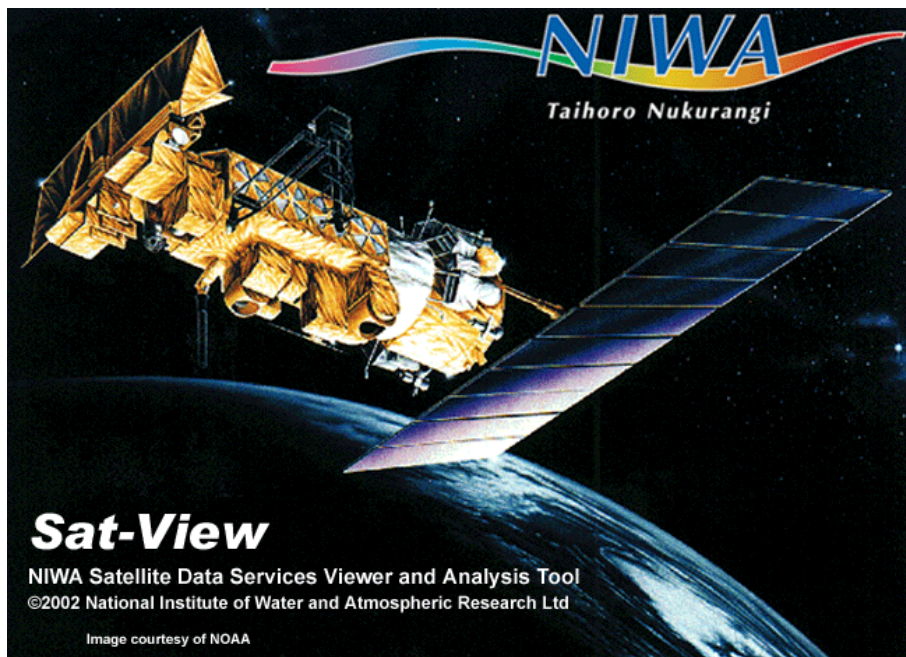


Sat-View

**A Windows program to view, analyse, and update
NIWA sea surface temperature and
cloud imagery products**

Version 2.3

J. W. Kidson, M. J. Uddstrom & C. C. Tinker



National Institute of Water and Atmospheric Research Ltd.

Wellington, New Zealand

PO Box 14-901

Wellington

New Zealand

Phone: +64 4 386-0300

Fax: +64 4 386-2153

www.niwa.co.nz

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1. Introduction


The *Sat-View* program has been developed by NIWA as an easy to use facility, whether at sea or on land, for ordering and analysing NIWA generated sea surface temperature (SST) and GMS satellite weather imagery. Both standard and user-defined SST analysis areas may be ordered, and when received, displayed on a Windows PC.

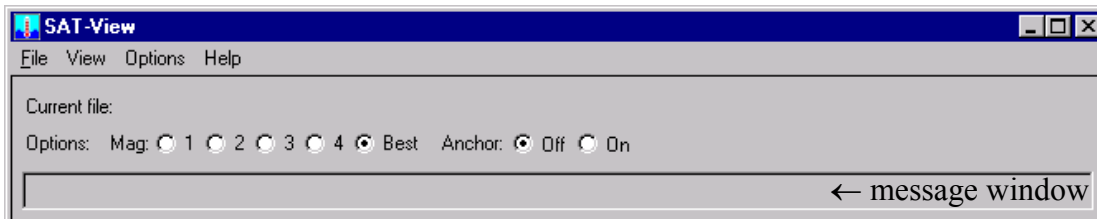
The principal features of the program are as follows.

- It operates on a PC running Windows 98, ME, Windows NT4.0, 2000, and later versions of these operating systems.
- Connects to the web via shipboard satellite communication systems (Inmarsat, Iridium, cell phone) and / or standard telephone links from shore.
- Provides a wide range of analysis / viewing options for data generated by NIWA.
- Provides direct access (i.e., without the use of a web browser) to NIWA's Satellite Data Services (www.niwa.co.nz/services/sat) products.
- SST images (and isotherm analyses) for user-defined areas may be obtained by simply drawing the required area on a map, specifying the period over which the data should be composited, and choosing a ground resolution that minimises transmission costs while still providing the best possible information for fisheries targeting.
- Uses standard email facilities to obtain satellite images from NIWA.


The operation of the program is described in sections 2–8. The appendices include installation instructions, a quick start guide, and outline known program issues.

2. Starting *Sat-View*

To start *Sat-View*, click on the program  icon (on the desktop).



The initial display (above) includes a menu bar that is used to select and set program options, a message window that reports results, and the main window.


- The *menu bar* contains the **File**, **View**, **Options**, and **Help** menus together with buttons to select the image magnification, and control display of a user-specified *anchor point*  on the visualised data. Often the anchor point will be set to a ship location.

When an image is opened for viewing (see **File** option, Section 3) the filename is indicated, and, if it is in the NIWA format, a description of the image will be displayed too.

- The *message window* is used to provide instructions and information to the user. For example, when the left mouse button (MB1) is clicked or held down and the pointer

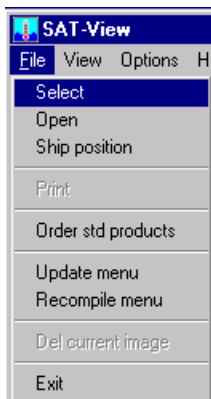
dragged over an image, the latitude, longitude, and image value (e.g., SST) at the location of the pointer will be displayed here.

GIF files that are not in the NIWA format (e.g., the U.S. Naval Research Lab's ocean current analyses from www7320.nrlssc.navy.mil/global_nlom/globalnlom/anz.html) can be opened with the **Open** option in the **File** menu, but will not appear in the **Image Selection** box displayed by the **Select** option (under the **File** menu). Also, it is not possible to extract position information or data values by running the pointer over non-NIWA image data, but they can be zoomed/enlarged, etc.

When an image is displayed, the preferred magnification setting is **Best** which gives the largest image that will fit within the *program window*. If this window is resized, the scale of the image is adjusted so that the same area is viewed, but it will have a different magnification. To specify a particular magnification factor, select one of the **Magnification** buttons (**1** to **4**). Choosing a **Magnification** of **1** visualises the data at full resolution. If an **Anchor** location has been specified and the **Anchor** option is set **On**, then an anchor symbol  will be drawn on top of the image at the position that has been specified.

3. The File Menu

At present the **File** menu contains nine options: **Select**, **Open**, **Ship position**, **Print**, **Order std products**, **Update Menu**, **Recompile menu**, **Del current image**, and **Exit**.




- The **Select** option brings up the **Image selection** dialog, which allows files in the NIWA format to be selected by their contents, rather than their filenames (see Section 3.1). *This is normally the easiest way to select a particular image for viewing.*
- The **Open** option may be used to select and view any GIF file (i.e., a file that has been saved as type GIF or gif) if its name is known. It is the only way to view files that are not created by NIWA. When selected it displays a standard (Windows) file selection box from which a file is selected in the usual way. The file is then displayed in **Best** magnification mode so that all the data in the file can be seen within the main window.

Note: *A known bug with the File selection dialog is that it may not appear after the 3D viewer has been used (Section 5.3), and possibly on other occasions too. Under these circumstances, exit from Sat-View and start over again.*

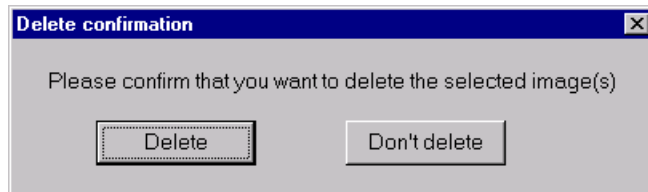
The file name and details of the image that has been loaded are displayed on the menu bar above the image (as below). Only the filename is present if the file was not created by NIWA.

Current file: D:\www\sst\Brett.gif Mean SST °C/R in °C for 9-12 June 2000(UTC)

- The **Ship position** option allows the vessel position, or any other reference point, to be displayed on the data in the main window via an anchor  symbol. When an anchor point has been displayed, the distance between that point and the pointer is reported in the message window when the left mouse button (MB1) is pressed, together with the latitude and longitude of the pointer, its bearing, and the data value.

See Section 3.2 for details of how to use the dialog box that is displayed by this menu item.

- The **Print** option is enabled whenever an image is displayed in the main window, but is greyed out at other times. When not greyed out, clicking on it brings up the **Print** dialog (Section 3.3) that allows either the whole or the visible part of the current image to be printed. If a cross section (see Section 6) has been extracted from the data, this may be output on the printed page too. A **Print** option is also provided on the **Image** view **Popup** menu (see Section 6).
- The **Order std products** option allows some NIWA Satellite Data Services products available from www.niwa.co.nz/services/sat to be ordered without logging onto the NIWA website. The dialog boxes used for these requests are described in Section 3.4.
- The **Update Menu** and **Recompile Menu** options force internally generated menus containing data image details to be refreshed. This normally occurs every 5 minutes, but if new data have just been downloaded, then the menus can be updated immediately by clicking on **Update Menu**.
- The **Recompile Menu** option should only be used if there appears to be something wrong with the options provided in the **Image selection** dialog, or you have changed the list of folders you want to view (via the **Customize** menu). This procedure generally takes longer as **Sat-View** must read the contents of each GIF file and extract the header information.
- The **Del current image** option allows you to delete from your computer the image you are currently viewing. It is subject to confirmation, through the following dialog.
- The **Exit** option can be used to exit from **Sat-View**.



3.1. The Image selection Dialog Box

This dialog box (see next page) allows files in the NIWA format to be selected according to the information contained in them, rather than by filename. (*Alternatively, these files may be selected through the **Open** option in the main menu if their filename is known.*) For the **Image selection** menu to work properly, the data files must be in one of the folders specified in the **Customize** dialog box (Section 5.4).

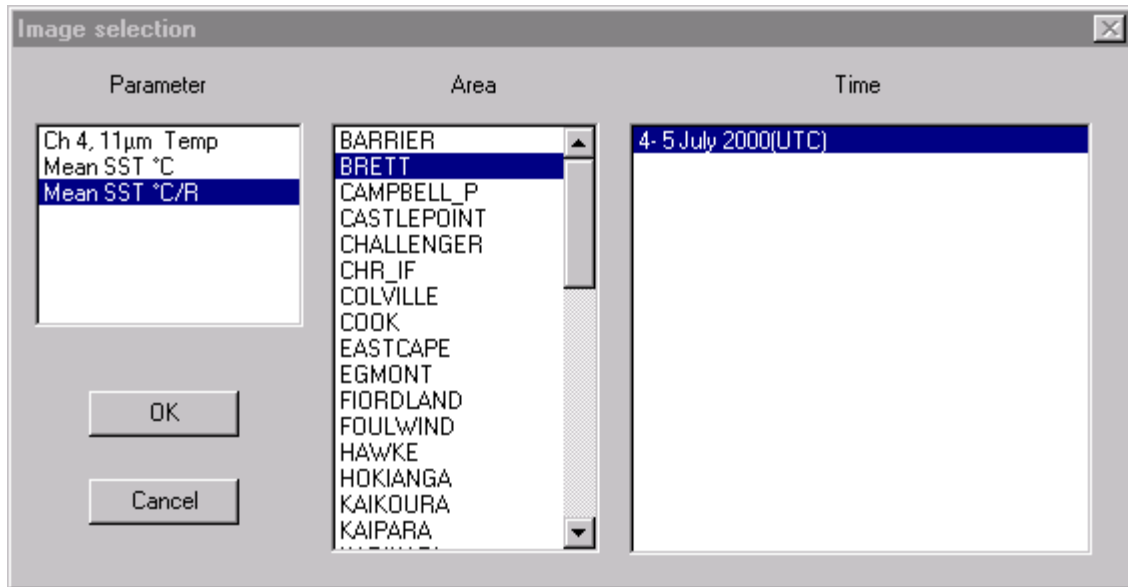
The **Image selection** box contains three windows where the type of image (**Parameter**), the name of the area covered (**Area**), and the time for which it is valid (**Time**) are displayed. A list of image types and a map showing standard areas are included in Appendix B. For user-selected areas the **Area** is defined as a string of numbers (comprising central latitude and longitude, box width and height, etc.). *It is preferable to view user-selected areas from the **Areas** view display (under the **View** menu item) described in Section 4.2.*

To select an image for viewing via the **Image selection** dialog, work from left to right.

