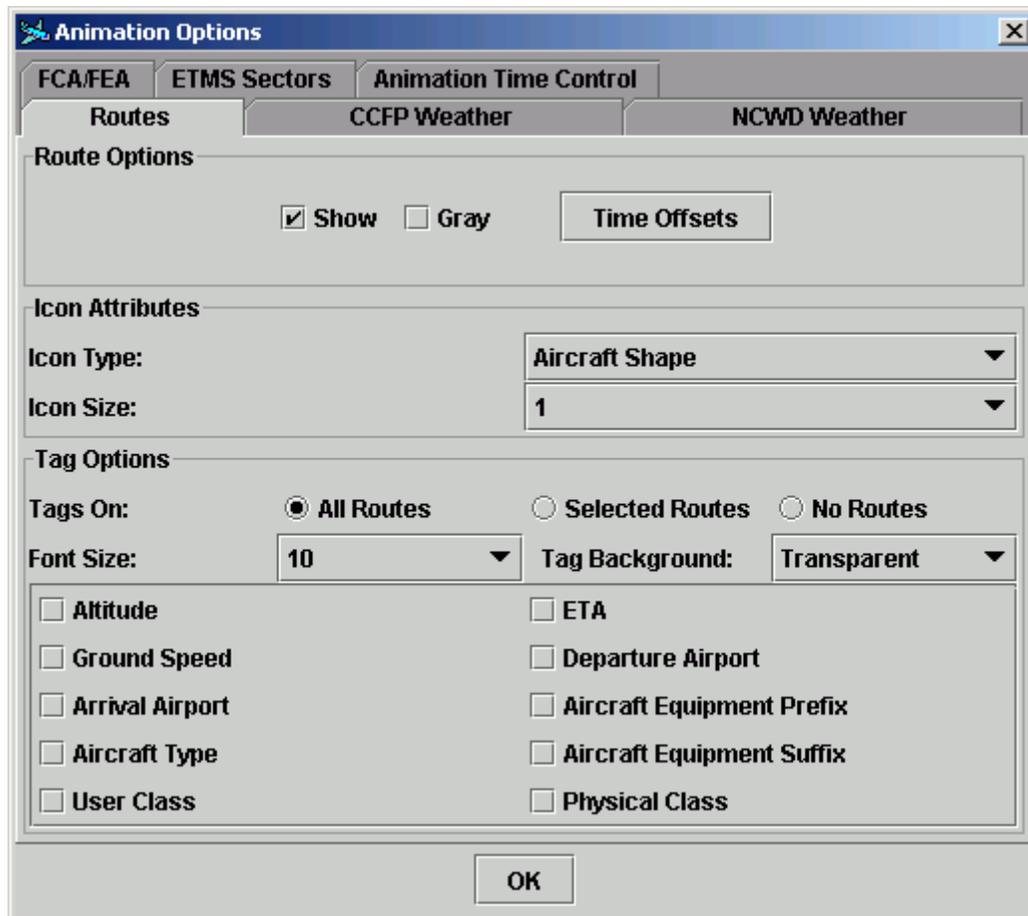


Figure 136: Animation Options Window Route Tab

Route Options

Click **Show** to display the route icons in full color. Click **Gray** to gray the icons on the map.

Click **Time Offsets** to open the Routes Animation – “What If” window to setup “What If” animation scenarios (see Figure 137). You can set up a scenario to view what would happen if a flight or a particular group of flights left at a different departure time. You can apply your “What If” scenario to selected flights or all the flights. Select the flights you want to run the “What If” scenario from the provided flight list in the “What If” window. In the **Offset** field, enter a negative value (-X) to make the selected flight(s) leave X minutes earlier or a positive value (Y) to make it leave Y minutes later than the actual departure time in the Offset field. Click **Set** to adjust the Time Offset for the selected flights or click **Set All** to adjust the time offset to all flights. In the example below, we selected AAL2412 to leave 5 minutes after and AAL2418 to leave 5 minutes before their actual departure times. Click **OK** to apply your changes. Click **Cancel** to close the “What If” window without applying any changes.

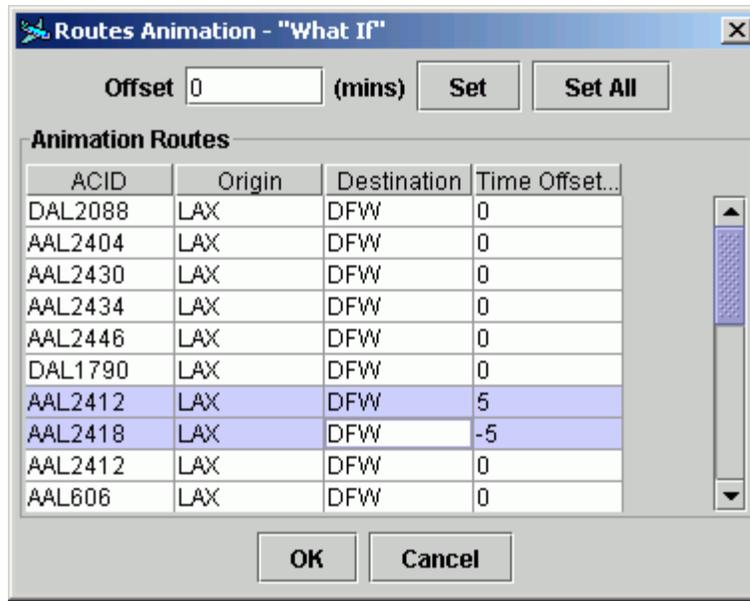


Figure 137: Routes Animation - "What If" Window

Icon Attributes

Icon Type - Click to choose the shape of your icons on the map. Icons can appear as aircraft, triangles, or spheres.

Icon Size - Click to select the size of your icon. Icon size ranges from 1 to 6.

Tag Options

Tags On - Select **All Routes**, **Selected Routes** or **No Routes** to set up how POET display text tags with the icons on the map. Text tags display specific flight information next to the flight icons. Select **All Routes** to display text tags for every flight. Select **Selected Routes** to display text tags for only selected flights you choose or select **No Routes** to turn off the text tag display for all flights.

Font Size - Use the drop-down menu to select a font size for the route tag information

Tag Background - Use the drop-down menu to set the tag background to user definable colors

Altitude - Click the checkbox to show altitude information in text tags. When the box is clear, altitude information will not appear in text tags.

ETA - Click the checkbox to show ETA information in text tags. When the box is clear, ETA information will not appear in text tags.

Ground Speed - Click the checkbox to show ground speed information in text tags. When the box is clear, ground speed information will not appear in text tags.

Departure Airport - Click the checkbox to show departure airport information in text tags. When the box is clear, departure airport information will not appear in text tags.

Arrival Airport - Click the checkbox to show arrival airport information in text tags. When the box is clear, arrival airport information will not appear in text tags.

Aircraft Type - Click the checkbox to show aircraft type information in text tags. When the box is clear, aircraft type information will not appear in text tags.

Aircraft Equipment Prefix/Suffix - Click the checkbox to show aircraft equipment prefix/ suffix information in text tags. When the box is clear, aircraft equipment prefix/suffix information will not appear in text tags.

User Class - Click the checkbox to show user class information in text tags. When the box is clear, user class information will not appear in text tags.

Physical Class - Click the checkbox to show physical class information in text tags. When the box is clear, physical class information will not appear in text tags.

CCFP Weather

The CCFP Weather tab allows you to define the way in which CCFP Weather is displayed on the POET Map during animation.

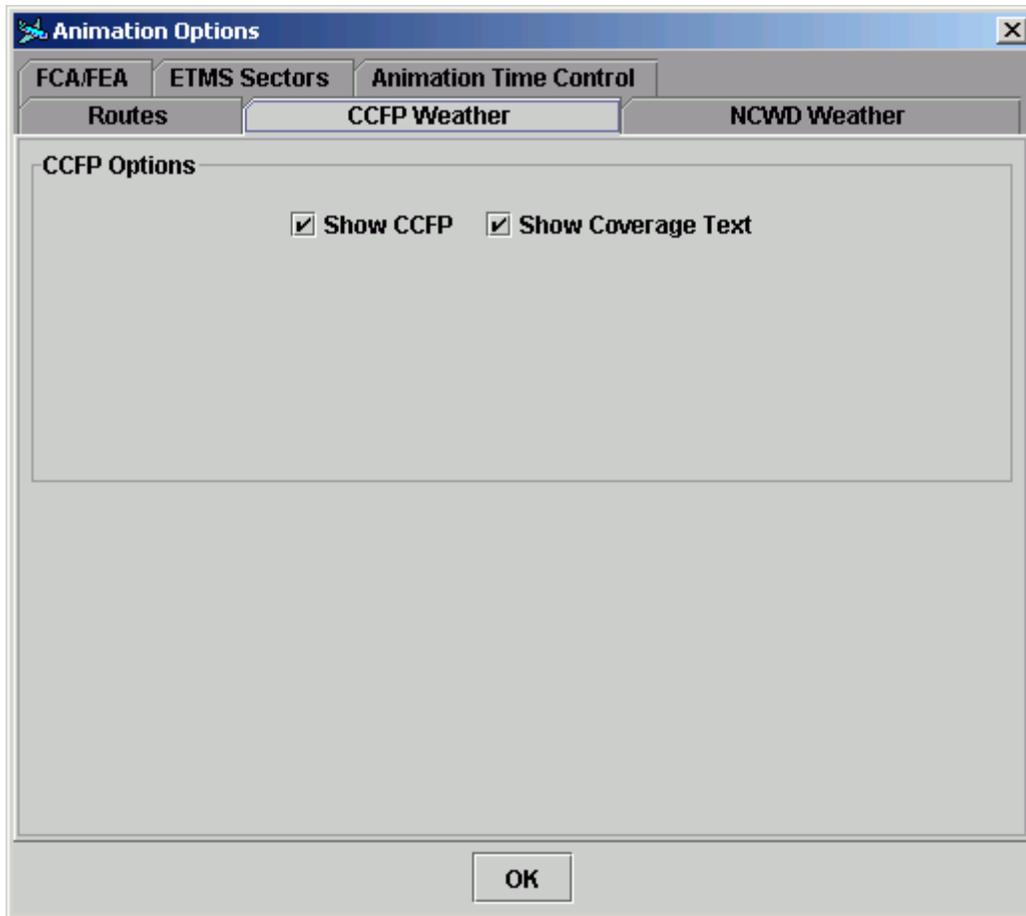


Figure 138: CCFP Weather Animation Options

Show CCFP - Click this box to show CCFP Weather during animation. When the box is clear, CCFP Weather will not appear on the map during animation.

Show Coverage Text - Click this box to show text information about the CCFP Weather when it appears on the map. When the box is clear, text information will not appear with the CCFP Weather.

NCWD Weather

The NCWD Weather tab allows you to view NCWD weather on the POET Map during animation. NCWD weather information is obtained from the National Weather Center.

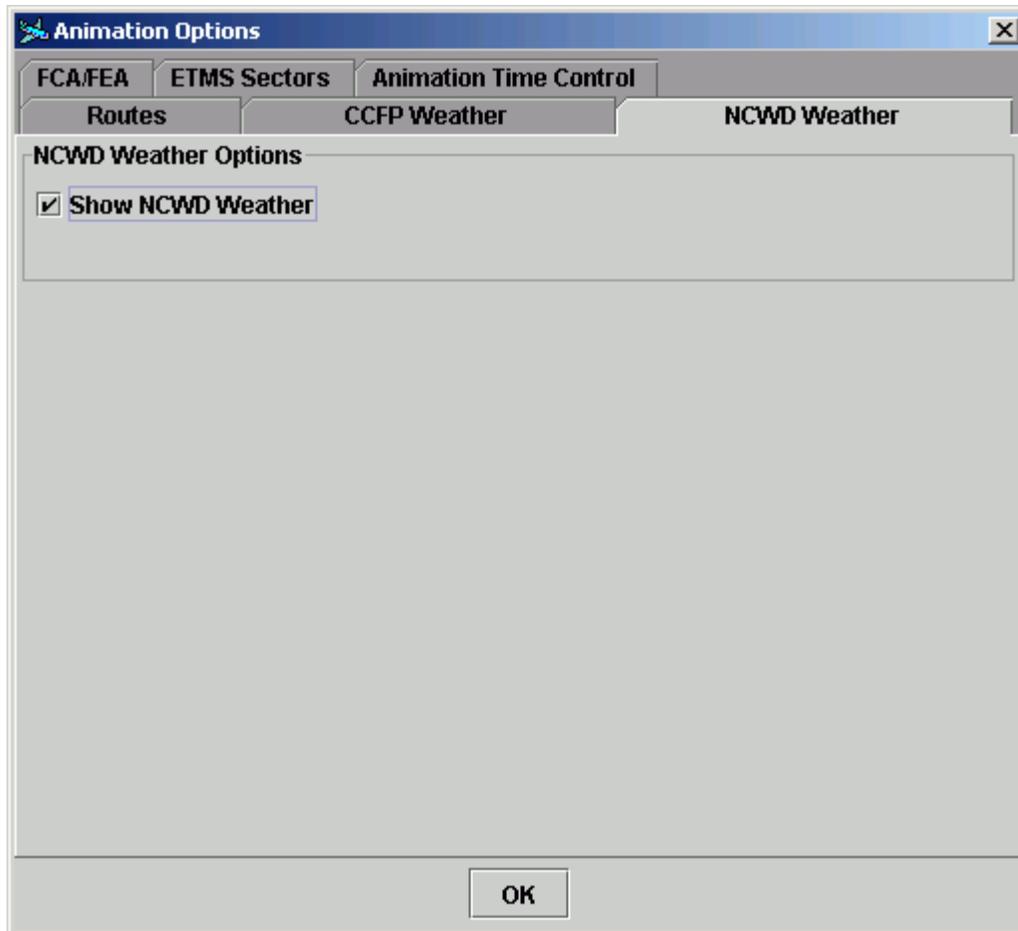


Figure 139: NCWD Weather Animation Options

Show NCWD Weather - Click this box to show NCWD Weather events during animation. When the box is clear, NCWD Weather will not appear during animation.

FCA/FEA

The FCA/FEA tab allows you to view Flow Constrained Areas and Flow Evaluation Areas on the POET Map during animation.

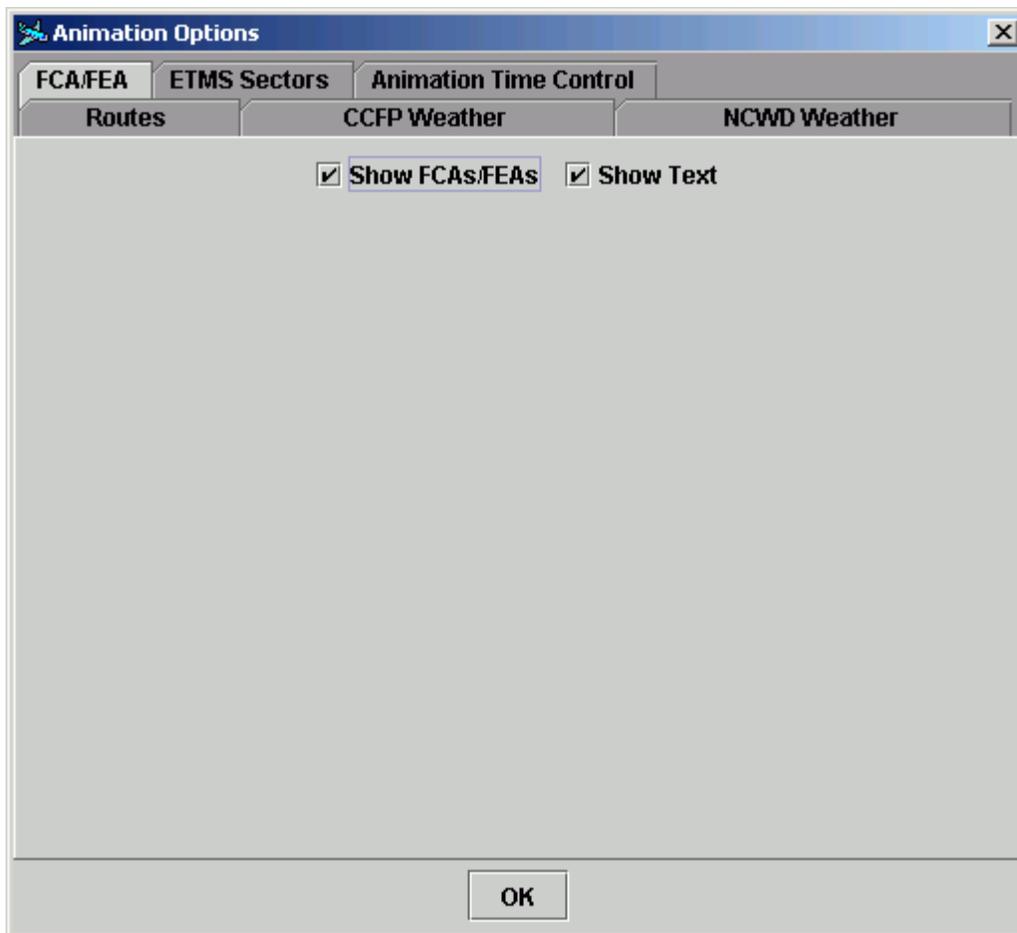


Figure 140: FCA/FEA Weather Animation Options

Show FCAs/FEAs - Click this box to show the FCAs and FEAs during animation. When the box is clear, FCA/FEA data will not appear during animation.

