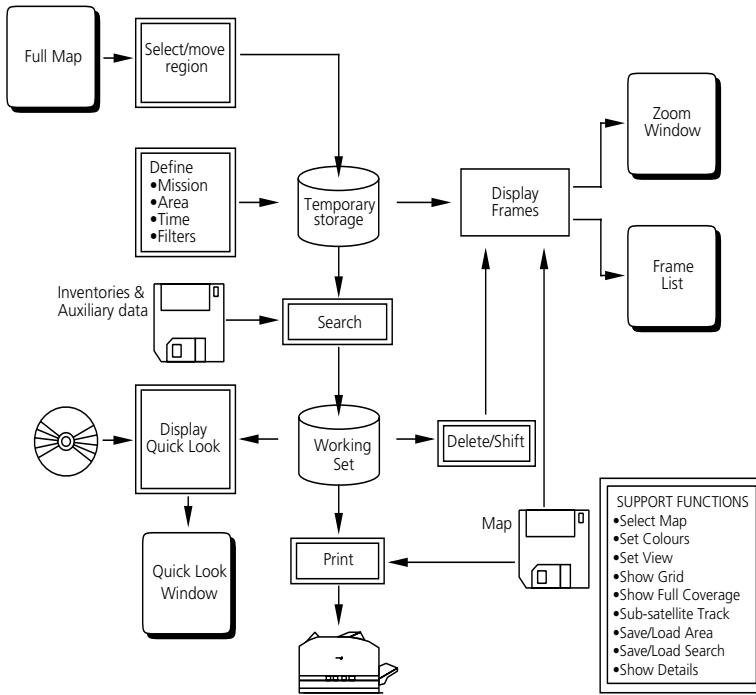

About this chapter

This chapter explains how to use DESCW in a series of easy to follow steps.



DESCW Structure



Choosing an Area of Interest in the Navigation Map Window

Move the mouse over the Navigation Map and place the cursor on the upper-left corner of your area of interest. Holding down the left mouse button drag the cursor to draw a rectangular scene, called the *focus rectangle*. Release the button and the Zoom Window will appear on the right hand side of the screen showing your chosen area.

To change the position of the focus rectangle either use the mouse to drag it in the Navigation Map Window to a new position, or use the scroll bars of the Zoom Window to adjust its position.

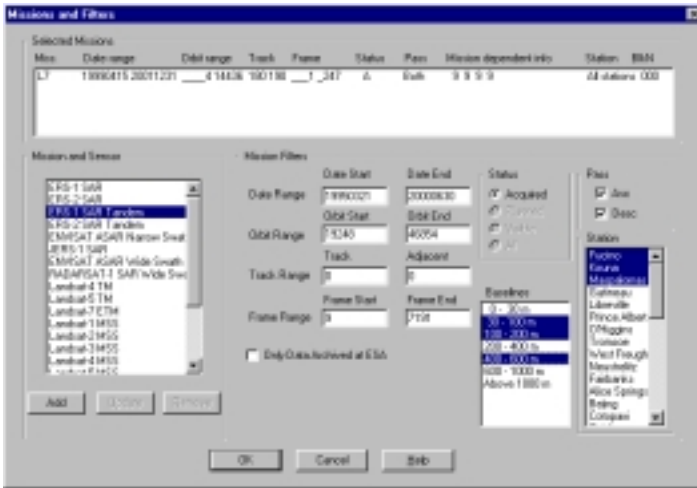
You can zoom-in either by clicking on the zoom-in icon on the **Toolbar** or by choosing **Zoom 2x** from the **View Menu** and clicking on a point that will then become the new centre of the Zoom Window. Zooming out is done in a similar manner.

Defining the Search Parameters

With your area of interest defined, you are ready to select a satellite mission and set the search filters. Choose the **Mission** option from the **Define Menu** or with the **Toolbar** button. A dialogue box is displayed, showing:

- at the top, a box for the missions selected
- on the left, the missions currently available; no mission is selected by default
- on the right, the mission-dependent search filters

DESCW has been upgraded from version 4.10 to permit multiple selection of the same mission with different filtering parameters (for example to check data availability over several time periods in the same search).



