Product Manual

SatView-Manual 2.9

Data Logging / Display Program Users Guide

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1.0   Introduction

Welcome to *SatView*, Satlantic's real time data logging and display software for Microsoft® Windows 98/ME/NT/2000/XP/Vista.

SatView's primary function is to log data from Satlantic instruments, while its secondary function is to provide real-time display of data. You can use *SatView* with almost any Satlantic instrument. *SatView* was designed to be flexible so that you may use the software in almost any application. However, you must understand important operating features before you begin using the software in depth. The on-line *SatView* Tutorial has been provided to familiarize you with the many important aspects of the program. Please review this before you use *SatView* in the field.

This user's guide is intended to describe the core operations of *SatView*. It should get you familiar enough with the program to perform the tasks necessary for logging and displaying data. *SatView's* on-line Help system includes the information contained here and more. If you need a more detailed description of *SatView's* operations, use the on-line Help system.

2.0   Installation

SatView is available as a Windows application and is supplied as a single self-extracting install program on CD-ROM or it can be downloaded directly from Satlantic's Internet site. Before installing this program, make sure that there are no other versions of *SatView* installed. If there are any, first uninstall the previous version.

To install *SatView* from the self-extracting install program, open the file in Windows Explorer or by selecting "**Run...**" in the "**Start**" menu and then click the Browse button to select the install program. Then follow the instructions on the screen.

3.0   Glossary of terms

Browse Dialog Box: This dialog can be used to select a directory (or folder) from anywhere on your computer or network. Use the dialog box's context sensitive help for more information.

Calibration File: A text file that specifies the make up of the *telemetry* that is transmitted from the instrument. The *telemetry* specified by a *Calibration* file follows a fixed frame size format. Moreover, *Calibration* files follow a format standard specified by Satlantic. Every instrument produced by Satlantic has an associated *Calibration* file. Periodically, an instrument will need to be recalibrated, which means a new *Calibration* file must be made. A letter at the end of the file title is used to indicate the version of a Calibration file. *Calibration* files use the ".cal" file extension.

Communications Resource: A medium from which instrument *telemetry* can be acquired. The only medium currently supported by *SatView* is through the computer's serial ports. Within Windows a serial port is usually designated using the following names: COM1, COM2, etc. SatView assumes these serial port names. In order for *SatView* to receive *telemetry* from a resource, a serial port must first be physically connected to an instrument. See your computer hardware documentation for more information on serial ports.

Instrument File: A Calibration file or Telemetry Definition file.

Instrument Package File: A binary file in zip format that contains a set of *Calibration* and/or *Telemetry Definition* files and the text file "Properties.txt" for a specific Instrument Package. A physical instrument package is a set of instruments that can be attached to a single serial port. Instrument Package files use the ".sip" file extension.

Log File: A record of all instrument *telemetry* received from each instrument's *communications resource* while *SatView* is logging. When logging is first started, *SatView* creates a section at the beginning of the file for the *Log file header*. Next, instrument *telemetry* is recorded to the file in the order in which it is received. A time stamp (in local time) is appended to every frame logged to the *Log file* (except **GPS Data**). This adds an additional seven bytes to the end of each frame to indicate local date and time. Each time stamp is specific to the frame. For more information on the time tag format, see section ***23.0 SatView's Time Tag Format***. This continues until logging is stopped, at which point the file is closed. *Log files* normally have a ".raw" file extension. The name of the next or current *Log file* is shown in the Next/Current Log File indicator of the main display.

Log File Header: A series of pseudo frames added to the beginning of a *Log file* at the time when logging is first started. Each header begins with the character string "SATHDR" and is exactly 128 bytes long. Information pertinent to the *Log file*, such as when and where it was recorded, is stored in these headers. For more information, see the Station Setup dialog box.

Log Status Check: Determines whether the next *Log file* already exists or not. If no *Log file* name has yet been determined, the check will fail. If it has been determined and it does not exist, the check is successful. If the file does exist, *SatView* will ask you if it is okay to overwrite the file for the next log. If you agree, the check will be successful. Otherwise, the check has failed. See the Log Status console and the Next/Current Log File indicator of the main display for further information.

Open Dialog Box: This dialog can be used to select files from anywhere on your computer or network. Use the dialog box's context sensitive help for more information.

Save As Dialog Box: This dialog can be used to create new files or select old files from anywhere on your computer or network. Use the dialog box's context sensitive help for more information.

Telemetry: A stream of electronically transferred information from Satlantic instruments or other data sources. This information is usually transmitted in packets of data called frames. Most Satlantic instruments periodically send these frames at a predefined rate, giving the receiving computer continually updated information on the instrument's sensors. *SatView* receives instrument *telemetry* through a *communications resource*.

Telemetry Definition File: A subset of the *Calibration file* that specifies a variable length ASCII frame format for an instrument or other data source telemetry. The telemetry of the GPS and weather station instruments are defined

using use this type of file. *Telemetry definition files* use the ".tdf" file extension.