Show Text - Click this box to show text information about the FCAs and FEAs when they appear on the map. When the box is clear, text information will not appear for FCA/FEAs.

ETMS Sectors

The ETMS Sectors tab allows you to view ETMS dynamic sectors and define the altitude slice selection you want to view on the POET Map during animation.

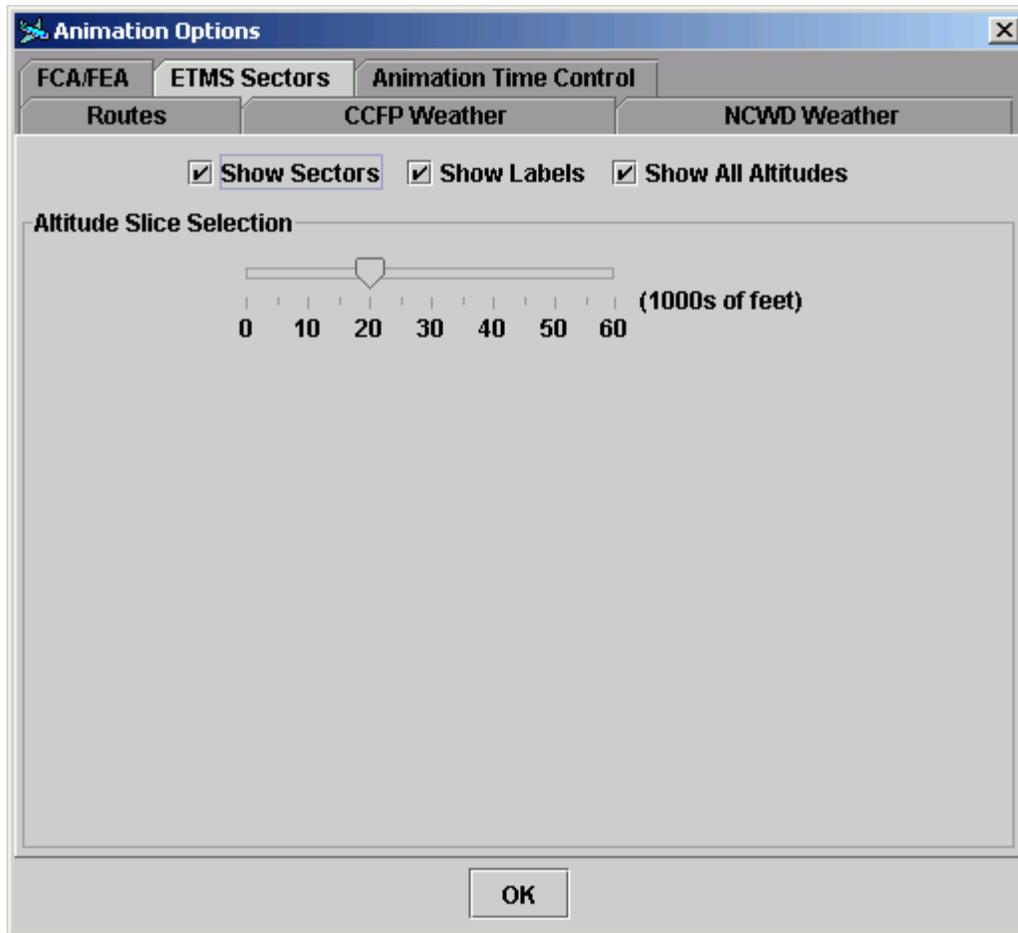


Figure 141: ETMS Sectors Animation Options

Show Sectors - Click this box to show the ETMS sectors during animation. When the box is clear, ETMS sectors will not appear during animation.

Show Labels - Click this box to show sector labels when the ETMS sectors appear on the map. When the box is clear, labels will not appear with the ETMS sectors.

Show All Altitudes - Click this box to show all the altitudes used in this animation when flights appear on the map. When the box is clear, the Altitude Slice Selection become active and the Map displays only the selected Altitude slice.

Altitude Slice Selection - Click and drag the scroll bar to manually select the altitude in thousands of feet to be displayed on the POET map during animation. The altitude slice adjustment can be adjusted only when the **Show All Altitudes** checkbox is not selected.

Animation Time Control

The Animation Time Control tab allows you to specify how much time is included in each frame during the animation, specify a custom date range to display, and determine the placement of the animation clock on the POET Map.

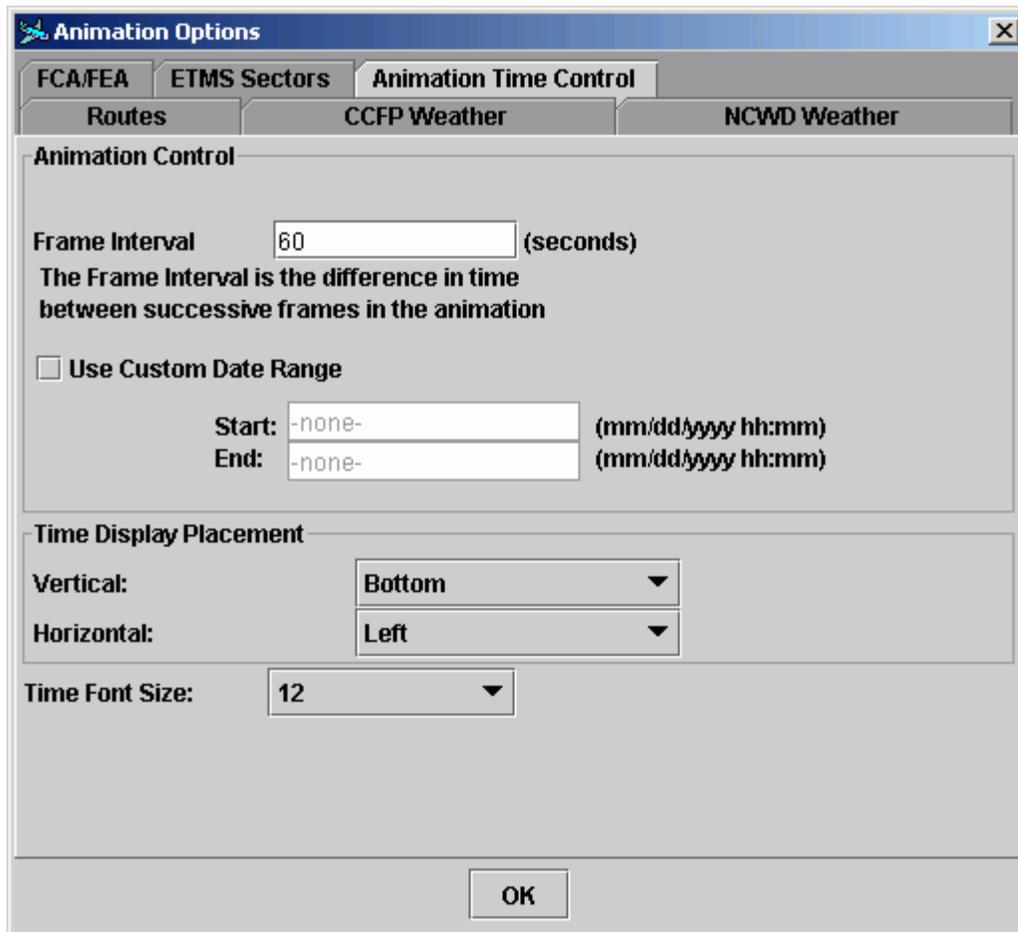


Figure 142: Animation Time Control tab

Frame Interval - Enter a number (in seconds) equal to the amount of time included in each frame of the animation.

Use Custom Date Range – Click this box to specify a date and time range of the animation. Enter the range in MM/DD/YYYY hh:mm format in the Start and End fields.

Time Display Placement - When you animate events on the map, POET places a date and time indicator somewhere on the POET Map so that you can track time as the events play. Use the **Vertical** and **Horizontal** menus to select the location of the date indicator on the map.

Time Font Size - Use this menu to select a font size for the time and information that appears in the date indicator.

Animation Controls

You can control the animation on the POET Map using the Animation Controls. Select **View > Show Animation Controls** from the POET Map menu to display the Animation Controls at the bottom of the POET Map (see Figure 143). Using various buttons, you can control playback speed, as well as fast-forward and rewind through events.

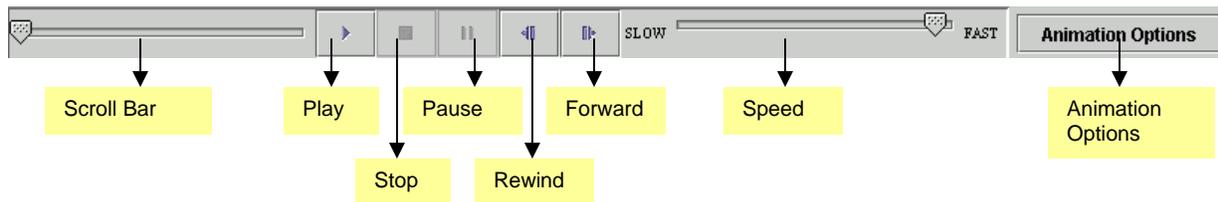


Figure 143: Animation Controls

- **Scroll Bar** - Moves automatically when you "play" the flight animation. Your date and time indicator should update as the scroll bar is moved. You can click and drag the scroll bar to manually move the animation to a specific date and time.
- **Play** – Click to begin the animation.
- **Stop** – Click to stop the animation.
- **Pause** – Click to suspend the animation.
- **Rewind** – Click to rewind the animation.
- **Forward** – Click to forward the animation.
- **Speed** - Use this scroll bar to adjust the speed of the animation. Click and drag the scroll bar closer to **Slow** or **Fast**, depending on which speed you prefer.
- **Animation Options** - Click this button to open the Animation Options window.

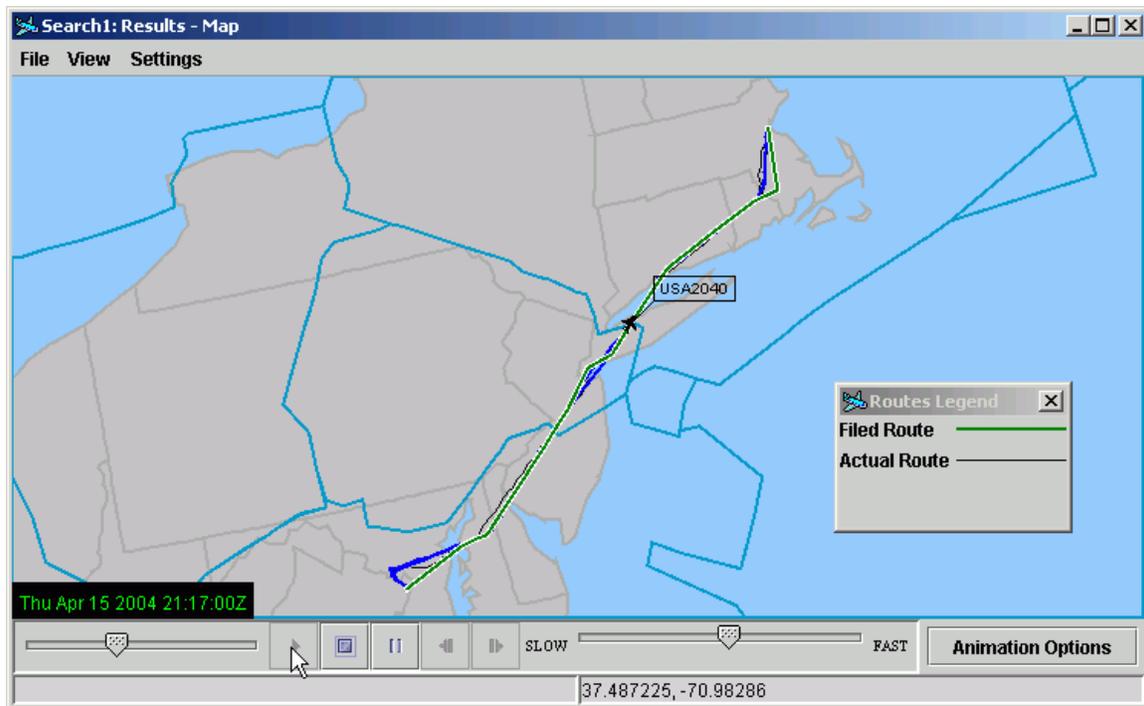


Figure 144: Animation of a Single Flight

Customizing Search Results Map

You can change the arrangement of your map display, zoom in and out, change colors and/or line styles for the map, and overlay the maps with various graphics. The map customization features can aid you greatly in your analysis of the flight tracks. For example, if a filed versus flown route varied greatly, that variation may be explained by a sudden weather system. The CCFP weather is one of the map overlays available in POET that might help explain the observed flight tracks.

Using the Zoom Feature

You can zoom in or out in any POET map to better examine a particular point. You can then reset the zoom to return to the original screen. Use the following procedures to zoom in and out in the map:

Zooming In

To **Zoom In**, click on the map in the upper-left portion of the area you would like to see. Hold down the left mouse button and drag any direction, besides up and left, around the area you want to zoom in on, creating a rectangle (see Figure 145).

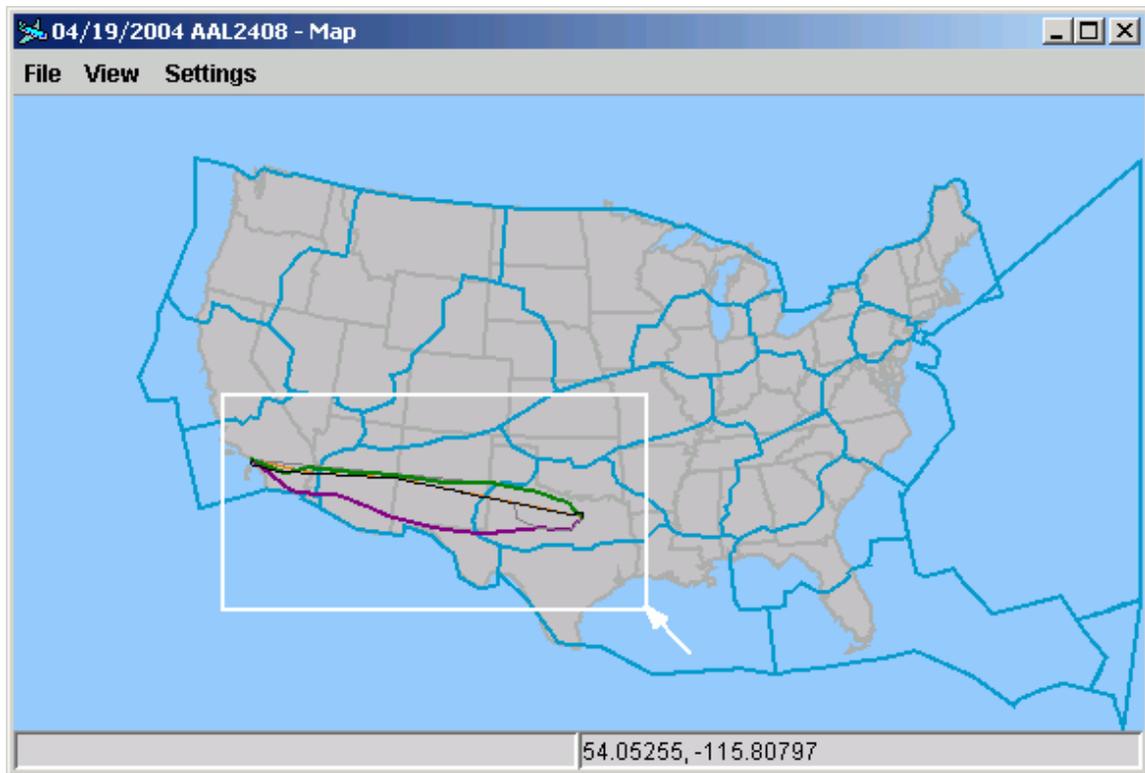


Figure 145: How to Zoom In

When the mouse button is lifted, the Map zooms in on the area selected (see Figure 146).