- To add a new mission with its default “Mission Filters”
 - select the required mission from the “Mission and Sensor” area by clicking on it
 - click on the “**Add**” button
- To add a new mission with specific “Mission Filters”
 - select the required mission from the “Mission and Sensor” area by clicking on it
 - change the filtering parameters (the changes are not immediately reflected in the “Selected Missions” area)
 - click on the “**Add**” button
- To modify the filtering parameters of a previously defined mission
 - select the required mission from the “Selected Missions” area by clicking on it
 - change the filtering parameters
 - click on the “**Update**” button (to update the mission with the newly defined filtering parameters)

To confirm changes on the selected missions/sensors, click on "**OK**", or on "**Cancel**", to leave selections as when the "Missions and Filters Window" was last opened.

Please note that if the "**Add**" button is not pressed the new mission selection does not take effect or the changes are discarded and lost.

The mission-dependent search filters are as follows - the default values for the ranges show the minimum and maximum values:

- **Date Range** - select from and to dates
- **Orbit Range** - select from and to orbits
- **Track Range** - select from and to tracks - note that for ERS and ENVISAT missions you have reference track number and number of adjacent tracks to be displayed (maximum 5)
- **Frame Range** - select from and to frames (rows for optical sensors)
- **Status** - select Acquired, Planned, Visible or All
- **Pass** (ERS and ENVISAT only) - select Ascending or Descending or both
- **Cloud Cover** (optical sensors only) - select the coverage required for each quadrant in the scene, where 0 = cloud-free and 9 = more than 90% cloud-covered
- **Phase** (ERS-1 only) - phase, date range and orbit range are interdependent
- **Swath** (ENVISAT ASAR only) - the ASAR narrow swath(s)
- **Station** (ERS SAR and optical missions only) - use shift-click to select blocks of stations; use ctrl-click to select multiple non-sequential stations
- **Only data archived at ESA** (ERS missions only) - search only in the data archived at one of the ESA facilities

Click on **OK** to exit from this window. Don't forget the "**ADD**" before !

Tandem Mission

The ERS-1 and 2 tandem mission (acquisitions with one day difference) has been added in a preliminary way. To select this mission within the Mission and Filters Window operate as follow:

- select ERS-1 Tandem from the "Mission and sensor" list
- modify the parameters according to your needs
- choose one (or more) baseline range(s). As default all the baselines are selected
- click on the ADD button to confirm
- repeat all the steps for the ERS-2 Tandem mission (setting the same filters)

Once selected the search runs as for the other missions. To obtain the precise baseline value operate as usual by clicking in the scene list on the track column of the selected item and then double-click on one of the two rows within the Baseline Window

Running a Search

When you exit from the Mission Window the search automatically begins (if the default **Enable Auto Search** option is on), retrieving all the scenes of the selected missions for the area enclosed by the Zoom Window. If the **Enable Auto Search** option is off, select **Start** from the **Search Window** to start the search. The retrieved scenes will be displayed as frames on the Zoom Window. Select the **Scene List** option from the **View Menu** to see the values of their attributes.

The screenshot shows a window titled 'Scene List' containing a table with the following columns: R, M, Orbit, Track, Frame, Date, Time, S, nw, ne, sw, se, Stations, Lat,sw, Long,sw, Lat,ce, Long,ce, Lat,sw, Long,sw, Lat,ce, Long,ce. The table contains multiple rows of scene data, with some rows highlighted in green.

The **Scene List** window will be displayed in the lower left corner of your work area, with a list of all the scenes retrieved by your query.

For each scene the following values are shown:

- R Reference number, matching the Reference Number shown on each scene in the Zoom Window
- M Mission (see glossary for abbreviations)
- Orbit (ERS only)
- Track (Path)
- Frame (Row)
- D Node shift for shifted scenes, or F, Q, M for Landsat floating scenes
- Date of acquisition
- Time of acquisition
- S Status (Available, Planned, Visible)
- nw ne sw se Cloud coverage per quadrant (optical missions only – the first field is used by ERS missions for the quality parameter)
- Stations (Not available for JERS–1 SAR or ATSR data)
- Lat,sw, Long,sw, etc. Co-ordinates of the scene corners and centre

DESCW highlights in red the appropriate column heading to show the current sort sequence of the scenes in the Scene List (the default is Mission); click on the Mission, Track, Frame or Date column header to change the sort sequence.