- 1) Click on your choice in the **Parameter** box to display a list of areas in the **Area** box.
- 2) Click on an area to display a list of available times.

- 3) Finally, double-click on the **Time** of interest, or use a single click followed by a click on **OK**, to load the image into the main window.

If there is only one choice available in each box, it will be automatically selected (highlighted) for you. The **OK** option will only work once all three items have been selected. Click on the **Cancel** option at any time if you no longer want to make a selection.



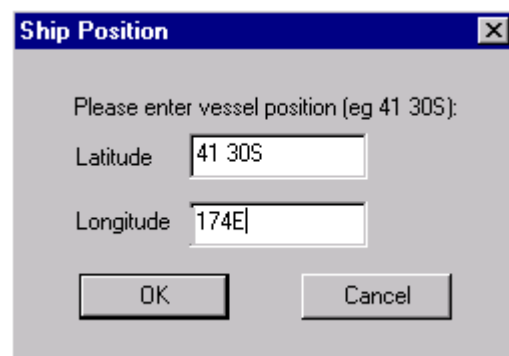
The **Parameter** and **Area** boxes are sorted into alphabetical order, and usually **Times** are sorted into time order with the most recent data being at the top of the list.

Note: *The selection process may be slow the first time you use **Sat-View**, as each file in the folder(s) specified in the **Customize** menu has to be read and the details of parameter, area, and time selected from it. These are saved for later use – and updated every 5 minutes.*

3.2. The Ship Position Dialog Box

The **Ship position** option causes the dialog box to the right to be displayed, allowing some latitude and longitude (perhaps that of the vessel) to be entered¹.

The latitude must be entered as indicated, in degrees and whole minutes, followed by S or N, e.g., 41 30S or 10N. Longitudes are entered in the same way, followed by “E” or “W”. *Note that the minutes part of the position is optional in each case. Whole degrees are quite acceptable, e.g., 174E.*



Click on **OK** to complete this operation, or press the Enter (or, on some keyboards, Return) key after the longitude is entered. If the details seem to be OK, a message will be displayed in the message window, e.g.:


¹ Note: **Sat-View** maps and charts are not suitable for vessel navigation, though they may be used for fisheries targeting.

Ship position set to 41 30S, 174E

If there appears to be an error, the message will be:

Invalid latitude/longitude specified for ship position

Re-enter the position, correcting the previous error.

If a valid position has been entered, an anchor symbol  will be displayed at the specified location on the image in the main window (if any) and all subsequent images until the **Anchor** option is turned **Off** on the menu bar. It may always be viewed again by setting the **Anchor** option back **On**.

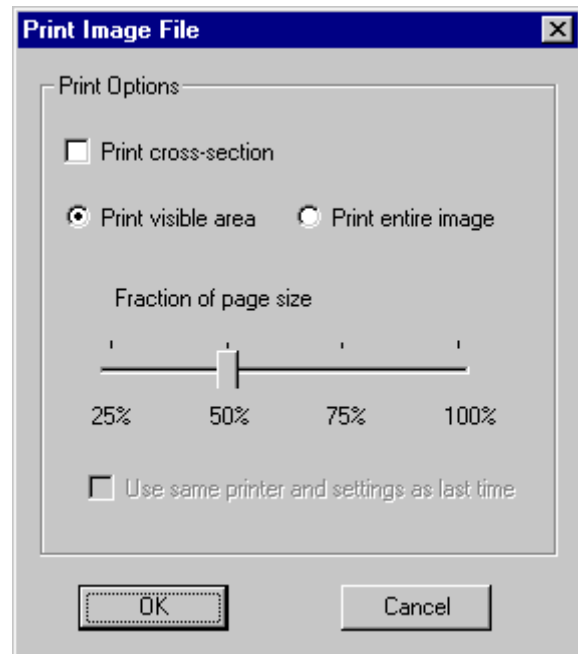
The anchor position may also be changed from the **Image** view **Popup** menu (Section 6), or by using the **Ship Position** dialog box again.

Note: If two anchor symbols appear on the imagery, change the magnification to a higher value, then back to the original value – this will remove the stray anchor. This is a known bug, and will be fixed in a future release of the software.

3.3. The Print Image File Dialog Box

Printing the currently displayed image is initiated by the **Print** options on the **File** menu or **Image** view **Popup** menu (see Section 6). The **Print Image File** dialog box has the following options available:

- **Print cross-section** allows the visible area of the image shown on the screen to be printed with the cross-section graph (Section 6) below it. If a cross-section window is present on the screen, this option will be enabled, and printing will be restricted to the visible part of the image (plus the cross-section position and the anchor, if present).
- If no cross-section has been drawn on the image the choice is between **Print entire image** or just the part that is currently visible on the screen (**Print visible area**).
- **Fraction of page size** specifies how large the printed image should be. This is expressed as a percentage of the maximum size of image that can be drawn on the printer's page. Usually 50% will be a good choice, but any number between 25 and 100% can be selected. A larger number will increase the time needed for printing, usually without clarifying any of the details in the image.
- **Use the same printer and settings as last time.** If you have selected a printer before and don't want to change the settings, leave this box checked and click on **OK**. The first time you want to print anything, the program will display a standard Windows printer selection box, where you will need to make your choices.



Any modern printer that is capable of printing coloured images should be suitable.

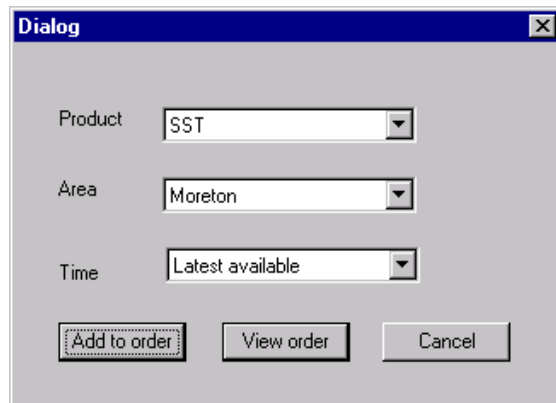
3.4. Ordering standard products

Standard products are images that are produced for fixed areas and fixed times of the day or compositing periods (if appropriate). They may include SST images, cloud images, weather charts (not yet implemented), and other products that may be made available from time to time. A list of the products presently available is given in Appendix C.

The ordering procedure makes use of the **Order standard products** dialog box:

The desired item or items should be selected from the top down as follows.

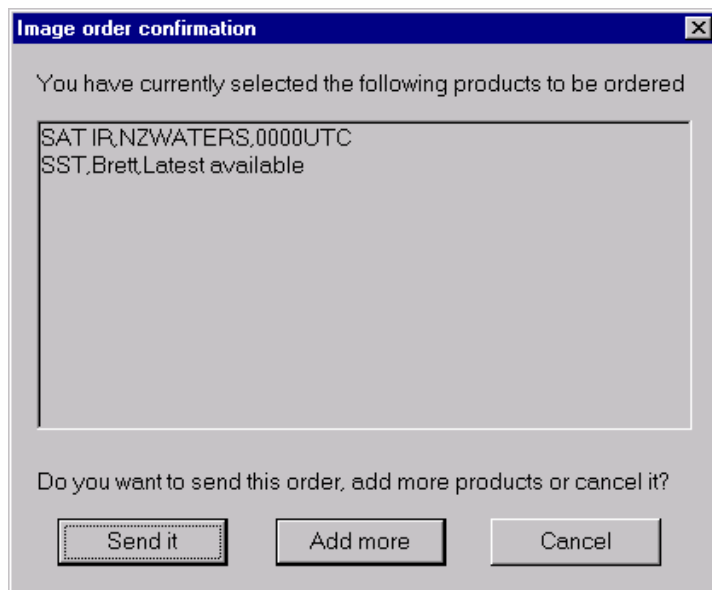
- 1) Select the **Product** from the top menu (presently only SST and SAT IR);
- 2) Next, the **Area** from the middle menu;
- 3) Finally the **Time** from the bottom menu (presently just the latest available).



When the **Time** selection has been completed click on the **Add to order** option to add this request to your *shopping basket*.

To add another product, go through steps 1 – 3 again, and select **Add to order** again etc. Finally, select the **Send order** option. This brings up the **Standard product confirmation** box which lists the standard items included in your shopping basket and provides three options:

- **Send it** transmits the order to NIWA.
- **Add more** allows other items to be added (not implemented yet).
- **Cancel** removes this dialog box from the screen but your order remains intact and may be added to.



Note: Before selecting the **Send** reduce

message usually takes only a few seconds, and is signalled by the disappearance of the black popup window. If a failure occurs while sending, it will try up to fi

The order is sent to NIWA via email using the communications method set up in your customization options (Section 5.4). The results will be sent back to you via email, generally within 60 minutes, for storage in one of your folders.

4. The View Menu



The **View** menu has only two options, **Image** and **Areas**. These options determine what information is shown in the main window, effectively switching *Sat-View* between two viewing modes.

- The **Image** option displays the currently selected image (obtained via the **Select** or **Open** options in the **File** menu – as explained above). This is the default operating mode of *Sat-View*.
- The **Areas** option displays a map with the all previous user-selected areas outlined by coloured rectangles, so that a particular *area* may be selected for display or update, etc. *This is the best way to view the data for an area you have defined. The procedure is described in Section 4.2.*

Both the **View** and **Areas** displays provide **Popup** menus when the right mouse button (MB2) is clicked (see Section 6).

4.1. The Image View

When in **Image** mode you will normally view the data using the **Select** menu (described in Section 3.1). The data may then be manipulated using the **Image** view **Popup** menu (initiated by clicking the right mouse button (MB2) inside the main window). If the **Best** option (on the menu bar) has been selected, the image will first be displayed at the maximum size that allows it all to be viewed in the main window. If that window is resized with the **Best** option on, the image will be rescaled to fit the new window size. Otherwise the image stays at the **Magnification (1-4)** specified on the menu bar.

Other options controlling the image display can be selected from the **Popup** (MB2) menu.

- **New Centre** causes the image to be centered (at its current magnification) at the location where the pointer was when the right mouse button was clicked.
- **Select View** allows a rectangle to be drawn on the part of the image that is currently visible. This area is then displayed at the maximum magnification that will fit within the image window. *This is the best method to enlarge a section of an analysis.* To see the whole image again – click on the **Best** button again.

These options are described in more detail in the **Image** view **Popup** menu section (see Section 6).

4.2. The Areas View



The **Areas** view mode provides the best method of viewing the data in user-defined areas. This is because under this option these areas are displayed as rectangles over a regional map (called a *basemap*). This display is also used to update SST analyses on existing user-defined areas and to create new areas for which SST data are required.

The basemap and user-defined areas display is accessed by the **Areas** option in the **View** menu described above, or from **Display Areas** in the **Image** view **Popup** menu.