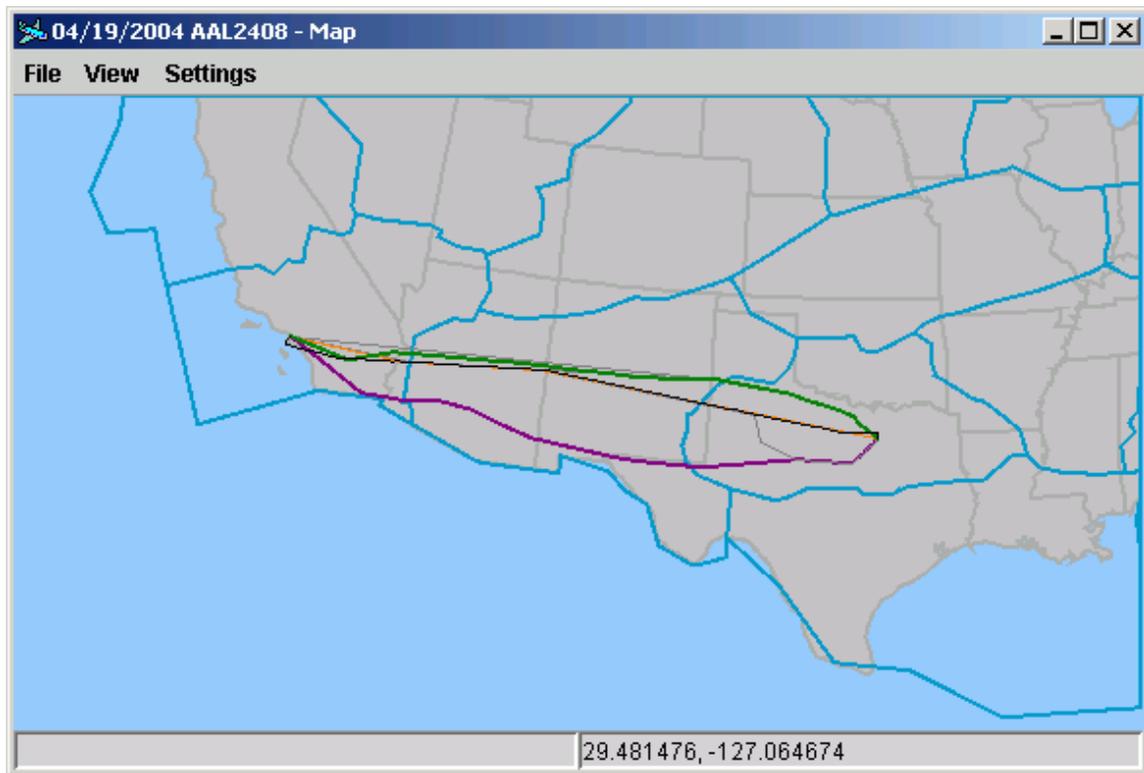


Figure 146: Zoom-in View

Zooming Out

To **Zoom Out**, simply reverse the process. Click on the lower right corner of an area, hold down the left mouse button and drag the cursor up and to the left.

When the mouse button is lifted, the Map zooms out based on the rectangle drawn. The degree that the map zooms out is based on what is visible on the initial screen. The initial viewing area is then fit into the box that you drew. Therefore, the smaller the box you draw, the further your map zooms out.

Zoom to Fit Tracks

To focus on the flight tracks displayed on the map, use the POET Map's **Zoom to Fit Tracks** feature.

Right-click anywhere on the map and select **Zoom to Fit Tracks** from the pop-up menu or select **View > Zoom to Fit Tracks** from POET Map menu to size the map so that the display zooms in as much as possible on the flight routes without pushing any of the routes outside the map display.

Undoing Zoom

Undo Zoom cancels your most recent zoom action.

Select **View > Undo Zoom** from the POET map menu or press Ctrl+U on your keyboard to undo your last zoom.

Resetting Zoom

No matter how you have changed the map display, you can always reset the Zoom to its default display.

Right-click anywhere in the map and select **Reset Zoom** from the pop-up menu, select **View > Reset Zoom** from the POET Map menu, or press **Ctrl+R** on your keyboard to completely reset the map zoom.

Re-Centering the Map

By default, the POET Map opens with a map of the contiguous United States in the center. This may not be the desired map view for all users. For example, users based in Alaska may find that having the map open with a map of Alaska in the center is more helpful than the default configuration.

To re-center the Map, open the poetmap.ini file in the Map subdirectory in your main POET directory. Modify the Map Bounds NW and Map Bounds SE values to adjust the center of the Map.

Note that if you change the map center, you may also want to re-project the map so that your display and overlays do not appear at an angle on the map. To re-project the map, open the poetmap.ini file. Modify the value for **Map Center** to re-project the map display.

Overlays and Labels

Another way to customize your display is by overlaying a variety of fixed data (sectors, airports, centers, fixes, etc.) onto the map. These overlays appear beneath the flight route(s) and provide helpful background information and points of reference for examining the flight path. The list of overlays available in POET is constantly growing. The overlays currently include airports, centers, fixes, jet routes, CCFP weather, FCA/FEA, and many others. There are several ways to display the overlays.

Showing Overlays

You can apply static overlays using the Show/Hide Overlays window. Select **Settings > Show/Hide Overlays** from the POET Map menu or right-click on the map and select **Show/Hide Overlays**. The **Show/Hide Overlays** window appears with a list of all the available overlays (Figure 147).

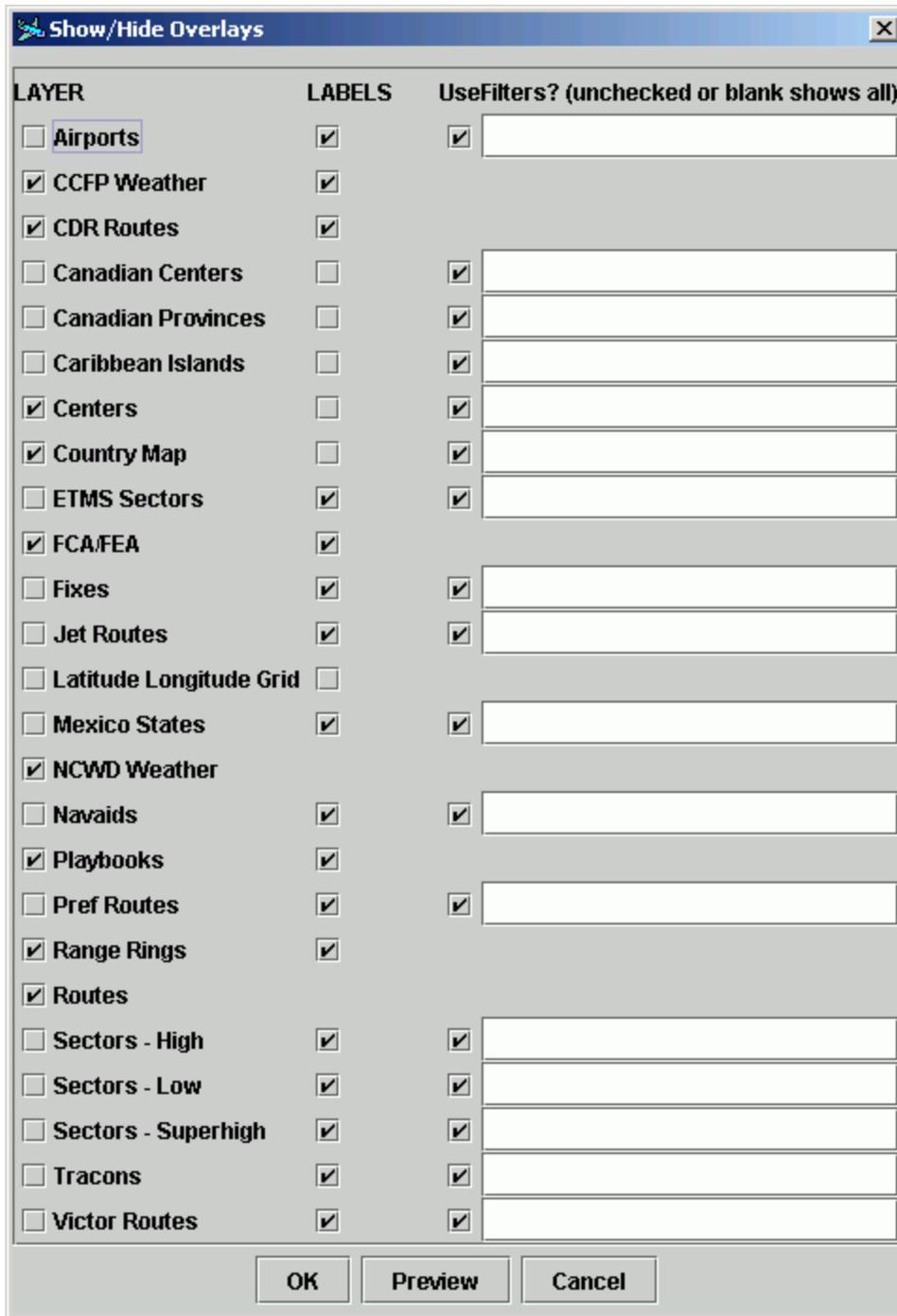


Figure 147: Show/Hide Overlays

Click the checkbox under the **Layer** column next to the overlay name and click **OK**. The overlay graphic appears on the map. Overlay labels in addition to their graphics can be viewed by checking both the boxes under the **Layers** and **Labels** columns. Likewise, to hide an overlay or label on the map, clear the associated checkbox next to the overlay name. The overlay disappears from the map.

Once you check the desired layers to display on the map, click **Preview** to see what your map will look like with the selected overlays. You can then change any of your selections. Click **OK** when you are satisfied with the results. This will close the Show/Hide Overlays window and display your selected overlays on the map. Click **Cancel** to close the window without taking any action.

Filter Overlays

Using overlay filters, you can dictate specific elements within the overlay to view on the map. For example, when you choose to display U.S. centers as an overlay, all centers within the United States will appear on the map. Using a filter, you can choose to display only specific centers.

Select **View > Show/Hide Overlays** from the POET Map menu or click **Ctrl+O** to apply filters to your overlays. The Show/Hide Overlays window appears.

The **Use Filters** column provides a text field in which you can enter the specific filter values for an overlay. To apply a filter to an overlay, first enter the name of the specific overlay element(s) you want to view. For example, type **ZDC** in the **Use Filters** column's text field for the Centers row. You can use a wildcard symbol (*) to enter non-specific data points in the text fields. Note that each element must be separated by a space or a comma. You must click the checkbox to the left of the text field to apply the filter. When a box is checked POET will only display the items you defined for that row in the **Use Filters** column. When this box is not checked, POET will display all the elements for an overlay.

To preview the map display with your filtered overlays, click **Preview** from the Show/Hide Overlays window. Once you are satisfied which overlays to display with filters, click **OK** to close the window and return to the POET Map.

To clear the filters you have entered for an overlay, highlight the filter by dragging your cursor over it and press **Delete** on your keyboard

Example: In our example search we will define specific center areas to appear on the map. Let's display Atlanta, Dallas, and Los Angeles centers. To do this, enter **ZTL, ZLA, ZFW** in the **Use Filters** field. Make sure the **Centers** filter checkbox is selected and the box next to the **User Filters** field is checked. We will not use labels. Leave that box unchecked. Click **OK** to apply the change. Your map should look similar to Figure 148.

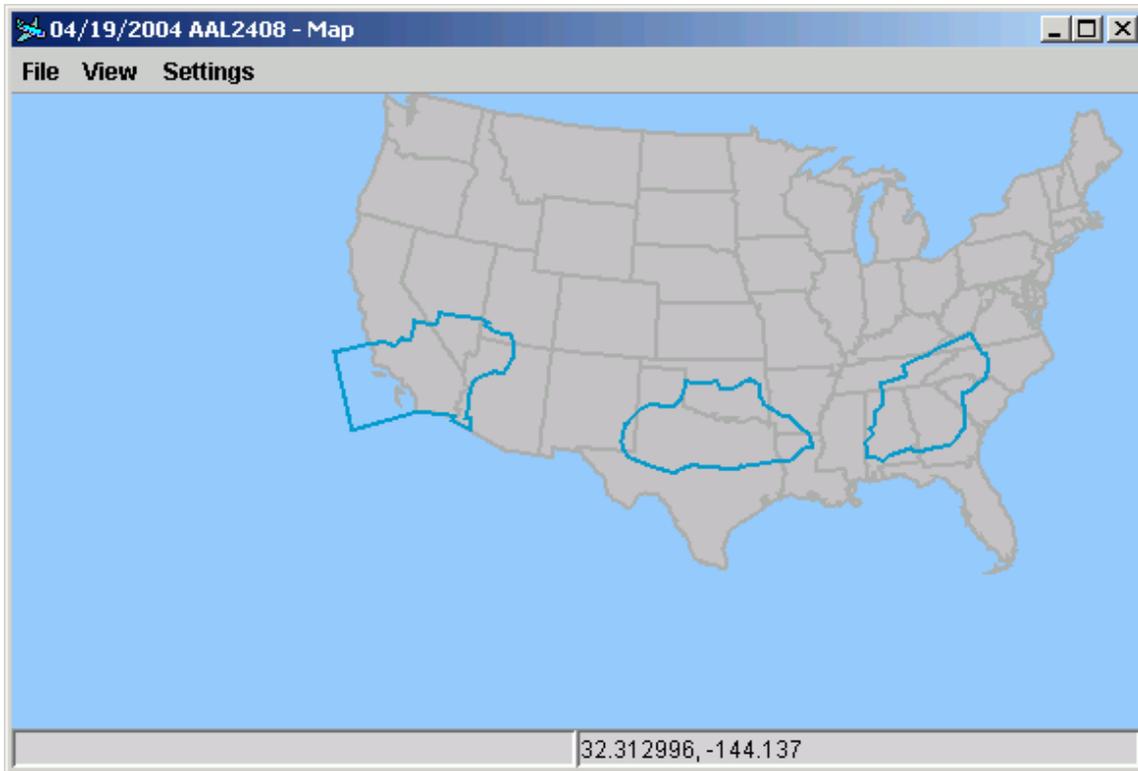


Figure 148: Map With Specific Center Overlays Defined

Viewing Queried Data

Playbook Plays

To view Playbook Plays on your map display you must first query the database. Go to **View > Playbook Routes** from the map menu. The Display Playbooks window appears.

Enter the Play name in the Play Name field, if known. Enter the Playbook category in the Category field. Click **Find Now**. Your query results appear (see Figure 149). Note that if no parameters are entered into the fields, POET queries the entire database which can take considerable time.

Display Playbooks							
Query Fields							
Play Name	Category			Find Now			
	Regional Routes						
Query Results							
Play Name	Category	Impacted Area or Flow	Facilities Included	Instructio...	SPECIA...	Last Update	
A700	Regional Routes	NEW YORK TO FLORIDA FLIGHTS FILED VIA WHITE OR WAVEY	ZNYZJKZMA/MCO			02/19/2004	
A761	Regional Routes	MID ATLANTIC REGION	ZBWZNYZJKZMA			04/15/2004	
FLORIDA TO NE 1	Regional Routes	USABLE FOR ZMAZJKZ TRAFFIC TO ZDC/ZNYZBW	ZDCZJKZMA	REROUT...		04/15/2004	
FLORIDA TO NE 2	Regional Routes	USABLE FOR ZMAZJKZTL TRAFFIC TO ZDC/ZNYZBW	ZDCZIDZTLZJKZMA	REROUT...		06/10/2004	
FLORIDA TO NE 3	Regional Routes	ZMAZJKZTL TRAFFIC TO ZDC/ZNY	ZNYZDCZOBZIDZTLZJKZMAZHJZFZWZKCZAU	REROUT...		06/10/2004	
SIERRA NORTH	Regional Routes	EASTERN ZOA	ZLAZOA/ZSE/ICZY	REROUT...		04/15/2004	
SIERRA SOUTH 1	Regional Routes	EASTERN ZOA	ZLAZOA/ZSE/ICZY	REROUT...		04/15/2004	
SIERRA SOUTH 2	Regional Routes	EASTERN ZOA	ZLAZOA/ZSE/ICZY	REROUT...		04/15/2004	
SNOWBIRD 5	Regional Routes	ZMA	ZMAZJKZTLZIDIZOBZAU/ICZYZDCZNYZBW/CZY/CZU			04/15/2004	
SNOWBIRD 6	Regional Routes	ZMA	ZMAZJKZTLZIDIZMEZAU/ZOB/ICZY			06/10/2004	
SNOWBIRD 7	Regional Routes	ZDC	ZMAZJKZTLZDCZNYZBW	REROUT...		04/15/2004	

Figure 149: Display Playbook Regional Routes Plays in Display Options

Click a Play name to select the entire row. Click **Show Selected**. The selected Plays appear on the map.

To clear the Playbook Play POET Map overlay, go to **Settings > Display Options**. Select **Playbook Routes** in the Map Layer List. Clear the Show Layer and Layer's Labels checkboxes. Click **OK** to view the map without the Playbook Play overlay.

CDRs

To view CDRs on your map display you must query the database. Go to **View > CDR**. The Display CDR window appears. Enter the search parameters in one or any of the query fields and then click **Find Now**.