Clicking on the Time column header opens the Time Difference Window, which permits to define the maximum time difference between retrieved scenes of different missions.

Moving the cursor over a data column in the window will highlight all scenes with the same value in that column. For example, if the cursor is over 194 in the Track column, DESCW will highlight all scenes with a Track Number of 194; the same scenes will also be highlighted in the Zoom Window.

R	M	Orbit	Track	Frame ID	Date	Time	Scene number
001	L7	190	0029	19990607 09:13	A 5	1	1
002	L7	190	0030	19990607 09:14	A 2	2	6
003	L7	190	0031	19990607 09:14	A 3	5	2
001	L7	190	0029	19990608 09:13	A 8	8	1
002	L7	190	0030	19990608 09:14	A 5	1	8
003	L7	190	0031	19990608 09:14	A 5	9	1
001	L7	190	0029	19991127 09:13	A 5	4	5
002	L7	190	0030	19991127 09:14	A 3	9	4
003	L7	190	0031	19991127 09:14	A 1	3	0
001	L7	190	0029	19991213 09:14	A 9	9	9
002	L7	190	0030	19991213 09:14	A 3	5	5
003	L7	190	0031	19991213 09:14	A 7	6	8
001	L7	190	0029	19991229 09:13	A 6	6	9
002	L7	190	0030	19991229 09:14	A 9	9	9
003	L7	190	0031	19991229 09:14	A 3	8	9

Note that clicking on a frame in the Zoom Window will highlight the corresponding line in the Scene List Window. If more frames are superimposed, as layers, clicking several times on the frame will highlight, one by one, all the corresponding lines in the Scene List Window.

If your search parameters are too broad DESCW may find more than 800 scenes that fit the criteria; in this case DESCW will display only the first 800 matching scenes, and will show an alert message. You can increase the number of scenes displayed through the **Define** menu, but this requires more computer memory and longer times for each operation of highlighting and deletion. Normally it is better to restrict the query parameters or use a "user area" (see below).

Deleting Scenes

At first, you will usually be shown more scenes than you need. If you highlight a scene or a group of scenes in the Scene List window and click with the right

mouse button, the selected scenes will be deleted from the list (and from the Zoom Window). You can continue deleting scenes, using any of the Scene List Window columns to select them, until only the scenes you require remain. To delete a single scene click on its status.

An alternative way to select one or more scenes is to identify the scene you wish to select and click in the left-hand margin of the window. An “x” will be displayed, indicating that the scene has been selected. When you have identified all the scenes in which you are interested, select the **Delete Unselected** option from the **Edit Menu**, and all the non-selected scenes will be deleted.

There is only one level of “Undo” to these actions, from the **Undo** option on the **Edit Menu**, or the **Toolbar** button.

If you wish to print the Scene List select the **Print** option from the **File Menu**; this option lets you choose which of the columns of inventory data to print.

Defining the User Area

It is possible to improve the search by better defining your area of interest (called the *User Area*) by:

- Drawing a polygon directly in the Zoom Window
- Specifying the Lat/Long co-ordinates of a quadrilateral
- Specifying a circle by entering the Lat/Long co-ordinates of the centre point and the radius of the circle
- Selecting a place name of a town or country, chosen from a list
- Loading a previously defined area
- Loading a User Request

Drawing a Polygon



Choose the **Define Area** option from the **Define Menu** (or click on the corresponding button on the **Toolbar**). Then define the vertices of the

polygon that correspond to your area of interest by clicking at least three times on the Zoom Window. To close the polygon either click the right mouse button, or click the left button on top of the first point; note that the cursor, which has changed to the form of a cross, remains constrained within the Zoom Window until the polygon is completed.

The Latitude and Longitude co-ordinates of the cursor position are displayed in the **Status bar** to help you position the vertices.

Specifying a Quadrilateral, Circle or Named Area



From the **Define Menu** (or by clicking on the corresponding button of the **Toolbar**) select the **Area Coordinates / Name** option that displays the User Area Definition Window. This allows you to define the area as a quadrilateral a circle, or by place name, by selecting one or the three options at the top of the dialogue box.