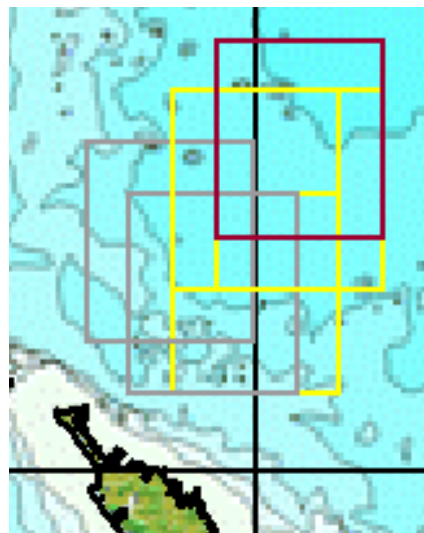
In Areas mode a *basemap* is displayed in place of the usual SST or satellite weather image, and the outlines of previously received user-defined data areas are plotted on top

of it². You can magnify a section of this map using either the magnification buttons above the image, or the **Select Area** option in the **Popup** menu.

The **Areas** view **Popup** menu contains the same **New Centre** and **Select View** options as in the **Image** view **Popup** menu. The **Select Area** option allows one of the user-defined areas (displayed as a coloured rectangle) to be selected., while **Draw New** provides a way to “draw” (or define) a new user defined area on the basemap (see section 4.3). The **Display Image** option switches back to the last SST or satellite cloud image viewed.

The rectangles are drawn in colours indicating their age.

- Brown, red, orange, yellow, green, blue, violet and gray indicate ages of 1–7 and 8+ days respectively.
- Where more than one image is available for a given area, further rectangles in the appropriate colour are drawn inside, giving a thicker outline.

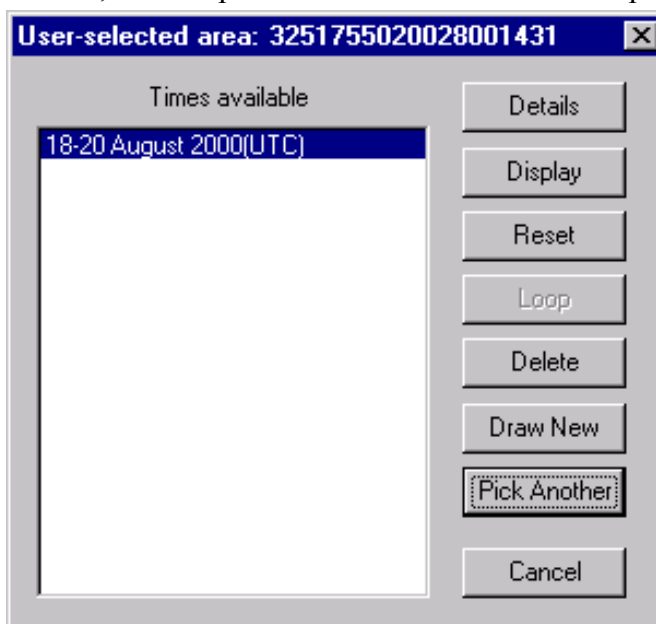


A small section from the **Areas** display appears to the right. To pick an area after the **Select Area** option has been selected, click the left mouse button inside the desired rectangle. *Alternatively*, press the left mouse button and drag it over the basemap until the border of the rectangle you want changes colour, then release it. The pointer changes to a different type of arrow when you are able to make this selection.

Where the rectangles overlap, it may be necessary to move the pointer around inside the rectangle you want until *its* borders, rather than those of any overlapping rectangles, change colour (it is often useful to magnify this region on the map – either by one of the **Magnification** buttons, or better still, by using the **Select View** item on the **Popup** menu). If not already displayed, the **User-selected area** dialog box then appears on the screen making a number of choices available, and the pointer returns to its normal shape. The options that become available are described in the following sections.

4.3. *The User-selected area Dialog Box*

The **User-selected area** dialog box, shown on the right, appears whenever a user-defined area is selected by either of the methods described above. It may be closed when no longer required, but will reappear on the screen at its previous position if needed again. The title of the box indicates the computer generated name of the



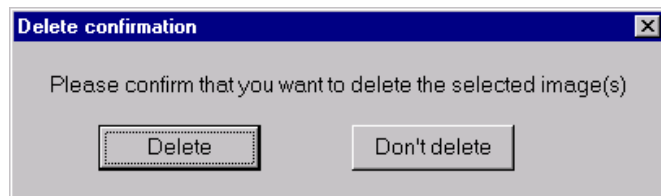
² Note: Area outline(s) only appear on the **Areas** display after data for the specified area(s) have been received and written to the folder specified in the **Customize** option.

user-defined area (in this example 3251755020028001431), to which the information below applies.

The dialog box provides a list of all images available for the user-defined area. The data are displayed in descending order by date, so that the most recent image appears at the top of the box. If it is the only image for this area, it is automatically selected (i.e., highlighted) as in the example shown here.

The options on the right side of the dialog box provide the following functions.

- **Details** displays the **Image Details** dialog box (described below), which provides all relevant details of the image, *and gives the opportunity to order another SST analysis for the same area.*
- **Display** displays the SST analysis for the date selected from the list.
- **Reset** clears all selections in the date list.
- **Loop**, if enabled (i.e., not greyed out), provides an animated sequence of images selected from the date list. See the Looping Images section (5.1) for details.
- **Delete** will delete (from your computer) all the images selected (i.e. highlighted) from the date list. As usual, confirmation is required, and another box appears, where you must select the **Delete** option to complete the operation.
- **Draw New** allows you to define a new area in the usual way, by pressing the left mouse button (MB1) down at one corner of the desired rectangle, moving to the opposite corner, and then releasing the button. The **Image Details** dialog box is then displayed in which you should *enter any special details* before ordering a new image.
- **Pick Another** works in the same way as the **Select Area** option on the **Areas** view **Popup** menu. Drag the mouse with the left button down until the border of the area you want to select changes colour, then release the button. The contents of the **User-selected area** dialog box change and you can repeat any of the options described here.
- **Cancel** simply closes the dialog box. When needed again it will reappear at its previous position.



4.4. The Image details & ordering Dialog Box

The **Image details & ordering** dialog box provides details of the image currently selected, and the opportunity to change or insert other options before updating an existing analysis area or ordering data for a new area. This dialog box shows the following information.

- **Image type** will be set to the type of the current image. At present only SST data are available.
- **Central Lat** and **Central Lon** give the central latitude and longitude of the user-selected area to the nearest 0.1°.
- **Lat range** and **Lon range** give the height and width of the user-selected area to the nearest 0.1°. *Neither these values nor the central latitude and longitude may be changed – except by drawing a new area on the Areas display basemap.*

- **Last date** specifies the most recent date to be included in the composite image (usually this will be today's date – *but it can be up to 2 months before the present date*). **Note:** If this dialog box resulted from a **Select Area** or **Pick Another** operation then the **Last date** will be the last date of the image data you selected. *To order an updated analysis you must **change** this to the current date (or whatever is desired).*

Image details & ordering

Image type: SST

Central Lat: 40.3S Central Lon: 178.8W

Lat range: 3.5 Lon range: 4.9

Last date: 29 May 2002

Compositing period (days): 3

Max image size: 28K

Resolution (km): 1.33

Max cloud cover (%): 60

Order update Cancel

- **Compositing period** gives the numbers of days to be composited (analysed) in the SST data. The longer this period, the more likely the resulting analysis will be cloud free – but it may not indicate present conditions as well as a shorter (possibly more cloud blanked) analysis. The standard compositing period for NIWA SST products is 3 days.

- **Max image size** allows an *upper limit* to be put on the size of an image to be ordered, thereby *limiting transmission costs*. This will typically be 16K (16000 bytes), 28K (28000 bytes), or 32K (32000 bytes). The ground **Resolution** achievable with the **Max image size** chosen is also indicated. **Note:** *There is no point in asking for a resolution below 1 km as this is the best the satellite can achieve. Generally it is preferable to reduce the image size as far as possible while still achieving the required ground resolution. This is a key feature of the NIWA Sat-View system. Note that the maximum image size and maximum resolution are absolute limits that will not be exceeded. If you specified a resolution of less than 1 km it will be increased to 1 km during processing at NIWA.*

- **Max cloud cover** indicates the maximum cloud cover that is acceptable in the product being ordered. It is expressed as the percentage of the requested analysis area that may be obscured by cloud. If 100 is specified then an analysis will be sent even if the area in question is *completely* cloud covered. Similarly a value of 0 will result in an analysis being sent *only* if the chosen area is completely cloud (or land) free. The default value is specified in the user customisation file, along

Image order confirmation

You have prepared a request for the following chart:

Type: SST
Centre: 32.0S, 175.5E
Width = 2.8 °lon, Height = 2.0 °lat
Composited for 3 days, ending 23 August 2000

You have requested a maximum image size of 28K
and a maximum resolution of 0.31 km
Maximum allowable cloud cover is 20%

Do you want to send the order?

Send it Cancel

with the default maximum image size. *Both may be edited in the **Image Details & Ordering** dialog box, along with any other numbers that appear in a box with a white background.*

If the NIWA data processing system determines that there is more cloud cover over the user-defined area than that specified here, a message will be sent to the user indicating the actual percentage cloud cover. The area may then be re-ordered using a number greater than the value reported by NIWA.

Note: *For the purposes of the cloud cover calculation (at NIWA), any land in the area is counted as cloud. When ordering data for a coastal area you should make allowance for this when setting the Max cloud cover value.*

If the most recent image does not include data received in the last 24 hours, the **Order update** option may be pressed to order a new image. This first brings up the **Image order confirmation** dialog box (previous page) that confirms the options you have selected.

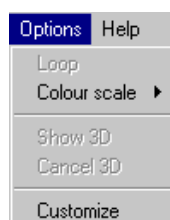
If you are happy with these details *and you have already logged onto the Internet* click on **Send it** to request an updated analysis from your information provider (i.e. NIWA). Otherwise click on **Cancel** (and try again).

Note: *Before selecting the Send it option, you must have logged onto the Internet. To reduce your Internet charges, you should log off (the Internet) as soon as the mail message has been sent. This usually takes only a few seconds, and is signalled by the disappearance of the black popup window. If a failure occurs while sending, it will try up to five times.*

Your request will be formatted as an Internet message and sent off using your designated communications system (set in the **Customize** (Section 5.4) dialog box). It will be processed and sent back to you by the same method (about 60 minutes later).

To *receive* the data, you will need to check your incoming mail (*usually the new data will be available within 1 hour of the request being sent*) and save the attached image into one of the folders you specified in the **Customize** dialog box. The name given to the image when it is saved is not important (but it must be of type GIF (or gif)) providing it is not the same as that of another image you wish to keep³. **Sat-View** will identify the image by its contents and make it available for use within 5 minutes of it being stored – or you can force an immediate menu update using the **Update Menu** option, see Section 3)

5. The Options Menu



The **Options** menu comprises four options: **Loop**, **Colour scale**, **Show 3D**, **Cancel 3D**, and **Customize**.

- The **Loop** option is enabled if the image currently displayed in the main window is available at more than one time. See the Looping images topic (Section 5.1) for details.
- The **Colour scale** menu allows the original colour scale of the image

³ Appendix E (Quick Start Guide for *Sat-View* and Email) provides guidance on how to extract data from email messages.

to be changed to another predefined colour scale. Its application is described in section 5.2 under **Changing Colour Scales**.

- The **Show 3D** and **Cancel 3D** options provide a three-dimensional view of the image displayed in the main window, and are also available in the **Image view Popup Menu** where their use is described. **Note:** *This facility does not show the temperature at depth – it only represents the surface SST as though it were a 3D image.*
- Use of the **Customize** option is described in detail in Customization Options (Section 5.4).