The available query fields in the Display CDR window are:

Route Code - Enter the CDR route code: an 8-character route designator made up of the 3-character departure airport code, 3-character arrival airport code, and a 2-character facility-designated code.

Origin/Dep Center (Origin or Departure Center) – Enter either the 3 or 4-character airport or center code to identify the route's point of origin (Canadian airports require the 4-character ICAO codes. Anchorage, AK and Honolulu, HI require PANC and PHNL, respectively).

Destination/Arr Center (Destination or Arrival Center) - Enter either the 3 or 4-character code for the destination airport or the 3-character code for the arrival center.

Traversed Centers - Enter the 3-character code for a center through which the flight path traverses. Note that multiple centers can be entered in this field.

Departure Fix - Enter a departure fix.

Route String - Enter an element of the route string (i.e. a fix, navaid or airport code).

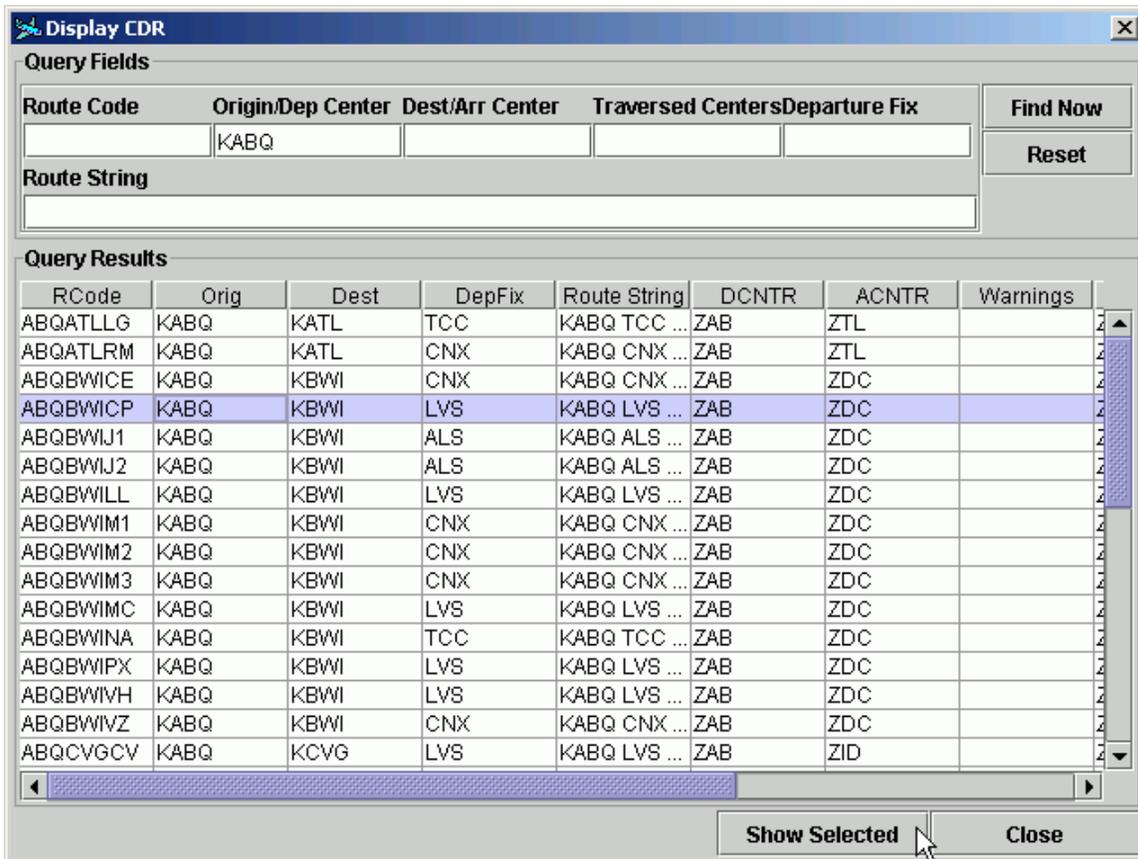


Figure 150: Display CDR Window

Click to highlight the CDR route name and select the entire row. Click **Show Selected** to view the overlay on the map. Click **Close** to exit the Display CDR window and return to the POET Map.

To remove the CDR map overlay, go to **Settings > Display Options**. Select **CDR** in the Map Layer List. Clear the Show Layer and Layer's Labels checkboxes are selected. Click **OK** to view the map without the CDR overlay.

FCAs/FEAs

To view FCAs and FEAs on your map display you must query the database. Go to **View > FCA/FEA**. The Show FCA/FEA window appears.

Enter the FCA or FEA name in the FCA/FEA Name field. Select the type as either **FCA** or **FEA**. Select the domain as either **PRIVATE**, **SHARED**, or **PUBLIC**. Enter the start and end dates of the FEA or FCA in MM/DD/YYYY format. Click **Find Now**. The query results appear (see Figure 151 for an example).

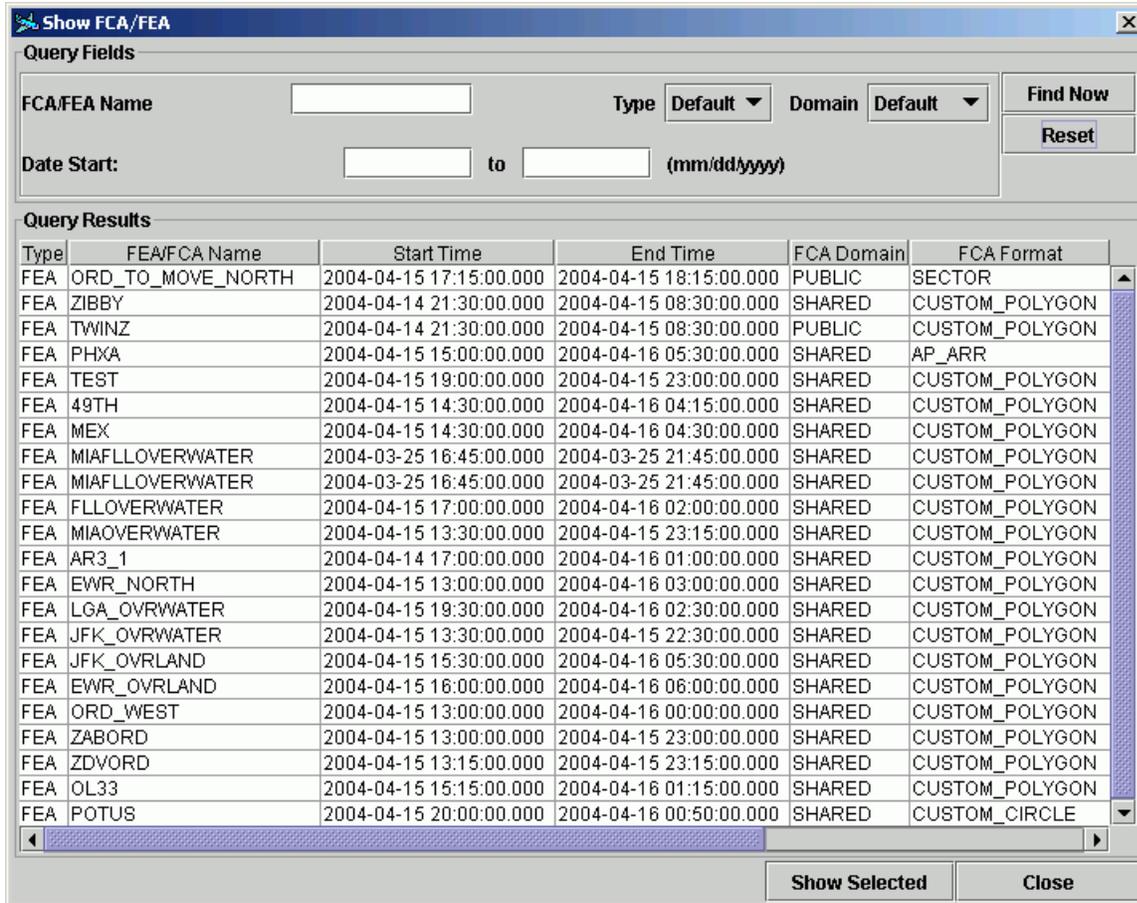


Figure 151: Show FCA/FEA in Display Options

Click to highlight the FEA or FCA name and select the entire row. Click **Show Selected** to view the overlay on the map. Click **Close** to exit the Show FCA/FEA window and return to the POET Map.

Alternatively, to apply FCAs and FEAs as a map overlay, go to **Settings > Display Options**. Select **FCA/FEA** in the **Map Layer List** window appears. Type the search parameters in one or any of the query fields and then click **Find Now**.

NCWD Weather

NCWD weather information is obtained from the National Weather Center.

To apply NCWD as a static overlay, bring up the **Show/Hide Overlays** window (see Figure 152). Select **NCWD Weather** in the Show/Hide Overlays window, the POET Map will display NCWD weather that you specify in the NCWD weather dialogue box. Figure 153

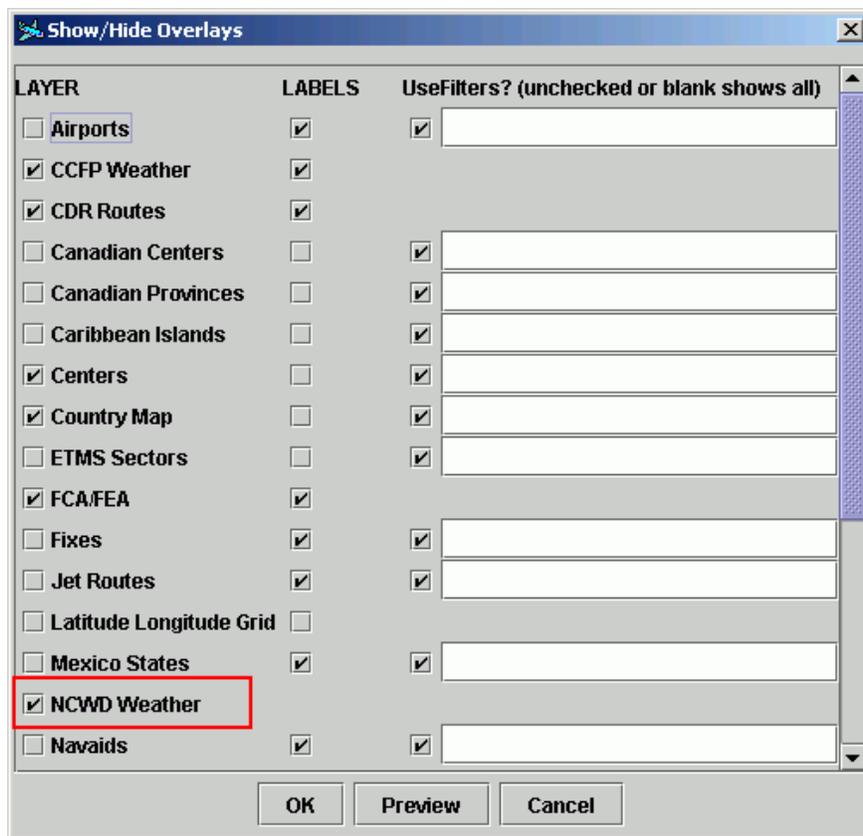


Figure 152: Choose NCWD as an Overlay

To select NCWD Weather to display, select **View > NCWD Weather** from the POET Map menu. The **NCWD Weather** window (Figure 153) appears.

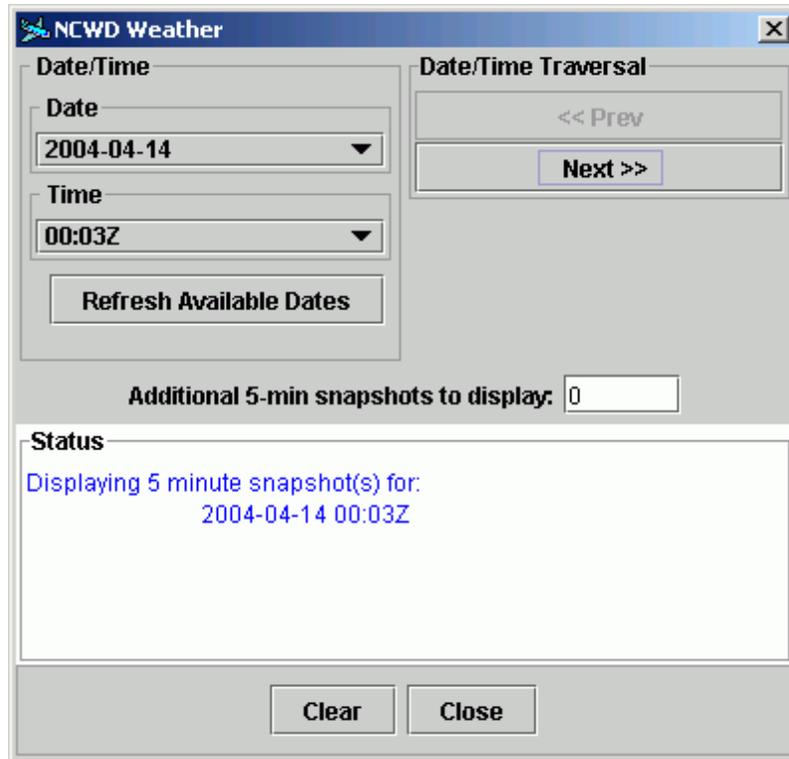


Figure 153: NCWD Weather Window

In the NCWD Weather window, select a **Date** and **Time** for which you want to view weather. Note that times are available in 5-minute "snapshots" throughout the day. Click **Next** to view the next snapshot. Click **Prev** to view the previous snapshot. Click **Refresh Available Dates** to set the date and time to the first available date with weather data.

The **Status** field includes data about the weather snapshot being displayed.

Once you select a date and time, click **Show** to display the weather on the map. To remove actual weather from the map, use the NCWD Weather window to select the weather date and time and click **Remove**

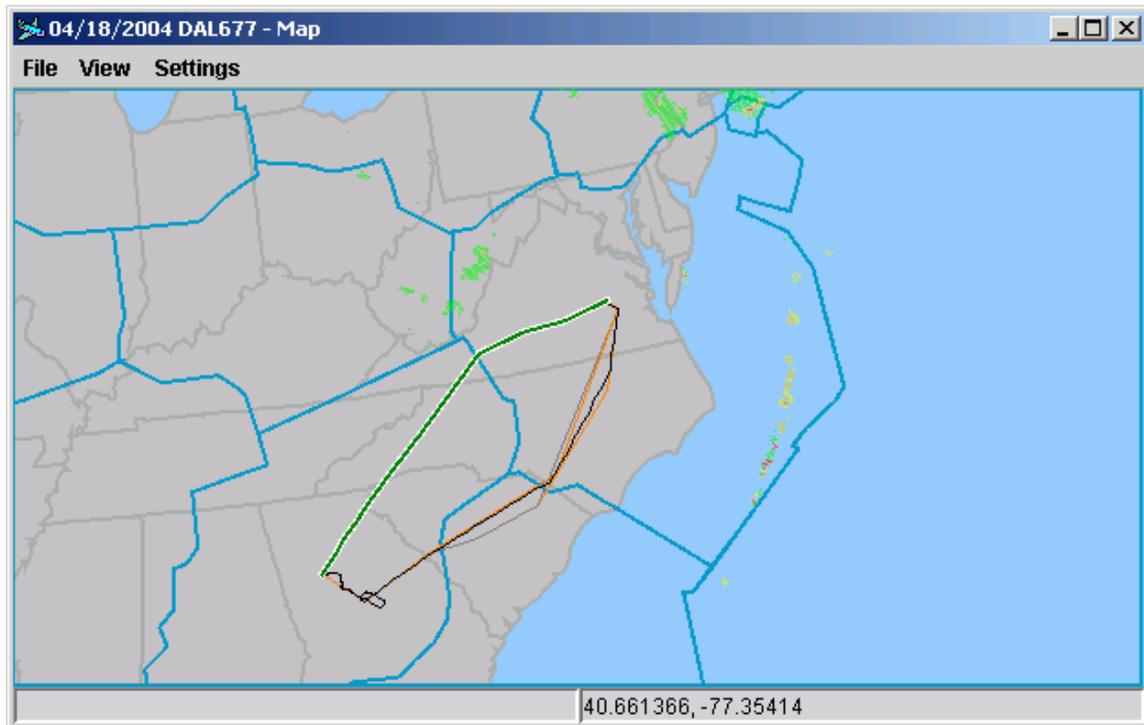


Figure 154: NCWD Weather Overlay on Map

NCWD Legend

To view a detailed explanation of the NCWD Weather text and colors, select **View > NCWD Legend** from the POET Map menu. This brings up the NCWD Legend window, which explains the colors used in the NCWD weather overlay.

CCFP Weather

You can apply CCFP Weather as a static or animated overlay.