Quadrilateral

Enter four vertices for a quadrilateral area or only two (NW and SE) for a rectangular area. All co-ordinates are in degrees and minutes. The following formats are allowed (the field defaults are all zeros):

Latitude:	-90 to 90	e.g. -48
	s90 to n90	e.g. s48 or S48
Longitude:	-180 to 180	e.g. -60
	0 to 360	e.g. 300
	w180 to e180	e.g. w60 or W60

DESCW will tell you if you have entered an invalid value, however will try to interpret your requirements if you select an area which is logically impossible (e.g. SW co-ordinates with a latitude greater than NW co-ordinates). You can name areas in the status bar.

Click on **OK** to display the polygon in the Zoom Window.

Circle

Enter the Lat/Long co-ordinates of the centre point and the radius of the circle in kilometres (default is 50 km); the format for the co-ordinates is the same as for the co-ordinates of a Quadrilateral. Circle areas can also be named. Click on **OK** to display the result as a polygon in the Zoom Window; note that circles further away from the equator will appear oval in the Zoom Window because of the perspective effect of the projection of the map.

By name

Enter a search string to find a named area. The program has a database of country and capital city names, and other named areas can be created by the user (see Chapter 4).

Loading and Saving Areas

DESCW allows you to load an area saved from a previous session onto the Zoom Window.

To save the definition of an area in an ASCII file use the **Save User Area** option from the **File Menu**; the name that you have given to the area is also saved.

To load an area select the **Load User Area** option from the **File Menu**, and select the file to load.

Loading User Requests

DESCW allows you to define more complex areas using the "User Request" format. For a full explanation of this feature please see the Reference section of this manual (Chapter 4).

Restarting the Search

If the **Enable Auto Search** facility is on (**Search Menu**) and you have already defined one or more missions, the search will start as soon as you have clicked **OK** on the Enter Area Window. Otherwise, choose the **Start** option from the **Search Menu**. In either case (provided that the **Enable Area Filter** option on

the **Search Menu** is activated) the scene search will be limited to the defined area.

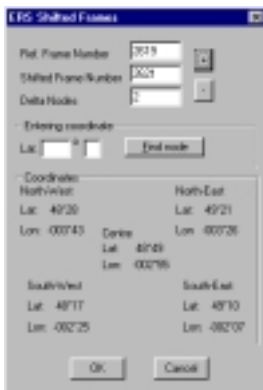
Saving

At any point you can save the search parameters, including the entire Scene List, as an ASCII or .PRM (binary) file, by selecting the **Save Parameters** option from the **File Menu**. A search saved as ASCII is not reloadable for a new search, it is just the content of the Scene List Window (or part of it). Saving as .PRM instead allows you to reload the complete session.

Note: Saved queries made with older DESCW versions may not be compatible with the current version.

Computing ERS Shifted Scenes

For ERS SAR scenes it is possible to compute and display scenes which are shifted along the track from the standard scene position. Clicking the left mouse button on the Frame column of the Scene List Window displays the ERS Shifted Frame Window.



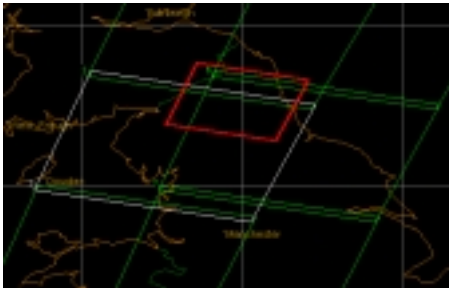
In the Zoom Window only the selected scene is highlighted (not all the scenes with the same frame number) and, by clicking with the mouse on the + or the – button in the ERS Shifted Frame Window, the scene is shifted along track one node (around 5 km) and is highlighted in red. Alternatively, you can enter a Latitude (that falls within the selected scene), and click on the Find Node button; DESCW will calculate and display the node shift that will give you a scene with its centre closest to the defined latitude.

The direction of the shift is always "+" in the direction of travel of the satellite; thus it will depend on whether the scene is from a descending or an ascending pass.

After you have clicked on OK the scene details in the Scene List are updated, showing the number of nodes shifted in the DELTA nodes column (D).