5.1. Looping Images (Animation)

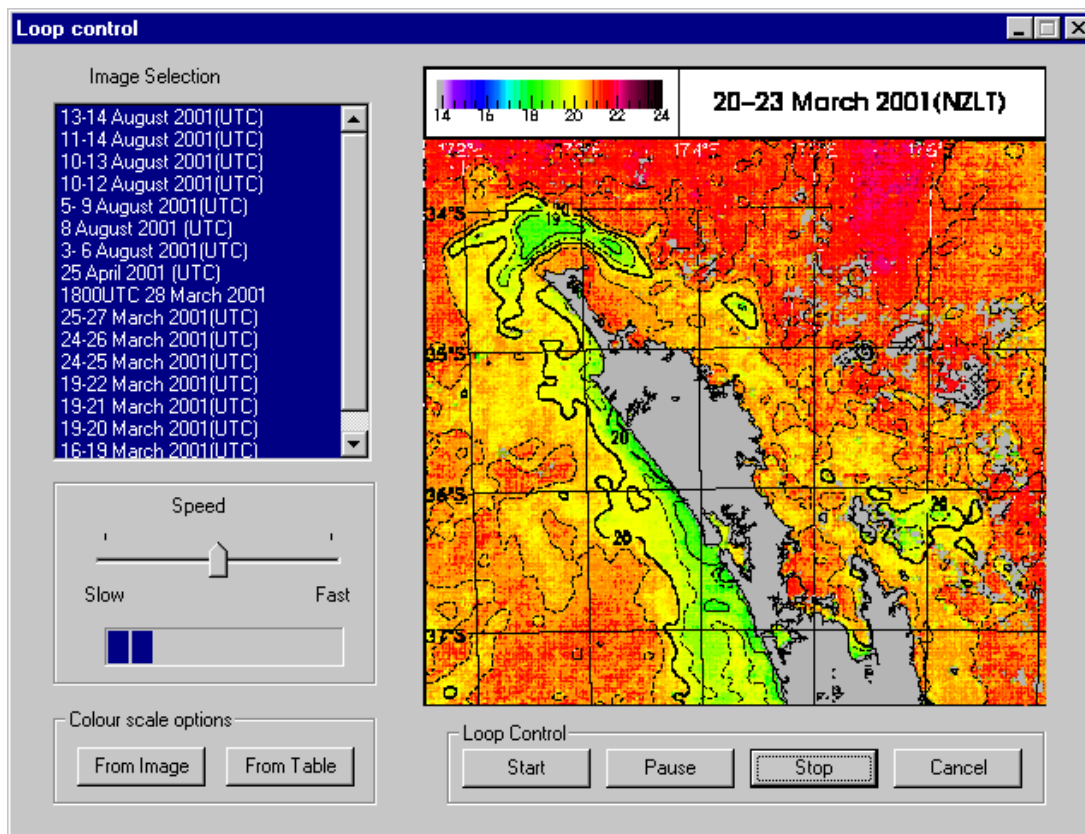
A set of images for either a standard NIWA analysis area (SST or cloud imagery), or one that has been defined by the user may be animated (or looped) as follows.

- 1) When an area has been selected from the **Areas** display, and there are two or more times available (for that area), select the items in the list that you would like to loop. If at least two times are selected from the list, the **Loop** option on the **Area Dialog Box** will be enabled. Click on this to bring up the **Loop control** dialog box.

Alternatively:

- 2) If you have selected a standard NIWA area for display (e.g., Brett), and there are at least two times available for this area, the **Loop** option in the **Options** menu will be enabled. Click on this to bring up the **Loop Control** dialog box, and make all images available for looping.

The **Loop Control** dialog box is shown below.



On the left it contains a list of the images (with the most recent at the top) that are available for inclusion in the animation (or loop). All are initially selected, but this selection may be changed at any time by clicking on the item to be selected or deselected. In addition there is a speed control that may be changed at any time, and an indicator that shows how far you have progressed through the loop.

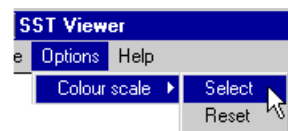
Initially the oldest image will be displayed on the right. Beneath it are four options whose operation is straightforward. **Start** and **Stop** will start and stop the looping, while repeated clicking on **Pause** will stop and start the loop alternately. **Cancel** exits from the loop and closes the **Loop Control** dialog box.

The *colour scale used for all images is the same* (regardless of the colours in the original images), so that changes over time are easier to monitor. Normally this colour scale is taken from the latest image in the sequence and if you are happy with the image colours, there is no need to do anything more. Otherwise two additional options are provided within the **Colour scale options** section of the dialog (below the Speed control).

- The left option **From Image** allows you to select any of the images in the list and use its colour scale – for example you may prefer to use the colours from the earliest image in the sequence or one in the middle. **Note:** *If you click on the **From Image** option, the pointer will be moved into the **Image Selection** list and you will not be able to move it outside this area until you have selected one of the images.*
- The **From Table** option will load the **Colour Table** menu box, as described in Section 5.2. Select one of these standard colour tables if you wish, and it will be applied to all images in the loop. Both this and the **From Image** options may be selected at any time, regardless of whether the loop is running.

Hint: To view the images one at a time in sequence, run the loop at low speed and use the **Pause** option to stop the loop after each image is displayed. Use the **Pause** option again to initiate loading of the next image.

5.2. Changing Colour Scales

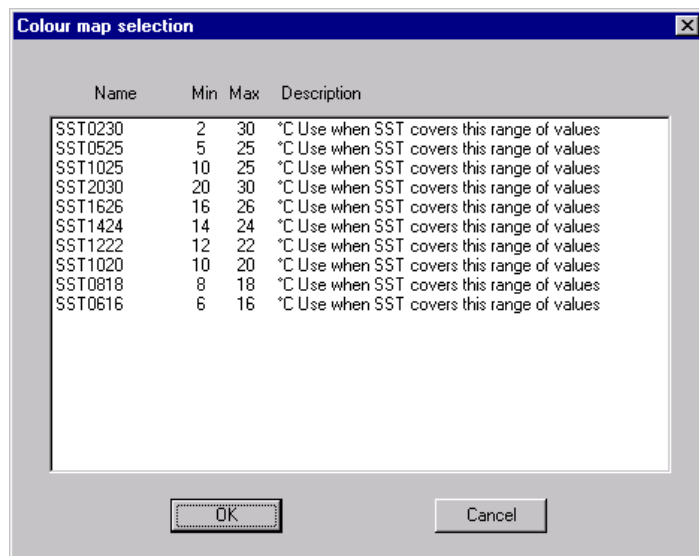


Usually the data files being displayed will have been constructed with a colour scale that varies over time. This allows the full range of colours to be used over the region displayed. If an alternative colour scale is preferred, perhaps to assign fixed colours to particular temperatures, or to give maximum contrast over a limited temperature range, then it will be necessary to *change* the original colour scale of the image.

Sat-View allows the user to do this. The method is as follows. Once an image has been loaded into the main window, the **Options** menu provides access to two commands via the **Colour scale** option.

The two options **Select** and **Reset** provide for a new scale to be selected or the original scale restored, respectively. The options will be greyed out and

Usually the data files being displayed will have been constructed with a colour scale that varies over time. This allows the full range of colours to be used over the region displayed. If an alternative colour scale is preferred, perhaps to assign fixed



inactive at times when it is not appropriate to use them – before an image is displayed, for example.

- The **Select** option causes the **Colour map selection** dialog box to be displayed that lists all colour scales available for this particular type of image.

When a different colour scale has already been applied, it will be highlighted on the list. To choose another colour scale, click on the line containing its description so that it is highlighted, and click on **OK**. A quicker option is to double-click on the item you want. If you decide not to change the colour scale at all, click on **Cancel**.

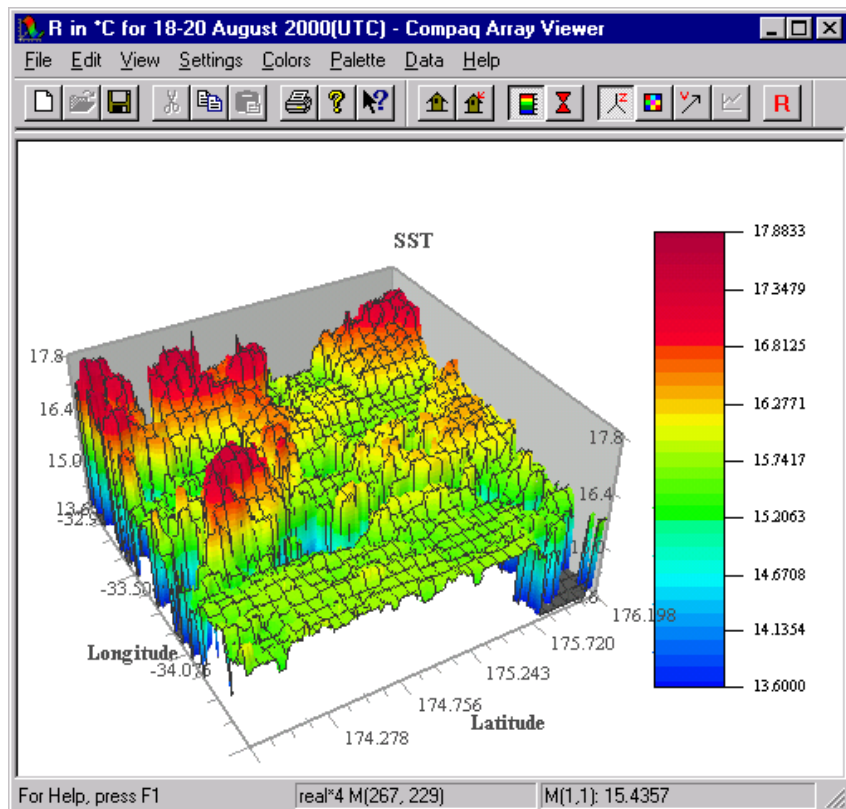
- To restore the original colour scale built into the image, choose the **Reset** option in the **Options, Colour scale** menu.

Note: It is not possible to change the colours of the overlays showing coastlines, latitude, and longitude. They may be hard to see for some colour scales, but positions may be read at all times by using the left mouse button (MB1). A description of the standard colour scales is given in Appendix D.

Note: *If this colour scale option does not work at all, or you get error messages, consult the person who installed the program. Some or all of the files may be missing.*

5.3. 3D Image Viewing

Occasionally it may be helpful to view an SST image in a 3-D display. This will emphasise gradients in sea temperature by showing them as height differences as well as changes in colour. The Compaq array viewer software is used for this application and it is activated from the **Image view Popup** menu described previously (Section 6). This general purpose viewer has many options which are described in its associated help file. However two main points should be kept in mind.



1. To rotate the image, imagine it contained in a transparent sphere. Moving the mouse on to some point on this imaginary sphere and then dragging it with the left button down will change the viewing angle for the image.
2. The upper part of the window may contain numeric array values, separated from the 3D image by the grey pane divider. If you wish to get rid of these, click the left mouse button on the divider and drag it up to the top of the display area.

To exit from the viewer, it is preferable to use the **Cancel3D** option on the **Popup Menu**.

5.4. Customization Options

Following program installation, or whenever a change is required, the **Customize** option in the **Options** menu should be selected to display the **User options** dialog box.

This provides the opportunity to change or define a number of variables used by *Sat-View*.

- **Data Provider** specifies the Internet address where requests for new images are to be sent. In the New Zealand region, the address required is sst@niwa.co.nz.
- **Company ID** is the ID assigned to your company when you register to use this service. It is 1–3 digits long.
- **Vessel ID**, also 1–3 digits, is the ID assigned to your vessel or office, and together with the Company ID will make a unique combination.