To apply CCFP Weather as a static overlay, bring up the **Show/Hide Overlays** window (see **Showing Overlays** Figure 155). When you select CCFP Weather in the Show/Hide Overlays window, the POET Map will display CCFP Weather that you specify in the CCFP Weather dialogue box.

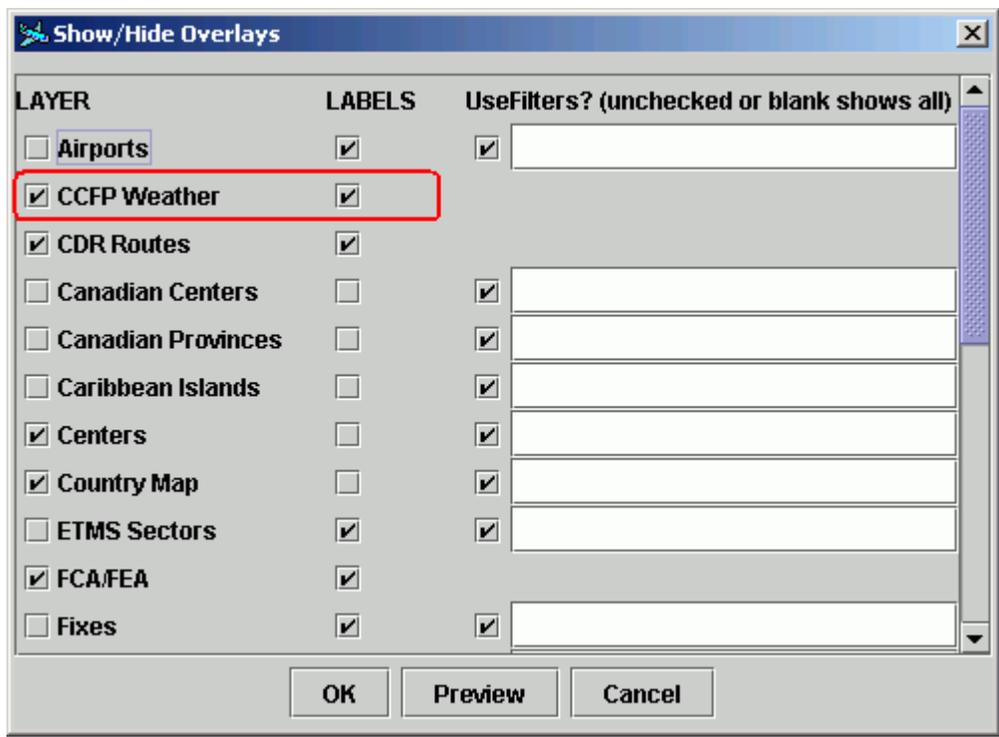


Figure 155: Show CCFP Weather from the Show/Hide Overlays Window

To select CCFP Weather to display, select **View > CCFP Weather** from the POET Map menu or click **Ctrl+W**. The **CCFP Weather** window (Figure 156) appears.



Figure 156: CCFP Weather window

Use the drop-down menus to select a **Date**, **Issued Time**, and **Valid Time** for which to view CCFP Weather. Note that the CCFP is not currently produced year-round, only during severe weather season. Consequently, CCFP data may not be available for all dates, particularly during the winter months. If no significant weather events are expected for the date and time you select, the Status will indicate **Forecast Clear**. Once a weather event is forecasted, the event(s) will appear in the Message Box and on the map. You can see the progression of the forecasted weather event using the **Next>>** and **<<Prev** buttons.

To view a graphic and accompanying explanatory text of the weather event(s) on the map, click the **Show Legend Text** option in the CCFP Weather window to make sure the option is checked. To view the weather without text, simply click **Show Legend Text** again to uncheck the option.

To view a graphic and accompanying explanatory text of actual weather events derived from the National Weather Service, click the **Show NCWD Weather** option in the CCFP Weather window to make sure the option is checked. When you choose to **Show NCWD Weather**, graphics and text appear on the POET Map and text information about NCWD Weather appears in the Message Box. When this option is not checked, POET will not display NCWD Weather data.

CCFP Legend

To view a detailed explanation of the CCFP Weather text and colors, select **View > CCFP Legend** from the POET Map menu. This brings up the CCFP Legend window, which explains the symbols and colors used in the CCFP weather text as well as indicates the issue time and valid time period of the forecast.

To clear the CCFP weather graphics and text off the map, select **View > CCFP Weather** from the POET Map menu and then click **Clear** from the CCFP Weather window.

Displaying Specific Overlay Elements

You can type in a group of different, specific overlay elements to view on the map, which provides a shortcut to using overlay filters. Using the **Show Overlay Elements** option, you type in a string of overlay elements to display on the map. For example, if there is a specific set of centers, airports, and nav aids you wish to view, use the Show Overlay Elements window to type the codes for the different overlay elements all at once.

There are 3 ways to bring up the Show Overlay Elements window.

- Select **View > Show Overlay Elements** from the POET Map menu.
- Press **Ctrl+S** on your keyboard.
- Right-click anywhere on the map and select **Show Overlay Elements**.

The Show Overlay Elements window appears (Figure 157).

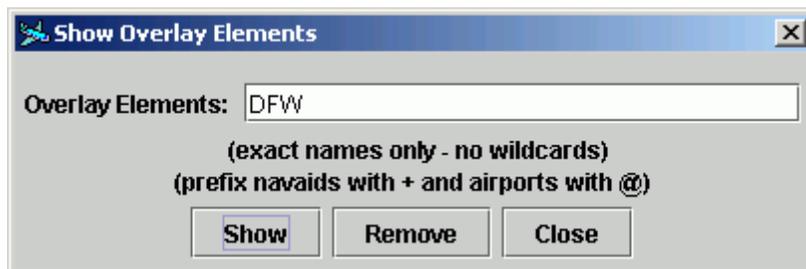


Figure 157: Show Overlay Elements Window

Enter the overlay elements you want to see on the map into the Overlay Elements field. Each element should be separated by a space.

Any overlay element you enter automatically appears as a filter in the **Show/Hide Overlays** window. To remove the filters, open the Show/Hide Overlays window and click the box next to the appropriate row under Show Listed Items Only so that the box is no longer checked.

Please note that you cannot use any wildcard symbols like * or ? in the Overlay Elements field. To differentiate between a nav aid and airport code, you may prefix nav aid codes with a plus symbol (+) and airport codes with the "at" symbol (@). Otherwise, if a nav aid and an airport share the same 3-character identifier, both will appear on the map.

Example: In our example search, we wanted to show DFW on the map. In the Show Overlay Elements window, type **DFW**. This will display any airports, nav aids, and other locations named DFW. To see just the airport, type **@DFW**. When you click **Show**, your map should look similar to Figure.

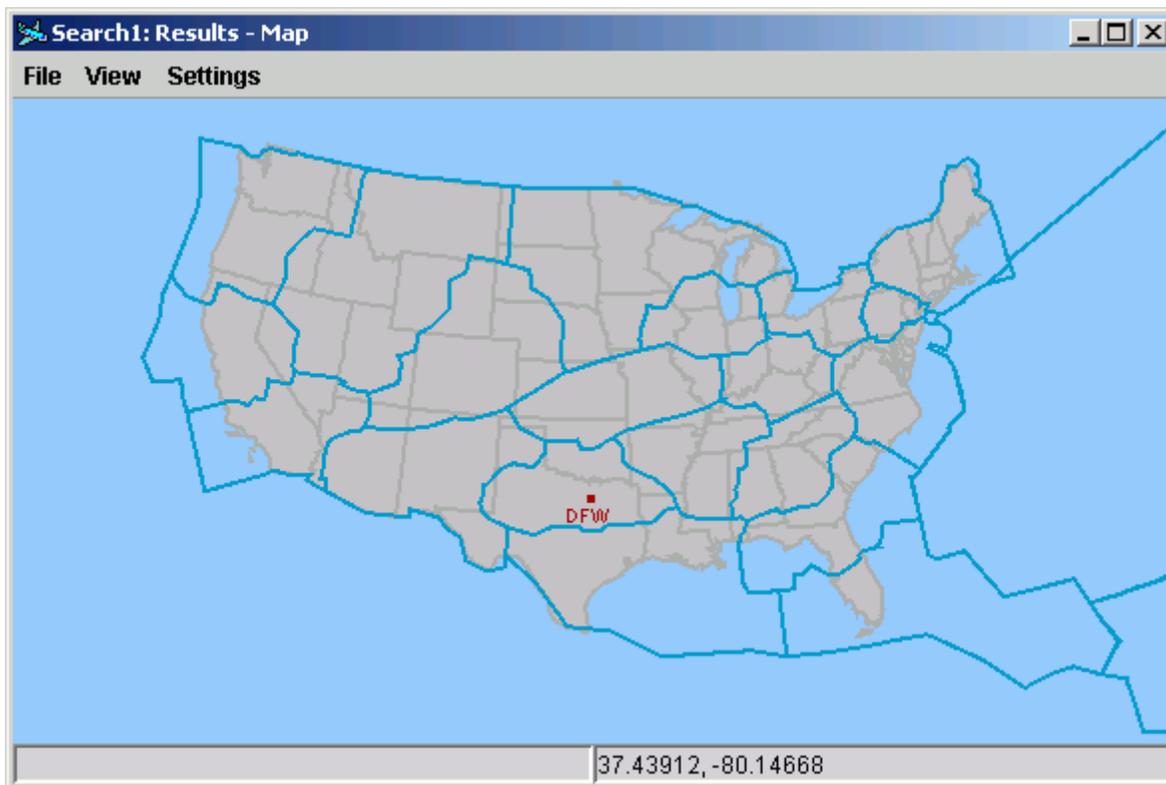


Figure 158: Map with the DFW Overlay Element

Removing Specific Overlays

If you use the **Show Overlay Elements** window to place specific overlay elements on the POET Map, you can use the same window to remove the overlay elements. Note that this function will only work if you have not closed the Show Overlay Elements window after displaying the elements on the map. Click **Remove** on the Show Overlay Elements window to clear the overlay elements from the map that were placed on the map using the Show Overlay Elements window.

Customizing Overlay Appearance

To change the appearance of the available POET Map overlays, select **Settings > Display Options** from the POET Map menu or click **Ctrl+D** on your keyboard. This opens the Display Options window (Figure 159).

Use the Display Options window to customize each overlay element's appearance on the POET Map. Select **Settings > Display Options** from the POET Map menu or click **Ctrl+D** on your keyboard to open the Display Options window. Select an overlay option from the **Map Layer List** scroll box in the

Display Options window, the two checkboxes to the top-right of the **Map Layer List** indicates whether the selected overlay and/or its label are displayed on the map (Figure 159). The **Show Layer** option displays the map overlay, The **Show Layer's Labels** option displays the overlay labels.

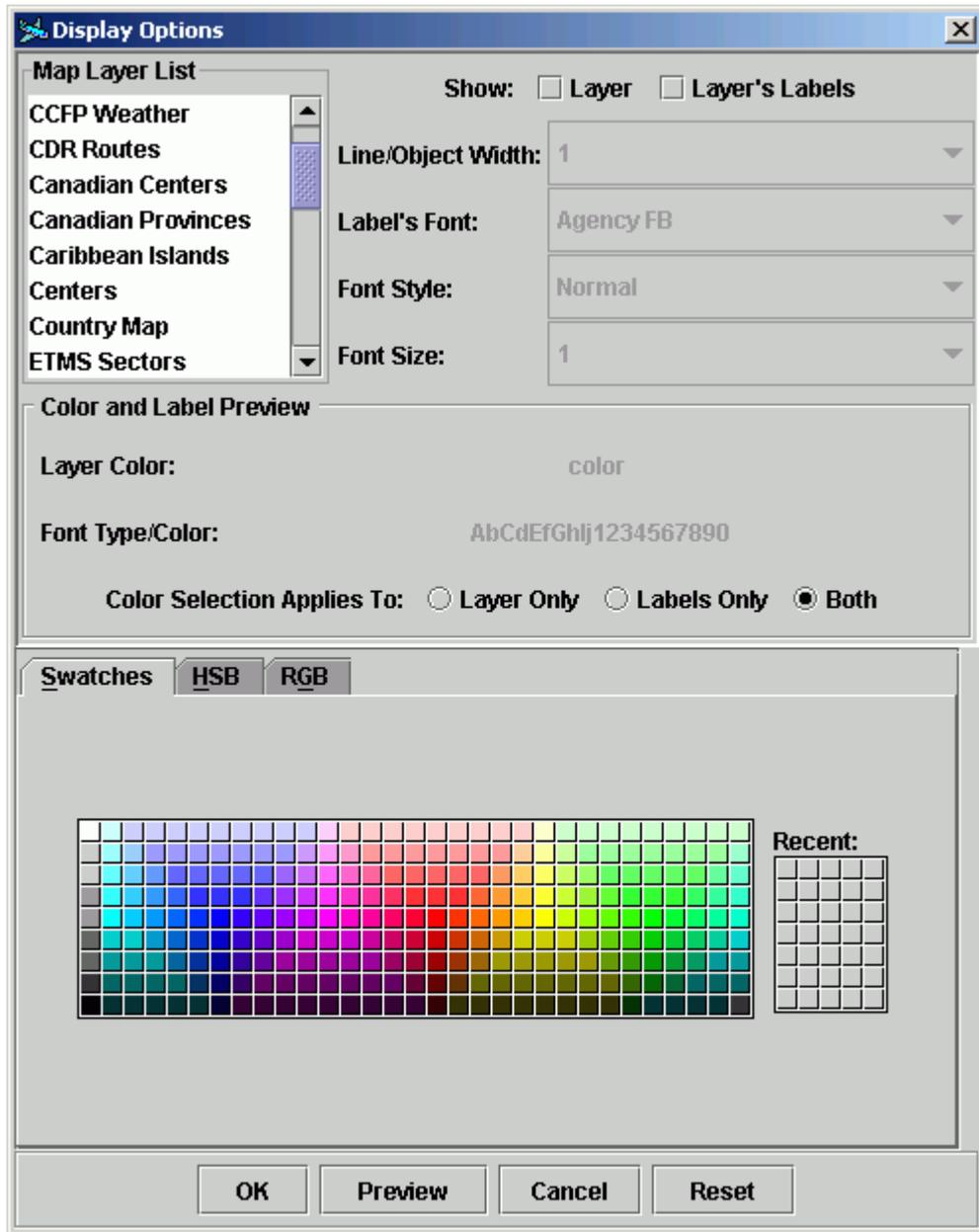


Figure 159: Display Options Window

Every overlay consists of either a symbol or a set of lines that denote borders or routes; this is the graphic portion of the overlay. You can also choose to label the overlays; the label is the text portion of the

overlay. You can change both the graphic and text attributes of an overlay using the Display Options window.

To change the display attributes of a map overlay, select an overlay from the Map Layer List of the Display Options window. Note that airway intersections are considered fixes on the map. To change the way the map displays airway intersections, select the overlay named Fixes. Once you select an overlay, you can choose from the listed attributes to change the overlay appearance. You must choose options for each overlay individually.

Line/Object Width - Click the arrow to reveal a pull-down menu of available line thickness values. Click the desired thickness to change the overlay graphic.

Label's Font - Click the arrow to reveal a pull-down menu of available fonts. Click the desired font for the overlay label.

Font Style - Click the arrow to reveal a pull-down menu of available styles. Click the desired font style for the overlay label.

Font Size - Click the arrow to reveal a pull-down menu of available font sizes. Click the desired font size for the overlay label.

Layer Color and Font Type/Color - Next to the label **Color Selection Applies To**, click whether you want the color you choose to apply to the overlay graphic, label, or both. Next click a color tab to reveal a palette of colors for the overlay graphics and labels. There are several color palettes available: **Swatches**, **HSB**, and **RGB** colors. Click the desired color for the graphic or label. The Display Options window will preview the color for you. Continue selecting colors until you find a desired color scheme for your overlay.

To view how your settings will look on the map, select **Layer's Labels** in the Display Options window and click **Preview**. To return the overlay settings to their original default values, click **Reset**.

Example: For our example search we will make a simple change to the Map display. Let's change the color that airport graphics and labels are displayed. The default color is maroon. Let's change it to yellow. To do this, click the overlay element **Airports** in the Display Options window. In the bottom half of the Display Options window, click on a yellow square (Figure 159). Click **OK** to apply your change. Your map should look similar to Figure 160.