Computing Landsat Floating Scenes

For a Landsat scene you can select the scene type, with the option of identifying the centre scene co-ordinates of a Floating Full, Quarter or Mini scene. Click with the left mouse button on the Frame column of the Scene List Window of a Landsat scene to display the Landsat Floating Scene Window. First select Full, Quarter or Mini. Then either enter the Latitude and Longitude of the centre of your area of interest (Latitude only if you have selected Full), or click on the Zoom Window within the highlighted frame of the selected scene. If your selection is valid, the appropriate subscene frame will be displayed in the Zoom Window.



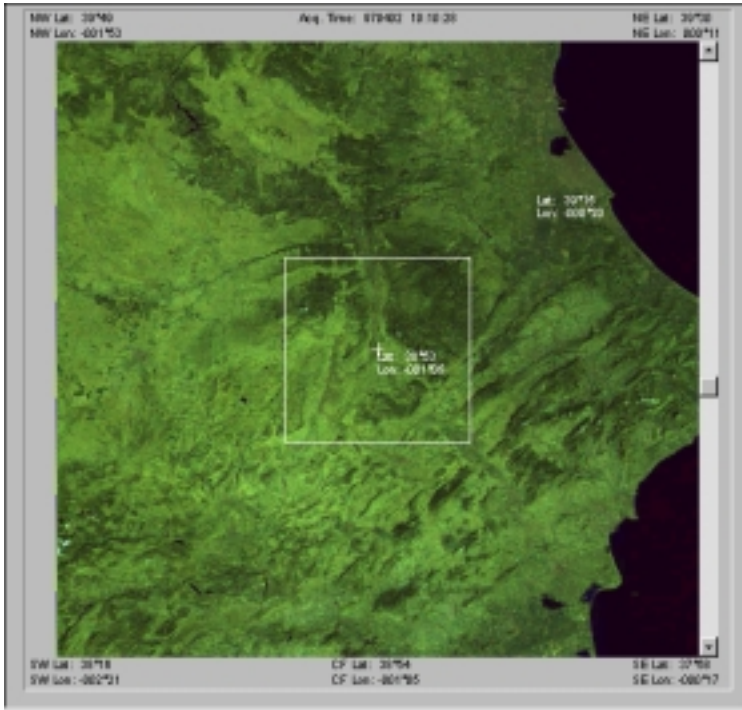
When done, click on **OK** to close the Landsat Scene Selection Window, the selected scene will replace the normal Full scene on the Zoom Window, and the details in the Scene List will be correspondingly updated.



Displaying a Quick Look

To view the Quick Look of a scene just double click in the Status (S) column on the Scene List for the chosen scene. If a Quick Look has been produced for the scene and is available on your computer, or from one of the on-line

servers, the Select Source Window will open displaying the available sources. Double-clicking on the selected row, or selecting it and clicking on the **'View Quick Look'** button, the Quick Look viewer will open and display the scene.



If a Quick Look has been produced, but DESCW cannot find it, a window is displayed asking you to insert a specific CD-ROM. If you have already inserted the CD-ROM, or have already copied the contents of the CD-ROM to a different location on your hard disk, you should check to see which Quick Looks Directory is currently defined in the **Quick Look Directory** option of the **Define Menu**.

If you chose to view a Quick Look from a remote server, but this is unavailable, an error message will be displayed.

Note: The Quick Look covers a slightly wider area than the actual scene.

See Chapter 4 for detailed instructions on specifying the Quick Look directory.

DESCW Quick Looks are supplied in RGB=752 format for Landsat TM and RGB=421 for JERS-1 VNIR.

If the Quick Look is on a CD-ROM, the program lets you make a number of adjustments to the Quick Look:

- display the scene quadrants on the image
- visualise the boundaries of a floating quarter or mini-scene on the Quick Look (Landsat TM only)
- scroll the image backward or forward along the satellite track, either screen by screen or incrementally to visualise a floating full scene. The co-ordinates shown in the scene frame give you the latitude and longitude of the floating full scene centre (Landsat TM only)
- display each of the three Quick Looks bands separately using the **Split View** option
- Enhance image visibility
- Save the image in a graphical format such as Tiff, Jpeg, etc.

If the Quick Look is received on-line, in addition to the possibility to save it, some small adjustment to the image display are also possible.