Note: NIWA provides the Company and Vessel IDs when a user registers for this service. *They should not be revealed to other users.*

- The **Communications** options specify how messages should be sent to the **Data Provider**. Use **POP** for a standard Internet connection (for example with the Iridium system or by a normal telephone line) and **STRATOS** if you have this software for use with Inmarsat-C.
- The **Message Directory** is the folder where requests for imagery are stored before being sent to your **Data Provider**. Consult with your IT Support (if you have any!) to specify the correct folder. Usually this should be a `c:\temp`. If this folder does not exist on your PC, you will need to use the Windows Explorer program to make it.
- **Basemap Name** specifies which GIF file of those available in the `c:\Program Files\Sat-View` folder should be used as a background for the user-defined image areas. For the New Zealand region this will normally be `nzregion`. If your area of interest is not covered by this map, then replace `nzregion` with `sst_11`, which provides access to the entire NIWA SST analysis region.
- The **Max Image Size** specifies the maximum image size you will normally want to request from your *Data Provider*. Various options with increasing transmission cost may be selected. When actually requesting an SST image on a user-defined area you should choose the smallest size that yields the required resolution for the selected area. (See the discussion in section 4.4). **Note:** *When ordering Standard NIWA*

The screenshot shows the 'User options' dialog box with the following fields and values:

- Data Provider: sst@niwa.co.nz
- Company ID: 999
- Vessel ID: 99
- Communications: STRATOS, POP
- Message Directory: c:\temp
- Basemap Name: nzregion
- Max Image Size: 16K (dropdown)
- Max Cloud Cover: 40

Directories to be searched for images:

- c:\niwa\data
- c:\niwa\data\examples

Buttons: Save Options, Cancel

products, this constraint **is not applied**. Usually these will be much larger because they cover larger areas and have relatively high ground resolution.

- **Max Cloud Cover** specifies the maximum percentage of cloud cover that is normally acceptable over your area of interest. As with the **Max Image Size** it may be set to another value when you actually request an image (see Section 4.3). Typically a value of 20 (i.e., 20%) may be acceptable. (Remember that any land within the area will be counted as cloud cover.)
- The **Directories to be searched for** images box is used to specify which folders on your disk(s) should be checked for images that may be viewed by **Sat-View**. As described in the Installation Instructions you should enter the list of folders to be searched for files to be displayed. If you use any folders other than the default of `c:\niwa\data`, they should be entered in this list.

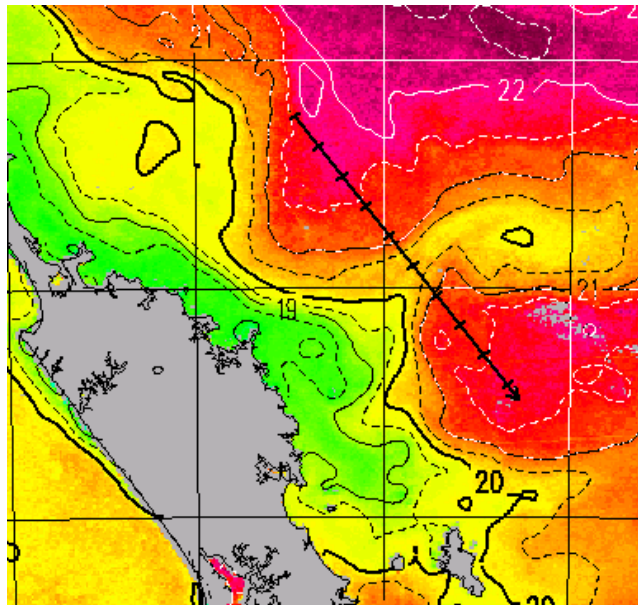
Click on the **Save Options** option to save your choices, or **Cancel** to leave them as they were.

6. Cross Sections (Locating Temperature Breaks)

Cross-sections, or profiles of SST along a line drawn on a SST chart (a powerful method to identify temperature breaks) may be obtained as follows.

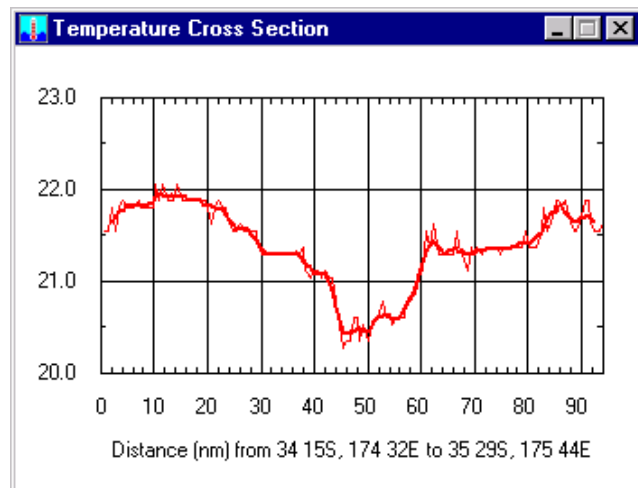
From the **Image** view **Popup** menu select the **Draw Xsection** option. Then indicate the line of the cross-section as follows.

Move the pointer to the start point, then drag it to the end point while holding the left mouse button (MB1) down. When the mouse button is released a new window is displayed, plotting the temperatures along the cross section line. An arrow is drawn



on the SST chart to indicate the line that you selected (see right).

The **Temperature Cross Section** window (see right) indicates the temperature values read from the image versus the distance along the cross-section line (i.e., arrow). There are two lines drawn in red – a thin line indicating *actual values* and a thicker line to which smoothing over a 5 km interval has been applied. If the temperature range is large enough, it will be hard to distinguish between the two red lines.



If the left mouse button is pressed down as the pointer is dragged along the cross-section window, the value and position corresponding to its distance along the cross-section line are displayed in the message window. This display is similar to what would be obtained by dragging the mouse over the SST image itself. In addition a small *diamond shaped* symbol moves along the cross-section line drawn on the image, so that the any point on the cross section window can be matched with its location in the main window.

The cross-section window may be moved to any location on the screen, and if closed will reappear at its previous position when needed again. The temperature scale is chosen to best represent the values measured along the cross-section line (so will be different for each use of this tool). The right hand end of the cross-section is indicated by the arrow head, and the barbs across the arrow are drawn to match the vertical grid lines in the cross-section window.

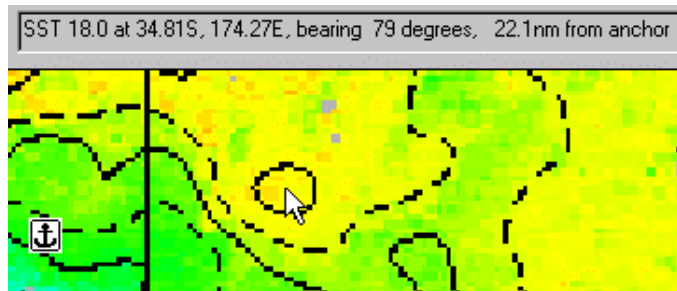
To change the cross-section line, use the **Draw Xsection** option on the **Popup** menu and draw another line on the SST chart.


7. The Image view Popup Menu



This **Popup** menu is activated when in **Image** view mode by clicking the right mouse button (MB2). It will appear near the location of the pointer.

Items on this menu may be selected by clicking on the desired item using the left mouse button.

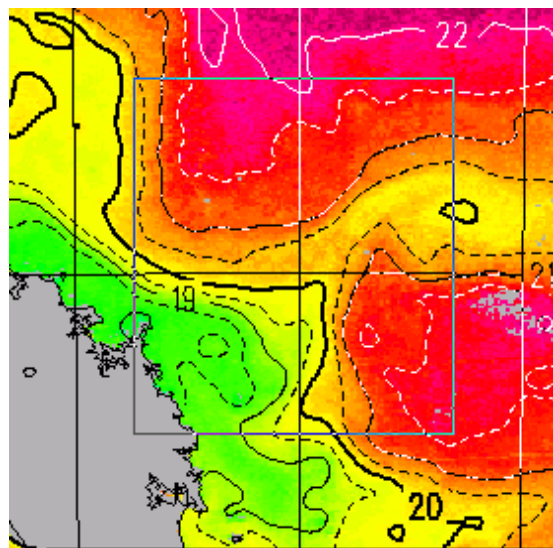


- **Set Anchor** will display a small anchor symbol  on the image at the point where the right mouse button was clicked. This provides a reference point for navigation, and if the left mouse button (MB1) is subsequently clicked or dragged across the image the bearing and distance of the point on the image from the anchor will be displayed in the message box (see example on the next page).

If the anchor is not set, the bearing and distance will not be included in the message when the left mouse button is clicked or dragged over the image.

- **New Centre** will place the point where the right mouse button was clicked (to bring up the menu) at the centre of the viewing area. It will stay there whatever magnification is selected.
- **Select View** will allow you to display a limited area of the image with the highest possible magnification that keeps it all within the main window (display area).

If you select this option, the pointer



changes to a crosshair. Pick the location of one corner of the rectangle you want to display, press the left mouse button (MB1) down, then drag the crosshair pointer to the opposite corner of the rectangle and release it. As you drag the pointer over the image, a small rectangle is drawn over the top of it indicating the *area* selected.

When the left mouse button is released, the screen is redrawn to give the best magnification to the selected area.

- **Display areas** will bring up the alternative **Areas** display as described in section 4.2 and will show the current (user-defined) image areas that you have stored, and allow you to request new ones.
- **Print** provides an alternative way of displaying the print dialog box (see section 3.3), to obtain hard copy on an image (and cross-section, if present).
- **Show3D** will cause a new window to be displayed containing a 3-dimensional plot of the current image as described in the **3D Image Viewing** (section 5.3).
- **Cancel3D** will remove the 3D plot window from the screen. Use of this option either on the **Popup** menu or under **Options** (on the menu bar) should be the normal procedure for deleting the 3D window, rather than clicking on the × at its top right corner. If the **Show3D** option is greyed out, it will be necessary to click on the **Cancel3D** option to re-activate it.

8. The Help Menu



The **Help** menu provides full documentation on program installation, customization, and operation of the program. Its use is self-explanatory.

Selection of each subject will bring up the same material as presented in this user manual.

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Appendix A Installation and Update Instructions

Updating Sat-View

To update to a new version of *Sat-View*,

- load the CD-ROM,
- use Windows Explorer to view the contents on the CD (usually this is Drive D)
- locate the program update and double click on it.

No other information is required.

Note: Do not run the update program if an earlier version of *Sat-View* is not already installed.

Installing Sat-View

Before installing *Sat-View* (for the first time) you must have the following information:

- Your email address;
- Your SMTP server address (as supplied by your ISP); and
- Your Company and Vessel identifiers (supplied by NIWA).

Do not proceed with the installation until you have all of the above information.

Once you have this information install *Sat-View* by inserting the CD into the drive then, using Windows Explorer, double-click on `setup.exe` in the root directory of the CD (probably the D: drive). Alternatively

- 1) click on the Start option on the task bar
- 2) Click on Run
- 3) Type in `D:\setup` in the box (assuming the CD Drive is D)

This will open a window with instructions to guide you through the installation procedure.