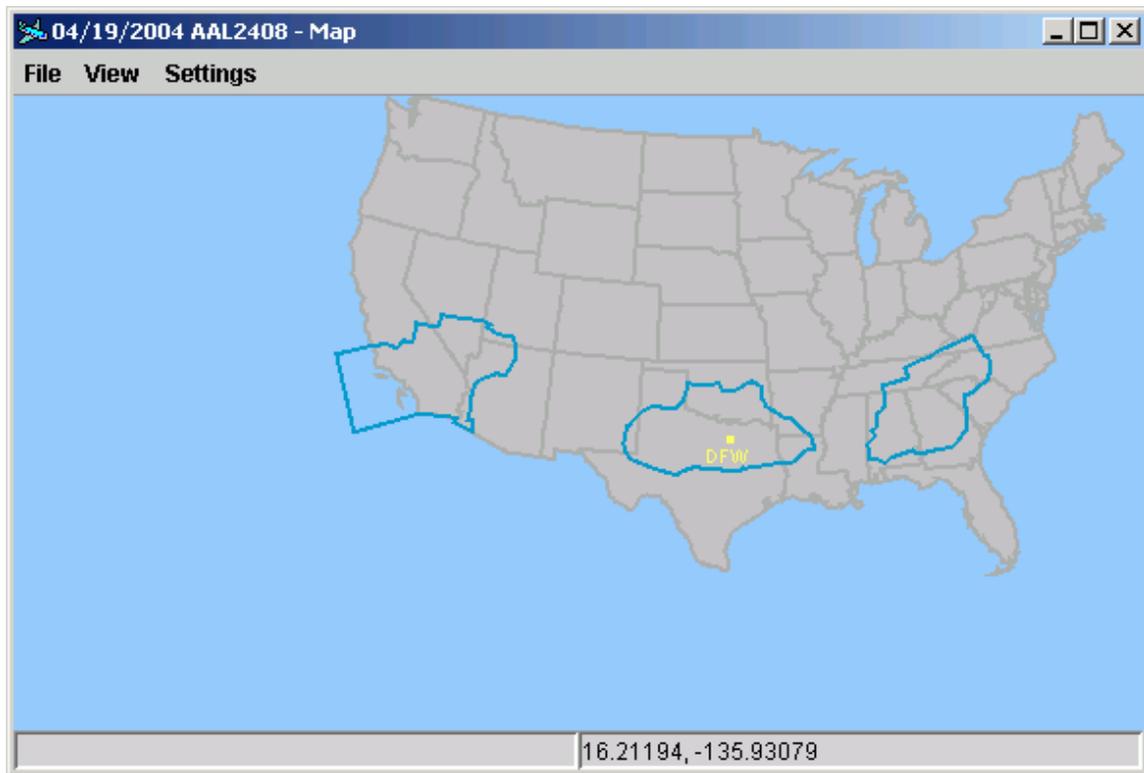


Figure 160: Map with Airport Color as Yellow

ETMS Sectors

The ETMS Sectors overlay on the POET Map differs from other overlays in that you can adjust the settings for the overlay. The ETMS Sectors overlay allows you to view ETMS Sectors and define the altitude slice selection you want to view on the POET Map. You can choose to display the ETMS sectors overlay using the overlay display options available in the POET Map. Go to **Settings > Display Options**. In the Map Layer list, select **ETMS Sectors**. Make sure the Show Layer and Layer's Labels checkboxes are selected

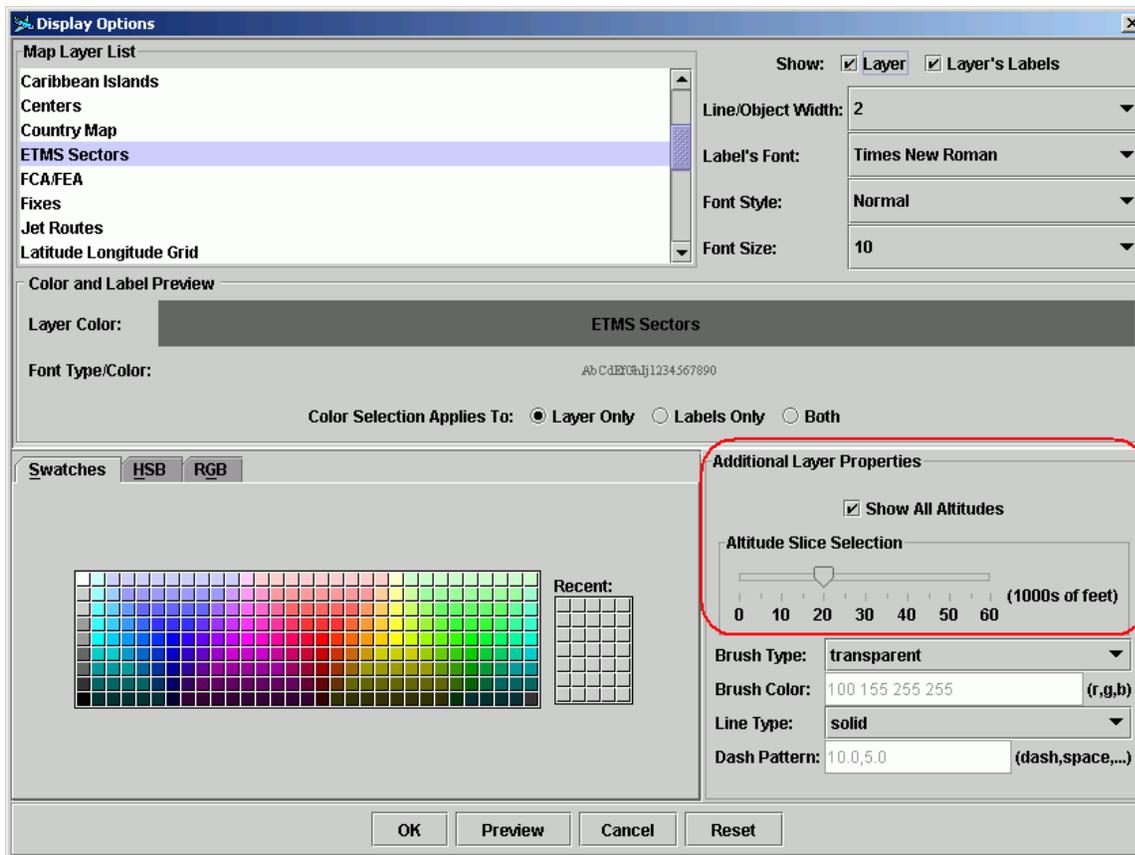


Figure 161: ETMS Sectors in Display Options

Under **Additional Layer Properties**, click **Show All Altitudes** to show all the altitudes used when flights appear on the map. When the box is clear, the Altitude Slice Selection scroll bar becomes active. Click and drag the Altitude Slice Selection scroll bar to manually select the altitude in thousands of feet to be displayed on the POET Map. The Map displays only the selected altitude layer. The altitude slice option can only be adjusted when the **Show All Altitudes** checkbox is not selected.

Latitude/Longitude Grid

You can adjust the settings for the latitude/longitude grid POET Map overlay. The latitude-longitude grid is a set of equally spaced vertical and horizontal lines that you can place on the map for reference purposes. You can adjust the start and end setting for the coverage and the spacing between each line. You can choose to display the latitude/longitude grid overlay using the overlay display options available in the POET Map. Go to **Settings > Display Options**. In the **Map Layer list**, select **Latitude Longitude Grid**. Make sure the Show Layer and Layer's Labels checkboxes are selected. To change the appearance of the latitude/longitude grid, click **Grid Settings** in the Additional Layer Properties section of the Display Options window. The Latitude/Longitude Grid Settings window appears (see Figure 162).

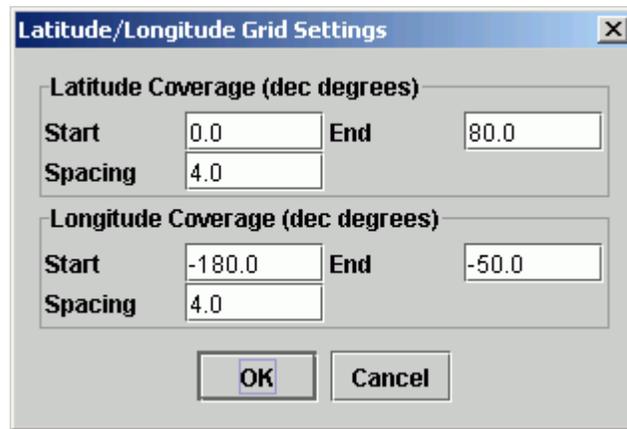


Figure 162: Latitude/Longitude Grid Window

Use the Latitude/Longitude Grid Settings window to enter new values for the Start, End, and Spacing of latitude and longitude lines on the map. Changing the values will compress or expand the grid overlay on the POET Map. Depending on the type of analysis you are conducting, a smaller or larger grid overlay could be more beneficial.

Range Rings

Range Rings differ from other overlays in that you can adjust the settings for the overlay.

Range Rings are a set of concentric circles that you can place on the map for reference purposes. You can adjust the setting for the rings, including the latitude and longitude of the center for the rings, spacing between each ring, and number of rings. You can choose to display the range rings overlay using the overlay display options available in the POET Map.

To open the Add Range Rings window (Figure 163):

- Go to **Settings > Display Options**. In the Map Layer list, select **Range Rings**. Make sure the Show Layer and Layer's Labels checkboxes are selected. Click **Add** in the Additional Layer Properties section of the Display Options window Error.
- Right-click anywhere on the map and select **Add Range Rings** from the pop-up menu.

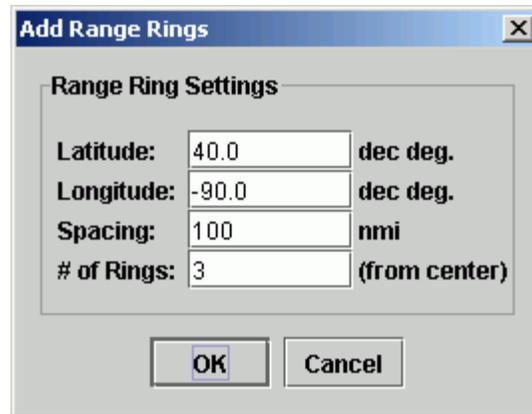


Figure 163: Add Range Rings Window

The default values for the range ring center match the location where you right-click on the map. However, you can change the center (latitude/longitude) values to whatever you want. You can also change the ring spacing (in nautical miles) and enter a new value for the number of rings that appear from the center. Click **OK** to continue.

To remove a set of range rings, right-click close to the center of the rings you wish to remove. Select **Remove Range Rings** from the resulting menu.

Saving POET Map

Saving Map Image

After you have displayed and customized the Map to fit your needs, you may want to save the image for presentation or further data analysis. To save your Map data, select **File > Export Map as GIF** from the POET Main Menu, select **File > Save as Gif** from the POET Map Menu or click **Ctrl+G** on your keyboard. You can then specify the file name and directory you would like to use to store your file.

Saving Map Settings

To save the map overlays and display options set on a map, select **File > Save Map Settings** from the map File Menu. You can then specify the file name and directory you would like to use to store your file. To retrieve these settings later on, select **File > Load Map Settings**, and browse to the file where you stored the settings, to restore them on the map.

Creating POET Reports

While using POET you can document your results by creating a POET report. Reports can be viewed later or shared with others. The POET report generation capability automatically builds reports in HTML format for viewing in a web browser (e.g. Netscape Navigator or Internet Explorer). You select the text and graphics to insert in your report. You also decide how your report looks by formatting the text and graphics. POET will initially insert your text and graphics in the same order in which you select them for inclusion into the report. The report's page order can be modified later.

POET Report Display

POET builds reports using simple HTML. You should be able to view a POET report in any browser that supports frames. When you view a POET report in your web browser, the pages are divided into 2 frames (Figure 164). By clicking and dragging on the frame divider, you can change the size of each frame to suit your needs.

The left frame contains a table of contents for the report. This allows you to see the contents of the report page by page. You can click on any link in the table of contents to view a particular page in the report. The actual pages of the report are displayed in the right frame with links to go to the next or previous page.

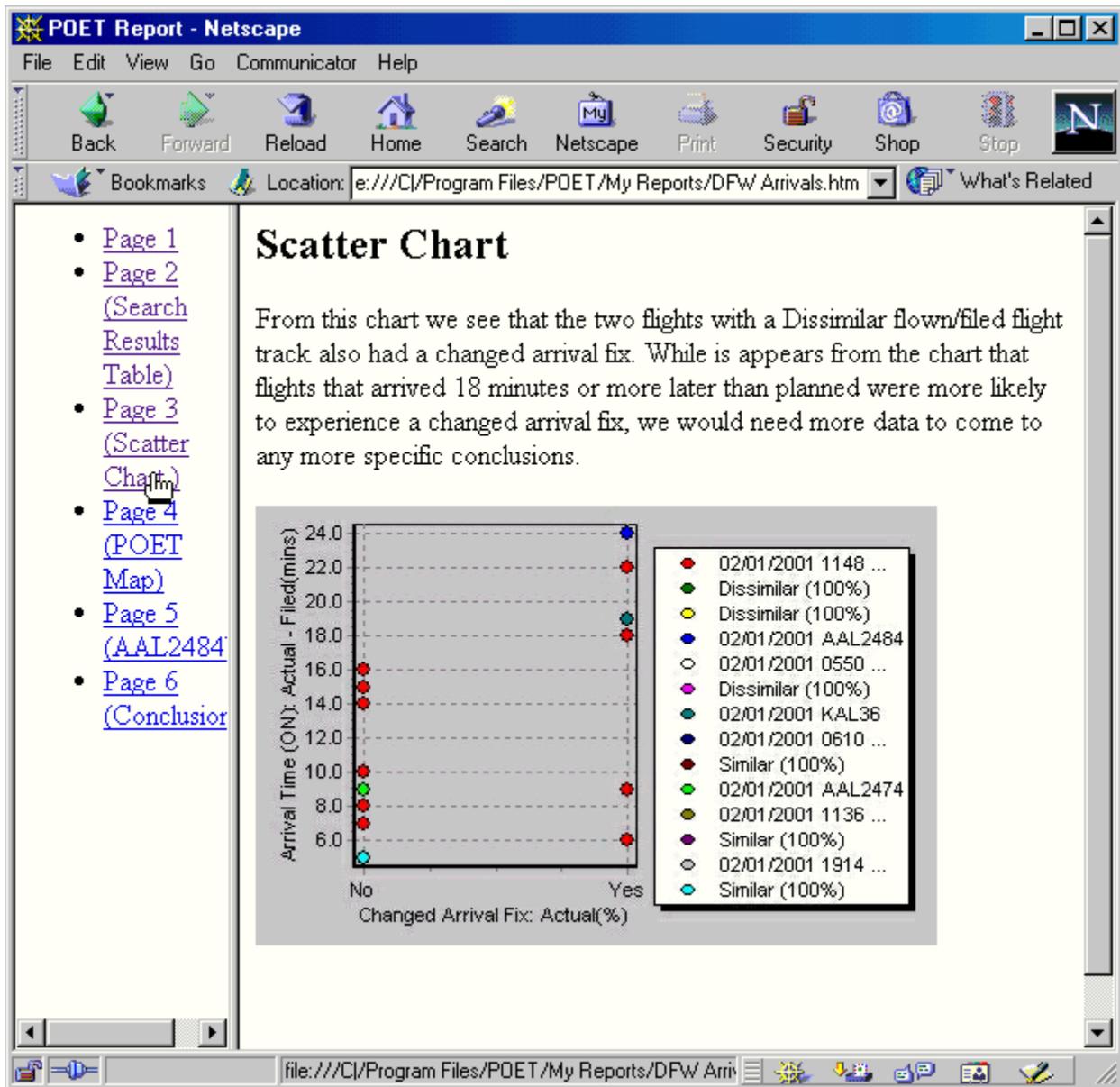


Figure 164: Sample Page from a POET Report

Starting a New Report

To start building a report in POET, select **Report > Start** from the POET main menu. You will be prompted to choose a directory folder for the report files. The default directory folder for any POET report files is My Reports subdirectory under the directory in which POET resides. After you have saved your report, the Report Builder window appears (Figure 165).

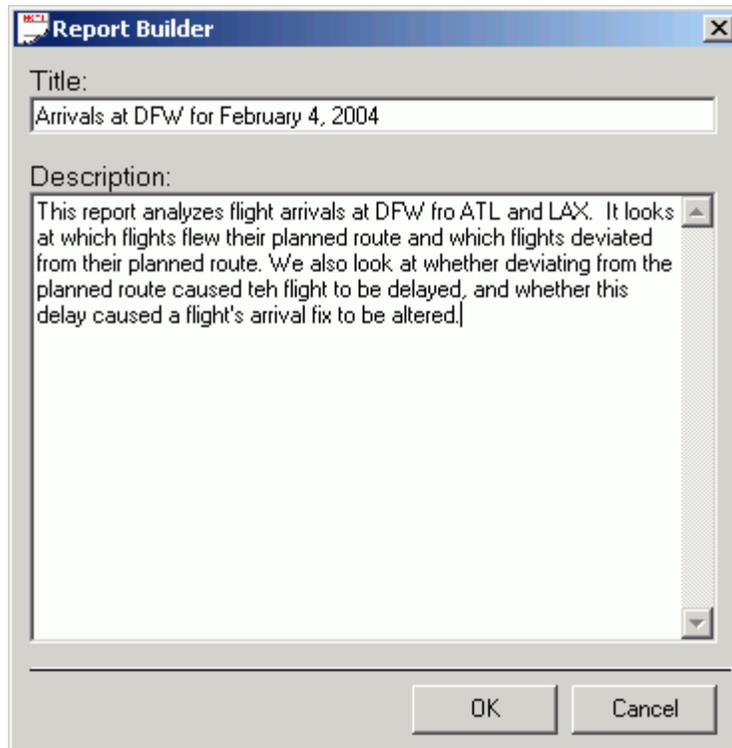


Figure 165: POET Report Builder window

The Report Builder window allows you to enter a report title and description.

You can enter any name for your report title or leave the Title field blank. If you leave the field blank, the first page of your report will not have a title. However, the table of contents for your report will still list the title page as **Intro**.

Use the report Description field to enter any additional text you want to appear on your report title page. Any text you enter will appear underneath the report title. You do not have to enter anything into this field.

Click **OK** to save and continue building your report or click **Cancel** to close the report builder without saving the report.

Example: We will use our example search to build a POET Report. In Figure 165, we have entered in a report title and descriptive text about the report. Click **OK** to begin working on it.

Placing Items into Your Report

You can add a variety of items to your POET report, including tables, charts, maps, and individual flight details generated by a POET search as well as your own text and images. You must place each item into the report separately, as each item added creates a new page or link in the report. The POET report pages

are generated in the same order in which you select the items for inclusion; however, you can change this order at any time by using the Report Organizer.

Adding Tables

You can add all or part of any POET Search Results Table. To add a table to your report, select **Report > Add Table** from the POET main menu. The Report - Add Table window appears (Figure 166).

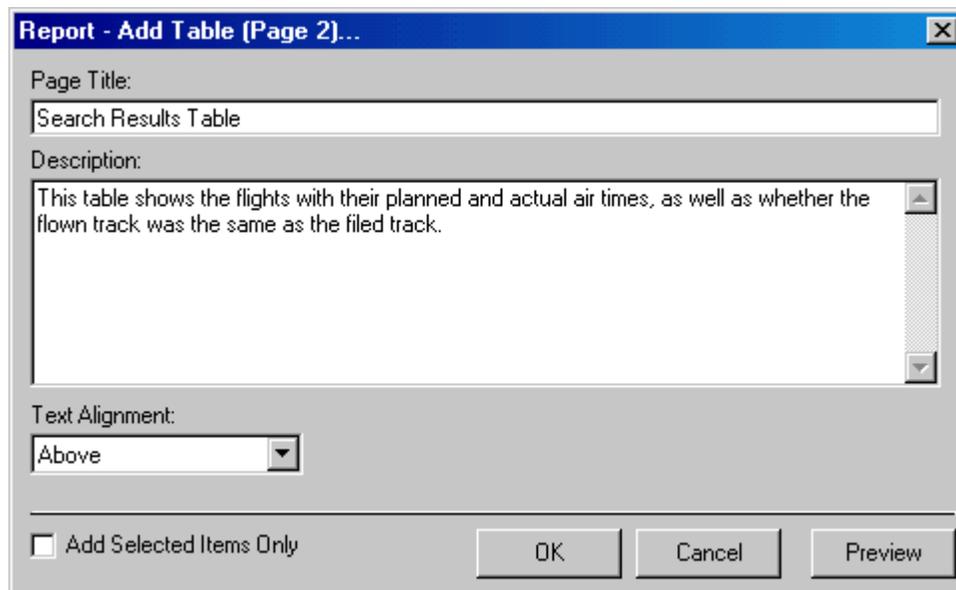


Figure 166: Report - Add Table Window

Use this window to enter a page title and any descriptive text about the page or the table.

Example: You can see that in Figure 166 we entered "Search Results Table" in the Page Title field and some text in the Description field about what are displayed in the table. Click **OK** to add the table to your report.

If you enter text into the Description field, you can choose to have this text appear either above or below the table image on your report page. Select an option from the Text Alignment menu to place your text on the page.

If you want only specific table rows included in your report page, click the **Add Selected Items Only** checkbox in the Report - Add Table window. Only the highlighted rows in a POET table will appear in the table graphic on your report page when this option is checked. To use this option, you must select specific table rows before opening the Report -Add Table window. To select specific rows for your report page, click a table row and either **Ctrl**+click other rows individually or **Shift**+click to select a range of rows. If you do not select specific rows, the Add Selected Items Only option is grayed out.

Click **OK** to add the Table page to your report. Click **Cancel** to close the window and do nothing. Click **Preview** to see what the report page looks like in a web browser.

Adding Charts

You can add either a POET Scatter Chart or Bar Chart to your report. To add a chart to your report, first select the chart you want in the Charts window by clicking either the Scatter chart or Bar chart tab. The chart you want must be showing to add it to your report. Make sure you have modified the chart to fit your report (e.g. zoom in, change the chart settings, etc.). Also, note that the size of your chart in POET is the size your chart will appear on your report page. Once you are satisfied with the chart display, select **Report > Add Chart** from the POET main menu. The Report - Add Chart window appears (Figure 167).

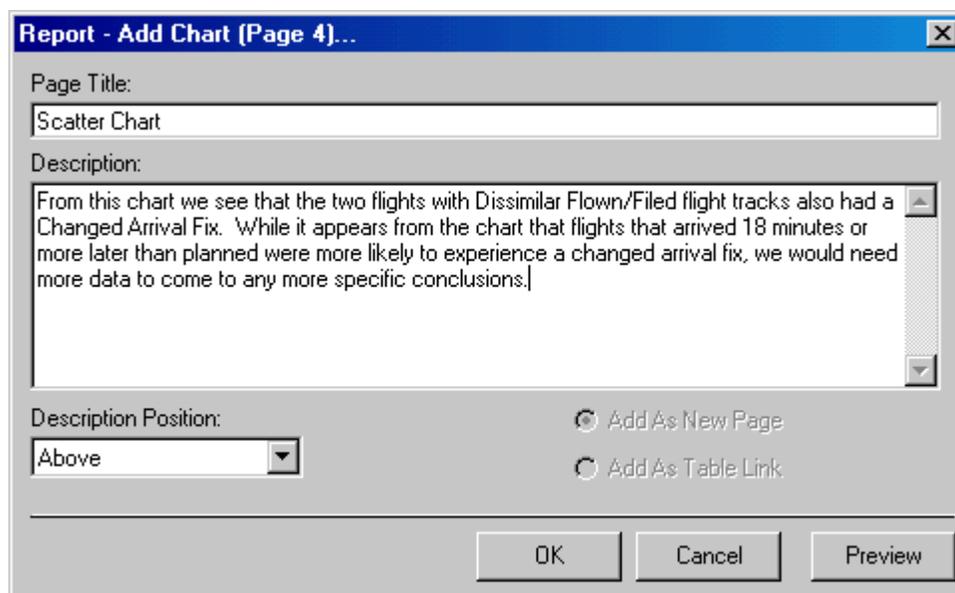


Figure 167: Report - Add Chart Window

Use this window to enter a page title and any descriptive text about the page or the chart.

Example: To add a chart to our report, we used the Scatter Chart that we modified in our example search so that it displays Arrival Time (ON) and Changed Arrival Fix (see Figure 118 on page 111). In Figure 167, we entered **Scatter Chart** in the Page Title field and some descriptive text that explains what is shown on the chart. Click **OK** to add the chart to your report.

If you type text into the **Description** field, you can choose to have this text appear either above or below the chart image on your report page. Select an option from the Text Alignment menu to place your text on the page.

You can choose to have the chart either appear as an individual page in your report or, if applicable, as a link from the associated table row already included in your report. To add the chart as an individual page in your report, click the **Add as New Page** option.

If you have already added the corresponding table for your chart to your report, you can add a chart as a link from the table. The chart will not be a separate report page, but will be visible when you click on the link in the table page of your report. To add your chart as a link, click the **Add as Table Link** option in the Report - Add Chart window.

Click **OK** to add the page or link to your report. Click **Cancel** to close the window and do nothing. Click **Preview** to see what the report page looks like in a web browser.

Adding Maps

You can add a POET Map to your report. To add a map to your report, be sure to set up your map exactly as you want it to display in the report (e.g. zoom in or out, show overlay elements, size the window, etc.). Note that the map graphic will appear in your report exactly the same size as what you view in POET. Select **Report > Add Map** from the POET main menu. The Report - Add Map window appears (Figure 168).

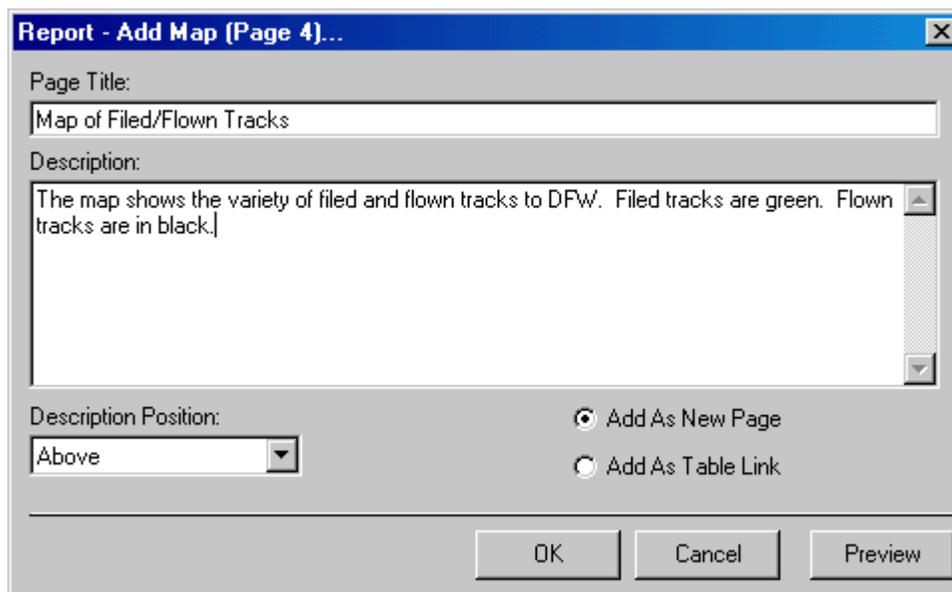


Figure 168: Report - Add Map Window

Use this window to enter a page title and any descriptive text about the page or the map.

Example: We used the map to display the filed and flown tracks for all the flights in our Search Results Table. You can see that in Figure 168 we entered **Map of Filed/Flown Tracks** in the Page Title field and some text in the Description field about the map's display. We then selected to add the Map as a New Page in our report. Click **OK** to add the map to your report.

If you enter text into the **Description** field, you can choose to have this text appear either above or below the map image on your report page. Select an option from the Text Alignment menu to place your text on the page.

You can choose to have the map either appear as an individual page in your report or, if applicable, as a link from the associated table row already included in your report. To add the map as an individual page in your report, click the **Add as New Page** option.

If you have already added the corresponding table for your map to your report, you can add the map as a link from that table. The map will not be a separate report page, but will be visible when you click on the link in the table page of your report. To add your map as a link, click the **Add as Table Link** option in the Report - Add Map window.

Click **OK** to add the page or link to your report. Click **Cancel** to close the window and do nothing. Click **Preview** to see what the report page looks like in a web browser.

Adding Individual Flight Details

To add a report page that shows individual flight details, you must first use the POET Search Results Table to drill down to the individual flight level. If you have not reached this level, the option to add an instance is not available under the Report menu.

Once you have chosen a flight instance, you should see a tabular listing of instance data where the results table was located. The report page will display the information in 4 tables to correspond with the 4 data tabs on the flight instance display (General Information, Performance Metrics, Routing Information, and Message History). Select **Report > Add Instance** from the POET main menu. The Report - Add Instance window appears (Figure 169).

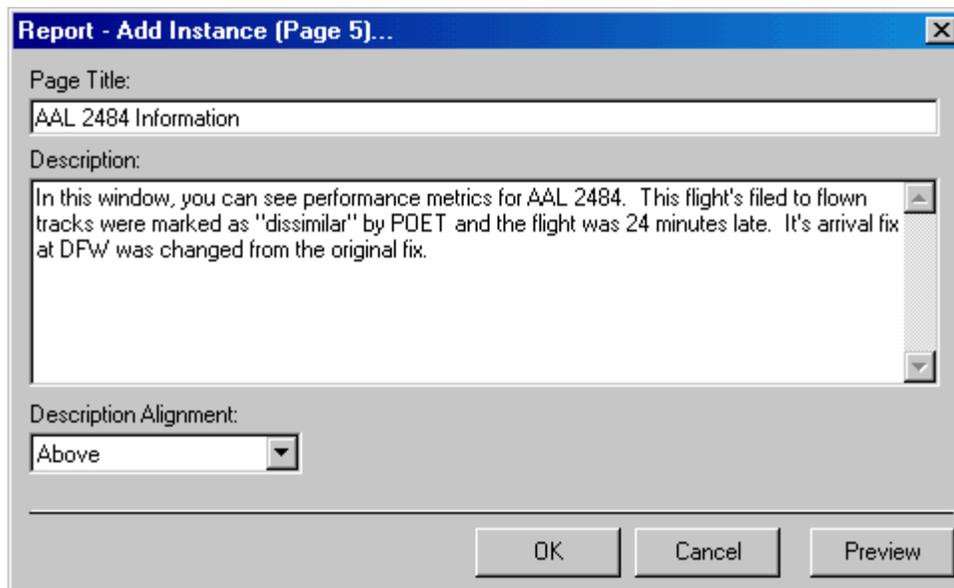


Figure 169: Report - Add Instance Window

Use this window to enter a page title and any descriptive text about the page or flight instance.

Example: In our example search we double-clicked the first flight grouping in the Search Results Table until we saw the row of information for AAL2484. Double-clicking on this row then brought up the Flight Window. You can see that in Figure 169 we entered **AAL 2484 Information** in the Page Title field and some text in the Description field about the flight instance.

If you enter text into the **Description** field, you can choose to have this text appear either above or below the chart image on your report page. Select an option from the Text Alignment menu to place your text on the page.

Click **OK** to create and add the page to your report. Click **Cancel** to close the window without taking any action. Click **Preview** to see what your report page will look like.

Adding Text

You can add a text-only page to your report at any time. Select **Report > Add Text** from the POET main menu to open the Report - Add Text window (Figure 170).

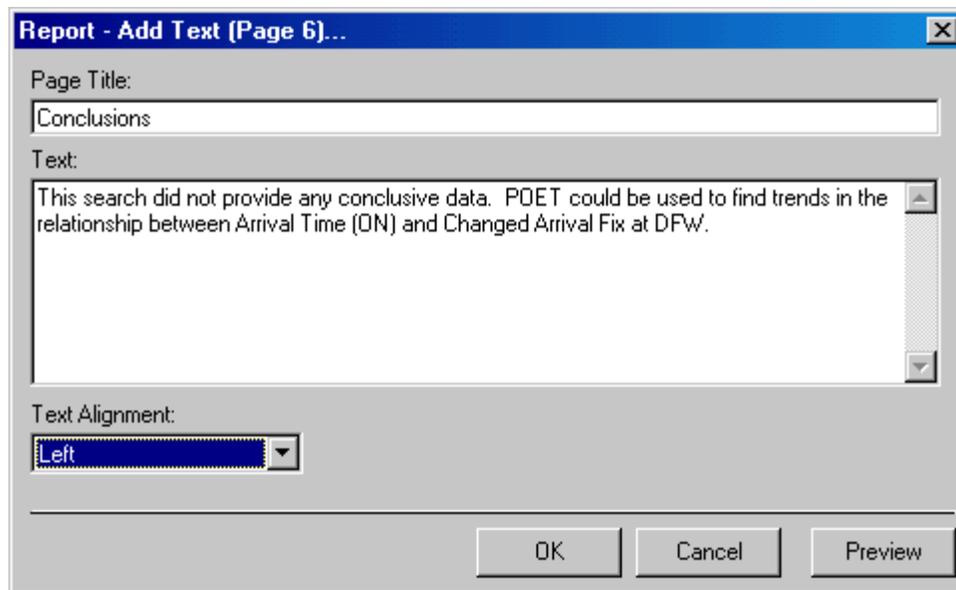


Figure 170: Report - Add Text Window

Use this window to enter a page title and any text you would like to appear on your report.

Example: In our example, we used the **Add Text** option to add a conclusion page to our report. You can see that in Figure 170 we entered **Conclusions** in the Page Title field and descriptive text about any conclusions we drew from our search in the Text field. We selected **Left** as the Alignment value and clicked **OK** to add the page.

You can cut and paste text from other documents into the **Text** field (e.g. text from a route advisory message). You can choose to have your text appear left-aligned, center-aligned, or right-aligned on your report page. Select your text alignment option from the **Text Alignment** menu.

Click **OK** to create and add the page to your report. Click **Cancel** to close the window without taking any action. Click **Preview** to see what your page will look like in the report.