The following is an example output from the installation window with informational instructions highlighted thus and the answers you need to provide highlighted in yellow. Replace the email address with that provided by your Internet Service Provider (ISP), and the company and vessel ids with those provided by NIWA.

```
NIWA SAT-View Installation Procedure v2.2
Info: Installing from disk D:
Info: The preferred location for the program is "C:\Program Files\Sat_View"
Info: If you are happy with this choice just hit the Return key to
Info: answer the next question...
Query: Enter preferred location for program or hit Return for default?: ← Just press "Enter" key
Info: Program directories created - copying files
Info: SAT-View.exe copied OK
Info: Help File copied OK
Info: Basemap copied OK
Info: Basemap Grid copied OK
Info: Initial display copied OK
Info: Standard Products text file copied
Info: Colour table information copied OK
Info: Examples copied OK
Query: Will you be sending information requests via the Internet? [Y/N]: Y
Info: Copying blat to C:\Windows
```

```

Query: What is your email address (e.g. blogs@actrix.co.nz)?: my.vessel@actrix.co.nz
Info: We assume your SMTP address is smtp.actrix.co.nz
Info: If this is OK just hit the RETURN key on the next line
Query: Enter your SMTP address or hit RETURN for default?: ← Just press "Enter" key
Failed to open registry key for Blat profile , using default This is normal - ignore

SMTP server set to smtp.actrix.co.nz on port 25 with user my.vessel@actrix.co.nz, retry 5 time(s)
Info:
Info: You need to be connected to the internet to send a test message
Info: If you would like to do this, make the connection then answer Yes below
Query: If now connected, would you like to send a test message? [Y/N]: N
Info:
Info: Installing the Fortan run-time libraries.
Info: Please click on any [NEXT] or [I Accept] buttons
Info: that may appear. Once the run-time libraries have
Info: been installed, click on the [Finish] button
Press the Enter Key to continue: ← Just press "Enter" key

```

The **Run-Time Library** installation window will eventually appear. When it does,

- Click on [Next] to start the installation
- Click on [Next] when the window showing the files to be installed appears
- Click on [Finish] to complete the installation.
- Click on the installation window and press the enter key as requested to continue the installation

```

Info: Libraries being installed now ... Follow instructions above
Info:
Info: Installing the Compaq Array Viewer
Info: After the installation has completed go to the Windows Start menu,
Info: find and click on "Array Viewer"
Info: When the program runs, look for the grey bar dividing the viewing
Info: window. Hold the left mouse button down with the pointer over it and
Info: drag it up as far as it will go to avoid seeing numbers in future...
Info:
Info: Please click on [FINISH] to start the installation of
Info: the Array Viewer. Click on any [NEXT] or [I Accept] button
Info: that may appear.
Info: If the installation asks to "Restart my computer now"
Info: then select "No, I will restart my computer later", then
Info: click on the [Finish] button.
Info: Otherwise untick the button that asks if you wish to "view
Info: the ReadMe file now", then click on [Finish]
Press the Enter Key to continue: ← Just press "Enter" key

```

The *first* **Array Viewer** installation window will eventually appear. When it does,

- Click on the [Finish] button to start the installation of the array viewer.
- Wait until the *second* Array Viewer installation window appears.
- Click on the [Next] button on the installation Welcome window
- Click on the [Next] button on the window requesting the destination path
- Click on the [I Accept] button on the window displaying the license information
- Click on [Next] to the Select Folder window
- If the installation asks to “restart my computer now”, select the “No, I will restart my computer later” option and click on the [Finish] button, otherwise uncheck the “view ReadMe file” option, then click on the [Finish] button on the Setup Complete window.
- Return to (ie click on) the original install window to continue the installation.

```

Info: Installing Viewer now ... - please follow above instructions
Info: Now will set up the program defaults
Query: Enter the company ID you have been assigned (1-3 digits)?: 999

```

```

Query: Enter the vessel ID you have been assigned (1-3 digits)?: 99
Info: This information has been written successfully. You may change it when
Info: SAT-View is running through the Customise menu option.
Info:
Info: We will now ask you to make a short cut to the SAT-View program so that
Info: you can start it easily from your desk top. Please do the following:
Info: 1. Use Windows Explorer to find C:\Program Files\Sat_View\Sat_View.exe
Info: 2. Click on it using your right mouse button
Info: 3. Select the Copy option from the popup menu
Info: 4. Move cursor to a spot on your desktop where you want the shortcut
Info: 5. Click right mouse button, select "Paste Shortcut" from popup menu
Info: Now Press Enter to finish
Press the Enter Key to continue: ←Read instructions and Press "Enter" key
Info: All done

```

The installation window will close and the installation is complete.

Create the shortcut as suggested above and then reboot the computer if this has been suggested during the installation process.

Run the Compaq Array Viewer utility to initialise it. If this program has not been run at least once, the **Show3D** option will not work. To run the program click on the **Start** button, select **Programs** then select **Compaq Array Visualizer 1**. Click on **Array Viewer** to run the program. Once the Array Viewer program has run, look for the grey bar dividing the viewing window. Hold the left mouse button down with the cursor over it and drag it up as far as it will go to avoid seeing numbers in future. Close the application – it should now operate correctly from the *Sat-View* program.

Installing Pegasus Mail (Optional)

Before installing **Pegasus Mail** you must have the following information:

- Your email address;
- Your username and password (as supplied by your ISP);
- Your SMTP server address (as supplied by your ISP); and
- Your POP server address (as supplied by your ISP).

Do not proceed with the installation until you have all of the above information.

The Pegasus Mail installation kit is included with the *Sat-View* distribution CD in the Pegasus Mail directory. There are two versions there, v312c and v401a. The instructions in this manual are for the v312c installation.

To install the Pegasus Mail client, insert the CD into the CD drive, use Windows Explorer to locate the installation file `D:\Pmail\v312c\w32-312c.exe` where D: is the drive letter for the CD-ROM drive. Start the installation by double-clicking on this file.

1. Click **N**ext on the first informational box;
2. Click **N**ext on the second informational box;
3. **Note** the default installation directory shown, then Click **N**ext to accept the default;
4. Click **N**ext to accept the default components;
5. Click **N**ext to accept the default Program Group (ie where it appears under the Start menu);
6. Click **N**ext at the **Ready to Install!** box.

The installation process will then begin to install the program. Click on **F**inish to complete the installation.

Next install `wsndto10.exe` by double-clicking on this program.

1. Click **N**ext at the informational box
2. If the **Select Destination Directory** shows `c:\Program Files\Pmail` (as noted in 3 above). If this is not the correct directory, then Click **B**rowse change the directory to that noted in 3.
3. If the Message Box saying, for example, **The directory c:\Program Files\Pmail already exists, would you like to install into that directory anyway** appears, click on **Y**es.
4. Click on **N**ext to select the directory
5. Click on **N**ext to start the installation.
6. Click on **F**inish to complete the installation.

Program `wsndto10.exe` is not required for Version 4 of Pegasus Mail (i.e. v401a).


Configuring Pegasus Mail

Once Pegasus Mail is installed, it needs to be configured. The program will guide the user through this when it is run for the first time.

Start Pegasus Mail (from the Start Menu, Programs, Pegasus Mail for Win32).

- 1) Click on the **C**lick on here if there will only ever be one person running **P**egasus icon;
- 2) Accept the default directory (Click on **O**K) if this is acceptable, (or change it to another location, if preferred);
- 3) This will start the Internet Startup Wizard. Click on **N**ext;
- 4) Enter your email address (e.g., my.vessel@actrix.co.nz). This should be the same address that is used when installing Blat (see above). Click on **N**ext;
- 5) Enter the address of your POP3 server. You will need to consult your Internet Service Provider (ISP) for this. Normally it will be something like *pop3.actrix.co.nz*, then click on **N**ext;
- 6) Enter the username and password supplied by your ISP. Click on **N**ext;
- 7) Enter the address of the SMTP server. This should be supplied by your ISP and should be the SMTP address used during the Blat installation above (e.g., *smtp.actrix.co.nz*);
- 8) From the **How do you connect to the Internet window**, select **N**etwork (i.e., click and highlight the **N**etwork radial option button, then click **N**ext;
- 9) Click on **F**inish.
- 10) Lastly, adjust the Network timeout period.
 - a) Start Pegasus
 - b) Click on **T**ools
 - c) Click on **I**nternet options
 - d) Change the **T**imeout for **n**etwork connections from 15 seconds to 120 seconds.
 - e) Click on **O**K

This setup is adequate for using Pegasus Mail to download the requested images from your ISP once you have made a connection to the Internet. If you wish to use Pegasus Mail as a general-purpose email client for sending and receiving email, some of the additional features may need to be configured. This is outside of the scope of this document, but the options and help for these options are found under the **Tools** menu.

Note that with this configuration, outgoing email is queued until the internet connection is established and queued emails are sent by clicking on the send-mail icon . Pegasus Mail also has a **Selective mail download** facility to allow the user to download only the header information so that unwanted email can be deleted and only the email required downloaded. This is a useful utility when connected to a slow internet link and can be found under the **File** menu. For more information on using Pegasus Mail (including the selective download capabilities) see Appendix E (Quick Start Guide for *Sat-View* and Email).

Example Data Products

The standard installation will create the folder `c:\niwa\data\examples` and copy into that folder a number of files containing sample data (including an SST climatology for the region). If under the **Customize** option the **Directories to be searched for** (see Section 5.4) includes a reference to the folder `c:\niwa\data\examples`, then the example data will immediately be available for experimentation.

To prevent these data from always appearing in the **Image selection** dialog, merely remove the reference to `c:\niwa\data\examples` in the **Customize** dialog.

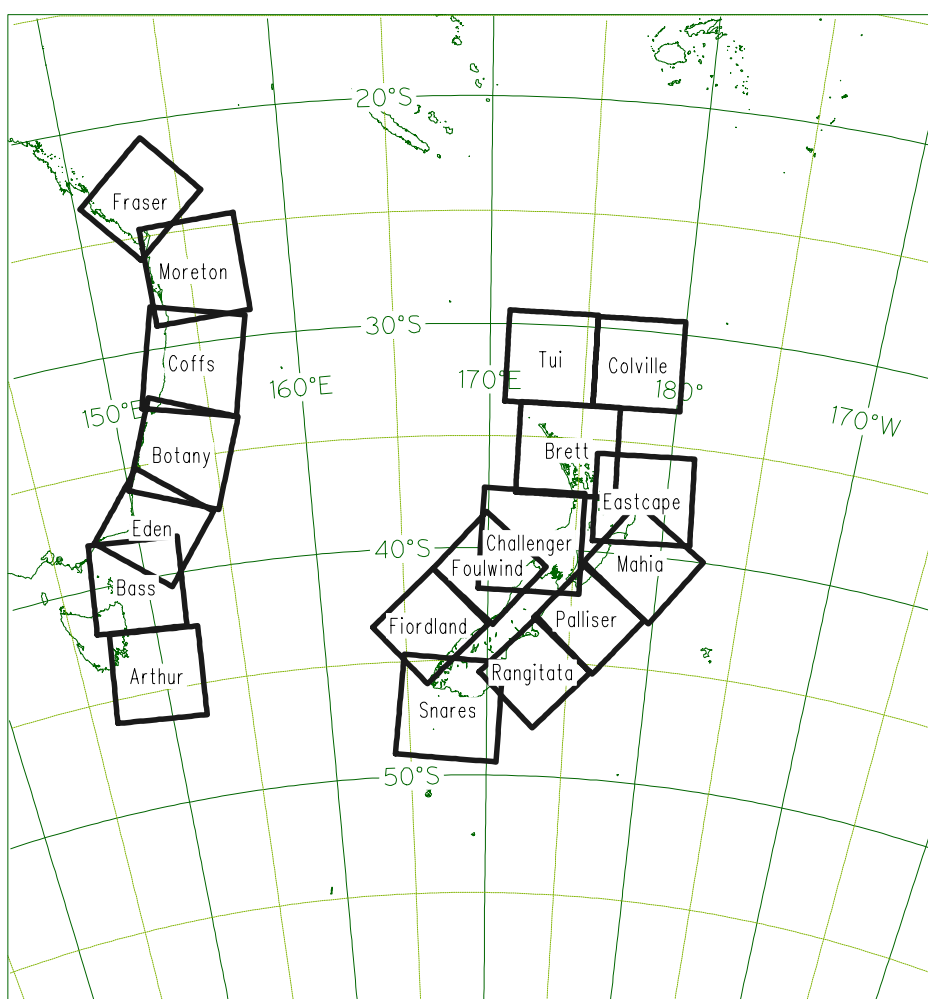
Appendix B Parameter and Standard Area Definitions

The descriptions that appear in the **Parameter** box of the **Image Selection** Dialog Box actually indicate aspects of how NIWA processed the data. The following table provides a description of the different parameters that might appear – and what they mean.

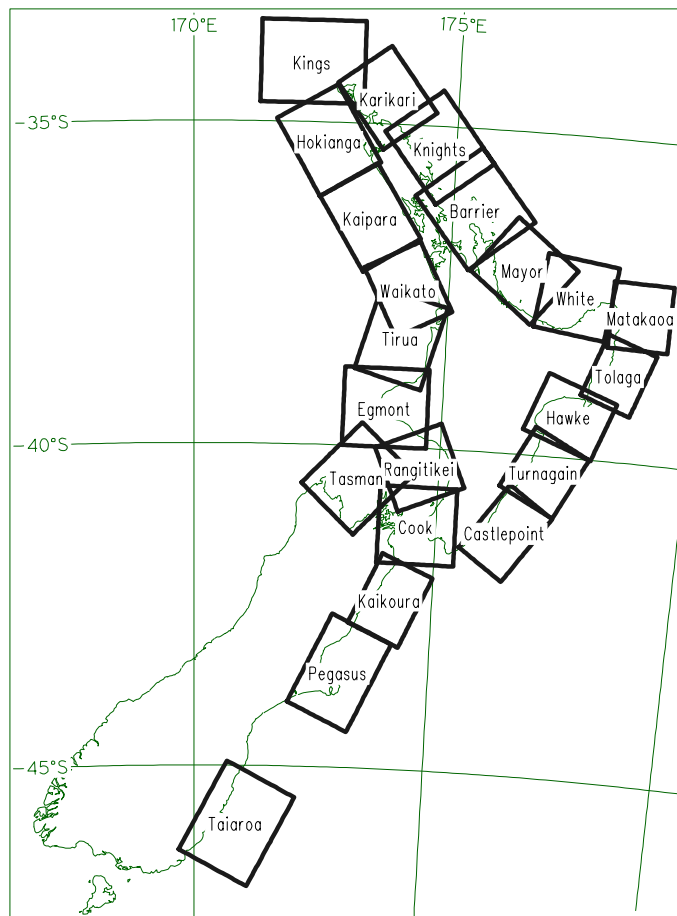
Parameter	Description
Mean SST °C/R	This indicates an SST analysis (either a daily or monthly analysis). The word “Mean” appears because it is computed from a number of individual orbital passes.
Mean SST °C/R F02T05	This is a Monthly Mean SST anomaly analysis.
HS Est SST	An analysis from the SST Climatology
Ch1, 0.6µm Albedo	A visible GMS (or NOAA) satellite image
Ch4, 11µm Temp	An infrared GMS (or NOAA) satellite image
Bathymetry/R	Regional bathymetry. Depths in decametres (1 dm = 10 m)

In future it is likely that the parameter names will be made more intuitive.

The map below indicates the Standard Commercial Areas available via **Sat-View**.



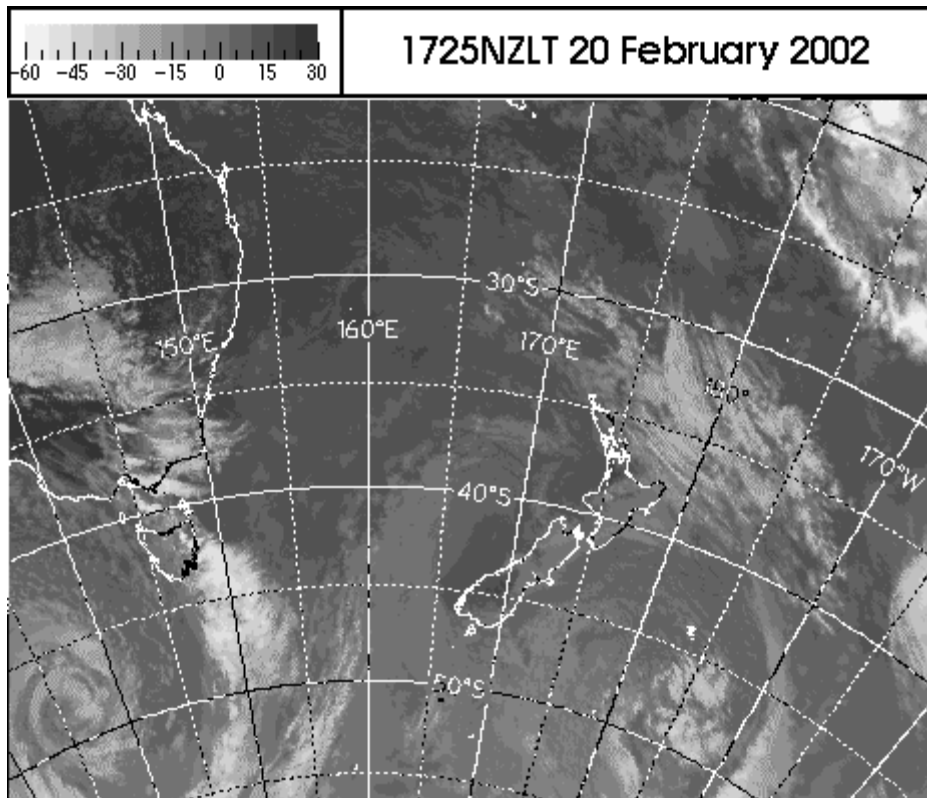
Recreational areas may also be updated using *Sat-View*.



Appendix C Products that may be updated from *Sat-View*

As of February 2002, the following standard products may be updated using *Sat-View*:

- Daily SST analyses for all of the areas listed in Appendix B
- NZWATERS area GMS infrared satellite imagery for a region which covers local waters (see following example)



This image is only 40 kilobytes in size – so it is not unrealistic to receive on a vessel connected to the internet by a satellite or cellphone connection.

Appendix D Colour Tables


The following colour tables are provided with *Sat-View*. These may be used whenever you want to change the colours in the data products received from NIWA.

Colour Table Name	Data Range	Description / Use
SST0230	2 to 30	Uses the standard NIWA colour “ramp” to display SSTs between 2° C and 30° C. Only useful if you are viewing an analysis which covers a large latitude range – and hence a large temperature range.
SST0525	5 to 25	The same as SST0230, except that the temperature range applied to the colour ramp is: 5° C and 25° C. Useful for looking at analyses over the whole NZ region. This colour table is used to produce the NZ Climatology data.
SST1025	10 to 25	Again, the same as SST0230, except that the temperature range applied to the colour ramp is: 10° C and 25° C.
SST2030	20 to 30	Again, the same as SST0230, except that the temperature range applied to the colour ramp is: 20° C and 30° C. Use this to look in detail at SSTs in this range.
SST1626	16 to 26	Again, the same as SST0230, except that the temperature range applied to the colour ramp is: 16° C and 26° C. Use this to look in detail at SSTs in this range.
SST1424	14 to 24	Again, the same as SST0230, except that the temperature range applied to the colour ramp is: 14° C and 24° C. Use this to look in detail at SSTs in this range.
SST1222	12 to 22	Again, the same as SST0230, except that the temperature range applied to the colour ramp is: 12° C and 22° C. Use this to look in detail at SSTs in this range.
SST1020	10 to 20	Again, the same as SST0230, except that the temperature range applied to the colour ramp is: 10° C and 20° C. Use this to look in detail at SSTs in this range.
SST0818	8 to 18	Again, the same as SST0230, except that the temperature range applied to the colour ramp is: 8° C and 18° C. Use this to look in detail at SSTs in this range.
SST0616	6 to 16	Again, the same as SST0230, except that the temperature range applied to the colour ramp is: 6° C and 16° C. Use this to look in detail at SSTs in this range.

Appendix E Quick Start Guide for *Sat-View* and Email

Viewing Data in *Sat-View*

Start Sat-View

To start the program, double click on the *Sat-View* icon .

Caution: After starting *Sat-View* be careful not to click inside the main window showing the image of a NOAA satellite. This will crash the program, requiring you to restart it again. Once a data image has been selected this constraint does not apply. This bug will be fixed in a future release.



Viewing Standard Area SST and Cloud Imagery Data

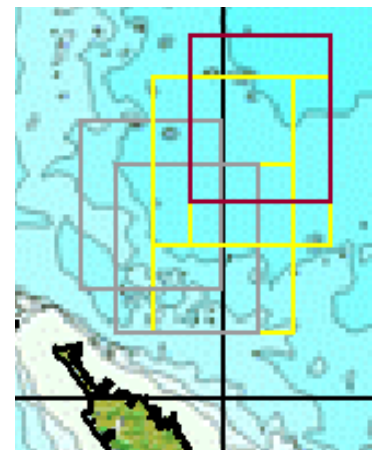
If you have just saved a new NIWA provided data file to the PC, then select **Update Menu** (from the **File** menu). This updates all the menus in *Sat-View*. If you don't do this, the most recent data file will not become available until a further 5 minutes have elapsed, then

- 1) Choose **Select** (under the **File** menu). This brings up a window with three selection options. Select from left to right.
 - a) The *first* is the type of data product, e.g., Mean SST. Click on the one required.
 - b) The *second* indicates the areas for which this product is available. Click on the area required.
 - c) The *third* shows the dates for which data are available for the chosen product and area. Click on the time required.

Viewing User Defined Area Data


To visualise data for an *area* that you have defined (and received back from NIWA):

- 1) Change to **Areas** view by selecting **Areas** from the **View** menu
- 2) Use MB1 to select one of the boxes on the map.



GPS Positions and SSTs

Clicking on the image in the main window now gives the temperature and location of the pointer and the temperature at that location.


You can indicate the position of the vessel on the SST map (i.e., with an anchor ) via the **Ship Position** dialog (from the **File** menu).

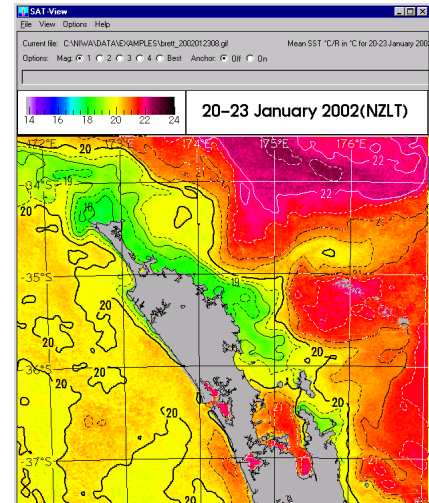
Enlarging the Data

To enlarge a section of the image – press the Right Mouse Button (MB2) – to bring up the **Image** view **Popup** menu, then choose **Select View**. Then, holding the left mouse button down (MB1) drag the pointer over the area to be enlarged. Release MB1.

Identifying Temperature Breaks (Drawing Cross-sections)

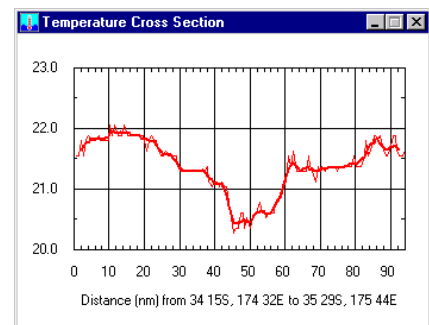
To draw a cross-section (you must be in **Image** view mode):

- 1) Use the right mouse button (MB2) to bring up the **Popup** menu, choose **Draw Xsection** (i.e. click on this option with MB1), then holding MB1 down, draw a line on the data image (where you want to see the SST cross-section).
- 2) To see where any feature on the cross-section is on the image, just click (i.e. MB1) on the cross-section at the point of interest – a symbol will identify this position on the SST map, and the latitude, longitude, SST (and perhaps distance and bearing from anchor point , if set) will appear in the message window.