Adding Images

You can add a non-POET graphic to a page in your report, such as a picture of a weather map. To add an image page to your report, select **Report > Add Image** from the POET main menu. The Report Add Image Windows Explorer appears; browse your computer for the image you want, select the image file you need, and click **Open** (Figure 171). The Report - Add Image window then appears (Figure 172).

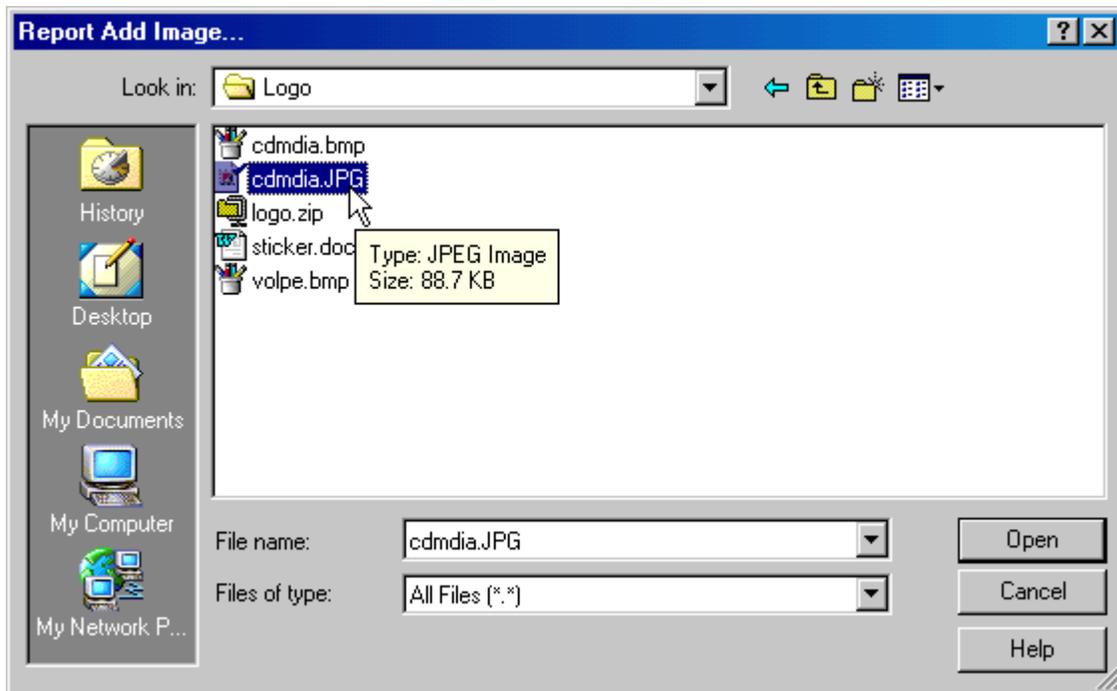


Figure 171: Browse for Image File

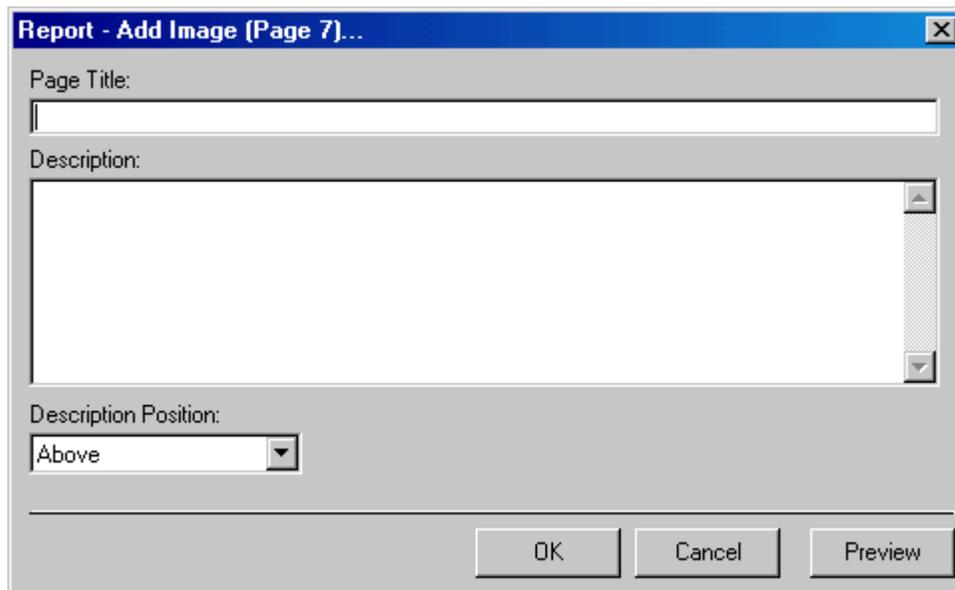


Figure 172: Report - Add Image Window

Use this window to enter a page title and any text you would like to appear on your report.

Example: In our example, we used the **Add Image** window to browse for a jpeg image on our computer to use as our title page. To follow along, find an image on your own computer to use in your report. Leave the Report - Add Image window blank. To see how to make this page your introductory page, see *Rearranging Report Pages* on page 169.

If you enter text into the Description field, you can choose to have this text appear either above or below the image on your report page. Select an option from the Text Alignment menu to place your text on the page.

Click **OK** to create and add the page to your report. Click **Cancel** to close the window without taking any action. Click **Preview** to see what your report page will look like.

Previewing and Changing Reports

You can preview individual pages in a web browser before placing them into a POET report. If you are not pleased with a page's content, you can make changes in the Add page windows. For pages already placed in your report, you can open the page's Add window directly from the Report Organizer and make any necessary changes.

Previewing Pages in a Web Browser

Each time you add an item to your report, you are creating a new report page. For each item you add POET prompts you to enter a page title and descriptive text in the Add page window. Click **Preview** (Figure 173) to see what your report page looks like before inserting it in your report. Once you preview the page, you can go back to the Add page window and change the text and its placement until the page looks the way you want.

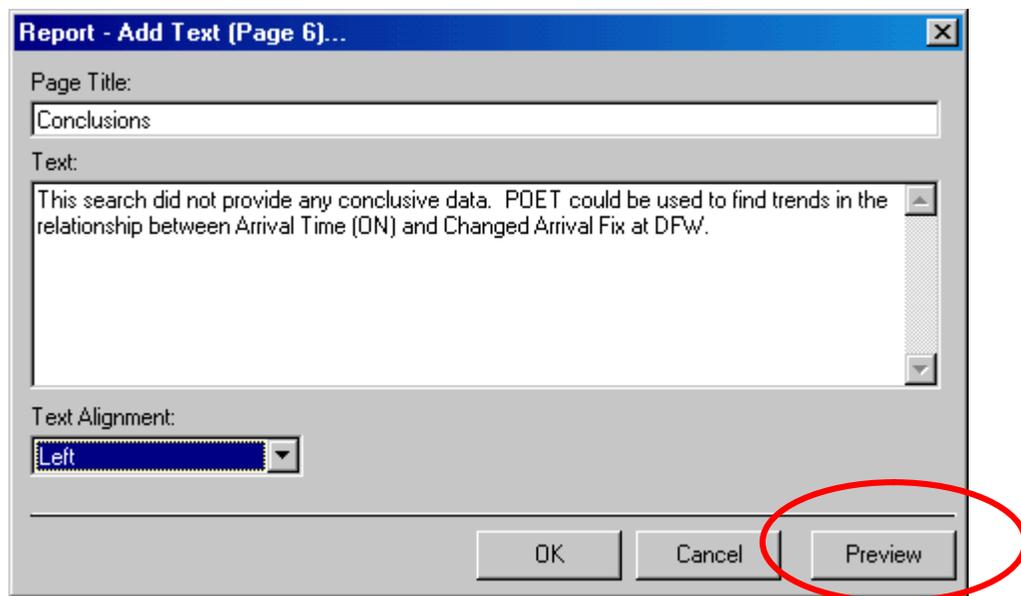


Figure 173: Add Text Window-- Preview

Making Changes to Existing Report Pages

To open and edit existing page information, select **Report > Organizer** from the POET main menu. This opens the Report Organizer window (see Figure 174). The window is a simple text listing of the pages included in your report. Double-click the page name in the Report Organizer you want to edit. This brings up the **Add** window identical to the window you used to add the page to your report. Use this window to edit any text or page appearance details (e.g. alignment) by entering new information into the window. Click **OK** to make the changes to the report page. Click **Cancel** to close the window without making changes. Click **Preview** to see what the report page looks like in the web browser.

Rearranging Report Pages

You can rearrange the order of your pages within your report through the Report Organizer. Select **Report > Organizer** from the POET main menu. Click to highlight the name of the page you want to move. Then click the up or down arrow buttons at the top of the organizer window to move your page to the desired location in your report (Figure 174).

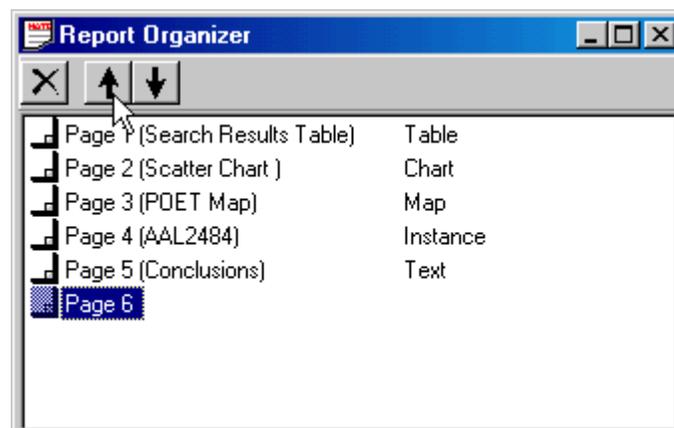


Figure 174: Report Organizer

Example: In our example, we want to move Page 6 to Page 1 since Page 6 contains the graphic. To do this, click **Page 6** in the Report Organizer. Then click the up arrow button until Page 6 is moved to Page 1 (Figure 174). Note in Figure 175 that Page 6 is now Page 1 and all subsequent pages have moved down one.

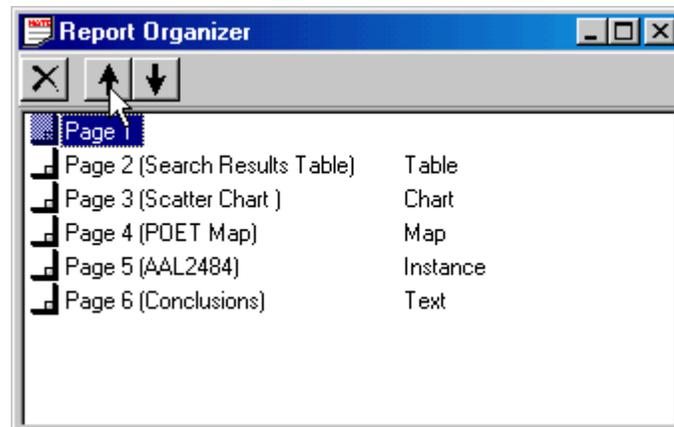


Figure 175: Page 6 is now Page 1

Deleting Report Pages

The Report Organizer window allows you to delete pages from your report. Select **Report > Organizer** from the POET main menu to open the Report Organizer window. To delete a page from your report, click to highlight the name of the page you want to delete. Then click the **X** button at the top of the Report Organizer window. POET will prompt you to decide if you really want to delete the page. Click **Yes** to delete the page from your report. Click **No** or **Cancel** to keep the page in your report.

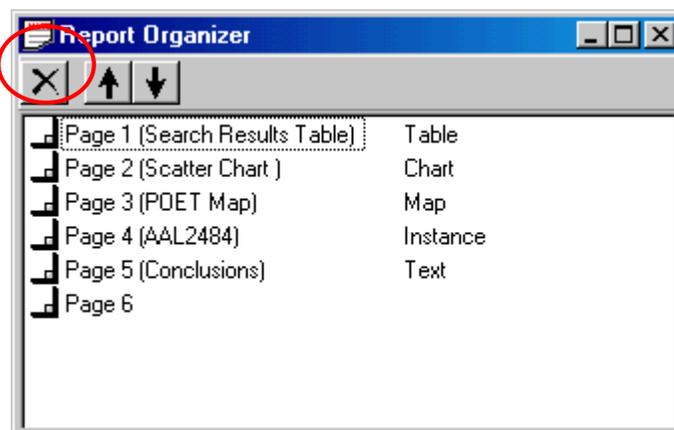


Figure 176: Delete Page

Completing Reports

Once you have completed inserting all the pages for your report, you are ready to generate the report files. Select **Report > Generate** to generate the report files and complete your report. The report automatically opens in your default web browser and all your report files are saved to a folder in the directory you specified when you created the report.

Within your specified directory, POET saves all the generated files associated with your report in a folder with the same name as the first page of the report with the suffix "_res." For example, if you named your

report file **My_Report.htm**, you will see **My_Report.htm** in the report directory you specify. You should also see a folder called **My_Report_res** that contains the other HTML and graphic files necessary for your report.

To view your report later, you must open the main report page in a web browser.

Sending Reports

To send a report to someone, you must include the original HTML file that you named for the report and the folder with the subsequent HTML and graphics files generated by POET. Each report is saved by default to its own folder in the My Reports folder in your POET directory. All the HTML files for a single report will be in this folder. Without all the necessary files, the report cannot be viewed in its entirety. For every page you create in the report, POET generates an HTML file based on the report file's name that you enter. For every chart and map that you include, POET generates a graphic file (jpg or gif) for the report. Any HTML or graphics file associated with your report must be available to view the entire report and preserve links.

To make it easier to save all your report files at once, you can zip the files together. To do this you must have WinZip or other compatible file compression program installed on your computer. Windows and NT users can use their Windows Explorer function to find the report directory. **Shift+** click or **Ctrl+**click all the report files you need. Right-click once all the files are selected and select **Add To Zip** from the pop-up menu. Specify a name and location for the zip file and click **Add** to add the files. When you need to send the report, simply send the single zip file. The recipient can then extract the files to their own computer and view your report.

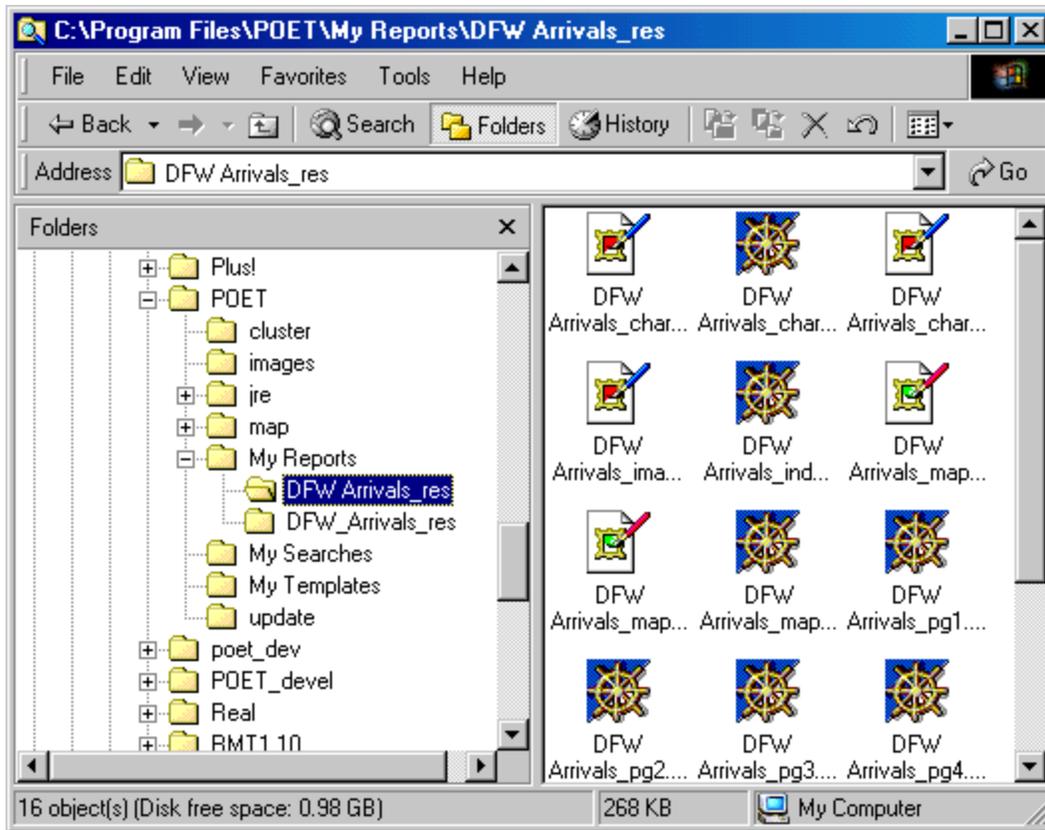


Figure 177: Files for a Single POET Report

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