Updating User Defined Area Data


- 1) Change to **Areas** view by selecting **Areas** from the **View** menu, then use one of the following methods:
 - a) Either select an existing area as above, then order an update by clicking on **Details**, and filling in any missing fields. Next, **connect to the internet** – and only then select **Order Update**. *To save costs - once the order has been sent disconnect from the internet.*
 - b) Alternatively, use MB1 to draw a new box on the map (you can enlarge the map before doing this using MB2 to bring up the **Areas** view **Popup** menu and using MB1 to choose **Select View** etc.), fill out the missing / selectable details, **connect to the internet**, and select **Order Update**. *To save costs - once the order has been sent disconnect from the internet.*
- 2) Be sure to select the **Max image size** of the data file you want to receive, and the **Max cloud cover** you are willing to accept. If you say 40% for the latter, and we compute (for example) that 45% of the area is cloud covered – then you will get a message back saying that 45% is cloud covered – and that no product has been sent. This saves on transmission costs. Of course, if you really do need to know what SSTs are looking like over the area, you can ask for the same area again (you will need to draw it again) – but set the cloud cover limit to some value greater than 45%, say 50% in this example.
- 3) Be sure to **disconnect** from the internet as soon as the message has gone (i.e. when the black popup window has disappeared)






Receiving NIWA Data using *Pegasus Mail*

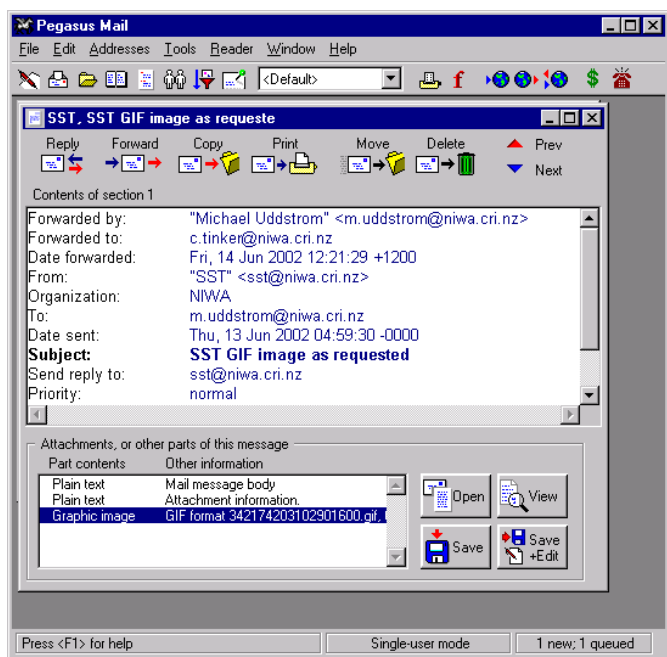
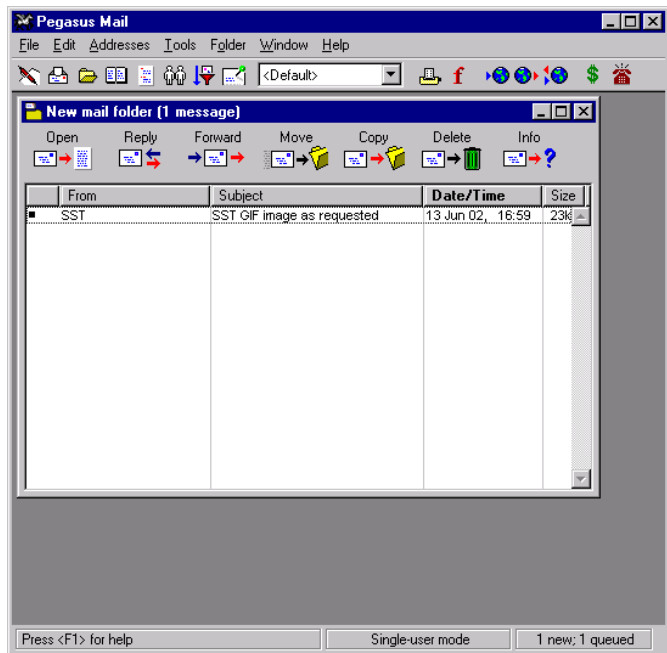
After you have requested data – it will be sent back to you via email. Data will normally be delivered within 60 minutes of the request being sent. The following instructions detail the steps to be taken by Pegasus (version 3) users to extract the data from the email message received from NIWA. If you are not using Pegasus see the section entitled Other mail programs below.

Start Pegasus

To start the program, double click on the *Pegasus*  icon and connect to the internet (or connect to the internet then start *Pegasus* – the order doesn't matter).

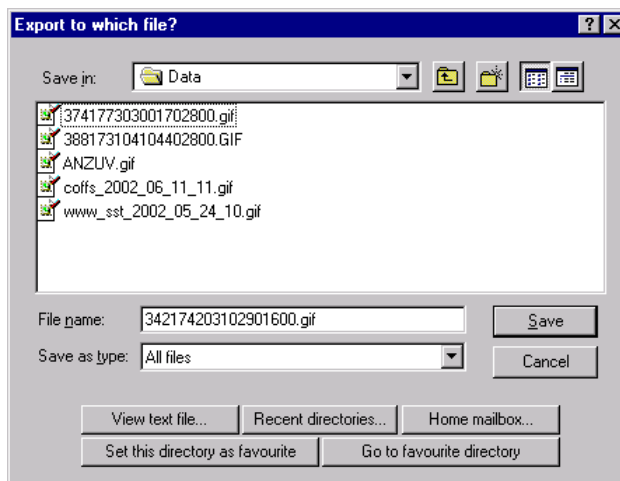
Receiving Mail

- 1) Click on the  icon (or click on the  icon to both receive and send all mail (*the latter is not recommended when using a slow internet connection, e.g., via Iridium or Inmarsat*)), or
- 2) Select **Check host for new mail** from the **File** menu *unless* you want to *review* details about the mail before downloading (**it's the download that costs the money**) then:
 - a) Select **Selective mail download** from the **File** menu. This will download the mail headers so you can see who has sent them and the subject etc.
 - b) For those messages you **don't want to receive**, click on them, then click on **Mark for Deletion**.
 - c) When you have identified all the messages you don't want to receive (as above) – then select **Make it So**.
- 3) The **New mail folder** window will appear showing details as to who sent the message, the subject, date and time, and size of each mail message in kilobytes (as shown above right).
- 4)  from the Internet as the mail messages are now on your computer.
- 5) Read a message by double clicking on it. If the message has an attachment (all NIWA SST and other data will be sent to you as one or more attachments




to an email message) then:

- a) The top *frame* of the mail item message window (labelled: **Contents of section 1**) may or may not have some text in it – read this. If it is just technical verbage you can ignore it!
 - b) The lower *frame* (labelled: **Attachments, or other parts of this message**) has the attachment details in it. Basically, you need to save the attachment to a file. To do this:
 - i) Select the **Graphic Image** section (ignore the lines with the words **Plain text**)
 - ii) Select the **Save** option (to the right of the lower frame window)
 - iii) This brings up **Export to which file** dialog
 - iv) Click on the Folder where you want to save the data (this should be the location specified when *Sat-View* was configured (via the **Customize** dialog) – normally `c:\niwa\data`). Make sure that it is going to save the file as a type GIF file or force it to. If the name in the **File name** window finishes with `.gif` or `.GIF` (as in the example here) then all is well, if it is not, and **Save as type** says *All files*, then click in the **File name** window and add the characters `.gif` to the file name.
 - v) Click **Save**
- 6) To view the data in the most recent message, follow the instructions above (i.e., section **Viewing Data in Sat-View**)



Sending Mail with Pegasus

You can use Pegasus Mail to send email messages too. Click on the  icon to compose a message then click on **Send**.

Note: This operation stores the mail message **on your computer**, ready to be sent the next time you connect to the Internet. However, if you are actually connected to the Internet at the time you press the **Send** button – the message is sent from your computer to your ISP for forwarding to the recipient.

When you next connect to the Internet stored messages may be sent by clicking on the  icon.

Other mail programs

For those users using other programs you need to:

- connect to the internet,
- start your email program,
- receive any mail that has arrived since you last connected to the internet, and

save the attachments to the NIWA messages to your computer's hard disk in the folder you specified in the customisation procedure, usually `c:\niwa\data`

Appendix F Usage Features and Known Problems

Usage

- 1) If recently saved images do not appear in the **Image Selection** box, use **Update Menu** to refresh the internal menu, or wait 5 minutes.
- 2) Before selecting the **Send it** option in the **Image order confirmation** dialog, *you must be logged onto the Internet*. Use the dialer dialog provided by your ISP to logon to the Internet. To reduce your Internet charges, you should log off (the Internet) as soon as the mail message has been sent. This usually takes only a few seconds, and is signalled by the disappearance of the black popup window (with higher speed internet connections the window can appear and disappear very quickly).
- 3) For the purposes of the cloud cover calculation (at NIWA), any land in the area is counted as cloud. When ordering data for a coastal area you should make allowance for this when setting the **Max cloud** cover in the **Image details & ordering** dialog (see Section 4.4).
- 4) If the **Colour scale** option under the **Options** menu does not work properly, or you get error messages, consult the person who installed *Sat-View* as some files are likely to be missing or not accessible to *Sat-View*.
- 5) Area outline(s) for user-defined areas *only* appear on the **Areas** display after data for the specified area(s) have been received and written to the folder specified in the **Customize** option.
- 6) When ordering Standard NIWA products via the **Order std products** dialog *Sat-View* does not honour the default maximum image size constraint set in the **User Options** under the **Customize** menu. This is not a bug. Standard products range in size from around 40 kilobytes for GMS satellite images for the NZWATERS area to 250 kilobytes for an SSTNZ area SST analysis.
- 7) If the **Show-3D** does not bring up the array viewer, it probably has not been initialised. Try running it from the Windows **Start** menu (**Programs** → **Compaq Array Visualizer** → **Array Viewer**).

Known Problems

- 1) If the **File Selection** dialog box does not appear after the 3D viewer has been used (Section 5.3), and possibly on other occasions too, exit from the program and restart *Sat-View*.
- 2) If two anchor symbols appear on the main window, change the magnification to a higher value, then back to the original value – this will remove the stray anchor.
- 3) Under Windows XP, the **Customize Save Options** option brings up only part of the confirmation window. The words **Update** and **Don't update** are not visible, but the top parts of the buttons are visible. **Update** is the on the left, click on the visible part of the button.

Appendix G NIWA Contacts

For general enquiries regarding NIWA's sea surface temperature and weather (cloud) imagery services, please contact:



Dr Michael Uddstrom
Principal Scientist, Meteorology & Remote Sensing
Phone: +64 4 386-0365, Fax: +64 4 386-2153,
email: m.uddstrom@niwa.co.nz

For enquiries relating to installation of *Sat-View* software, contact:



Mr Colin Tinker
IT Support
Phone: +64 4 386-0331 or +64 25 310372, Fax: +64 4 386-2153,
email: c.tinker@niwa.co.nz

For enquiries relating to the NIWA satellite data products web service, registration, and accounting, please contact:



Mr Ryan Lea
Web Assistant
Phone: +64 7 859 1865, Fax: +64 7 856 0151
email: r.lea@niwa.co.nz