4.0   Getting Started

When you first start *SatView*, you should see an application window similar to the one below.
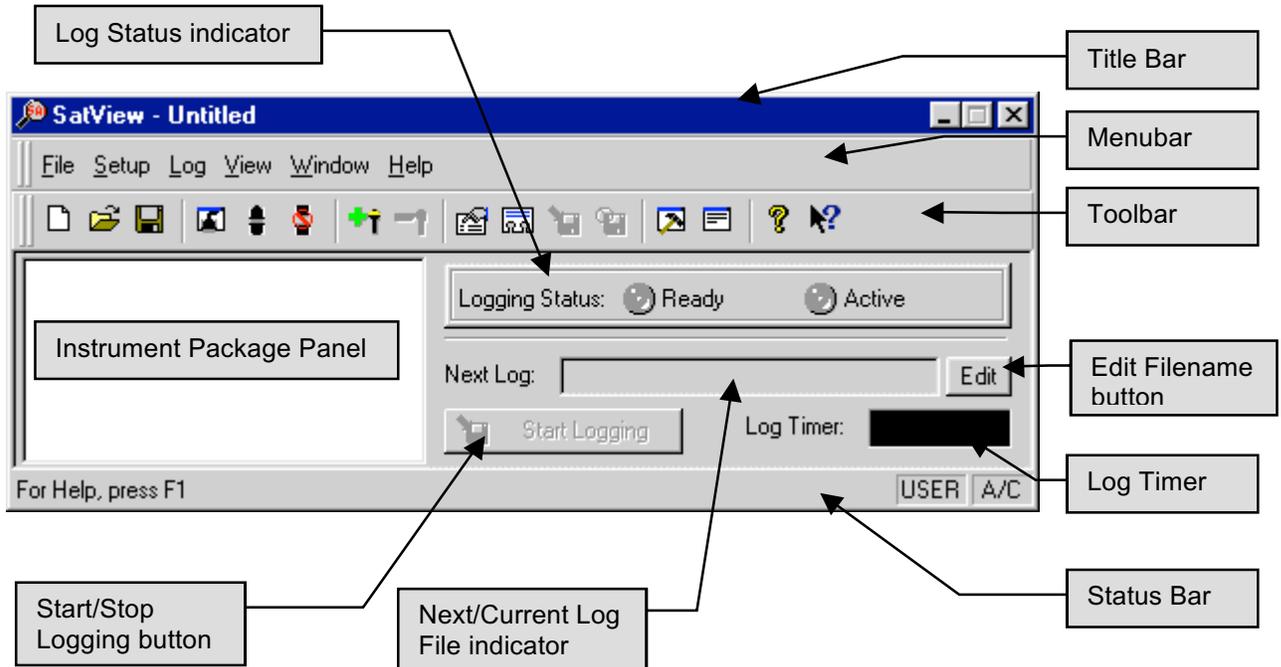
Figure 1

4.1   Title Bar

The title bar is located along the top of the application window. It contains the name of the application and the current session file, if applicable. If no session file has been opened or saved, the title bar will read "**Untitled**" as shown.

The application's control menu can be accessed using the keyboard with the ALT+SPACEBAR keys from anywhere in the application window. You can also left click the *SatView* icon or right click anywhere in the title bar to get this menu.

To move the application window, drag the title bar. You can also move dialog boxes by dragging their title bars.

The application title bar contains the following elements:

Application control menu button (*SatView* icon)

Name of the application (*SatView*)

Name of the session file (or Untitled)

Minimize button

Close button

4.2   Menubar

The menubar is normally displayed across the top of the application window, above the toolbar. The menubar must be available at all times, so it cannot be hidden.

To get help on individual menu commands, use your mouse or keyboard to select the menu item, then press the F1 key.

The menubar is a dockable window. This means that you can drag the menubar to any position on the screen. *SatView* will automatically dock the menubar to the application window if possible. You can prevent *SatView* from docking by holding down the CTRL key while the window is being dragged.

4.3   Toolbar

The toolbar is normally displayed across the top of the application window, below the menubar. The toolbar provides quick mouse access to many tools used in *SatView*. To hide or display the toolbar, use the Toolbar command from the View menu.

The toolbar is a dockable window. This means that you can drag the toolbar to any position on the screen. *SatView* will automatically dock the toolbar to the application window if possible. You can prevent *SatView* from docking by holding down the CTRL key while the window is being dragged.

Click   To

Create a new session.

Open an existing session file. *SatView* displays an *Open dialog box* for you to choose your session file.

Save the current session using the same file name. If you have not named the session, *SatView* displays the *Save As dialog box* for you to name your session file.

Show or hide the Communications Resource List window.

Connect all *communications resources* in the Communications Resource List.

Disconnect all *communications resources* in the Communications Resource List.

Open the Add New Instrument Package or Instrument dialog box.

Remove the selected instrument package or instrument from the Instrument Package Panel.

Open the Logging Options dialog box.

Open the Station Setup dialog box.

Start logging instrument *telemetry* to the next *Log file*.

Stop logging instrument *telemetry* to the current *Log file*.

Show or hide the Session Log Output window.

Show or hide the Session Comments window.

Display the copyright notice and version number of your copy of *SatView*.

Display help for clicked on buttons, menus and windows.

4.4   Instrument Package Panel

The Instrument Package Panel is the heart of *SatView*. From here, you can perform many tasks, including adding and removing instrument packages adding and removing instruments, adjusting instrument package properties, adjusting instrument properties, opening instrument package views, opening instrument views and attaching *communications resources* to instrument packages.

4.4.1   Instrument Packages

Any instrument packages listed in this panel must first be successfully initialized. Once this is done, the Instrument Package Panel will display each instrument package using its specified name and to the left of the instrument package's name the instrument package icon 🛄.

When an instrument package is attached to a *communications resource*, the name of the resource will appear to the right of the instrument package name. You can scroll through the list with the up/down arrow keys or select an instrument package with the mouse. When you select an instrument package, its name is highlighted. An instrument package can be toggled between being open and being closed by double-clicking either the instrument package's name or its icon.

If you right click on an instrument package, a context menu will pop up. The following is a list of the menu items.

Open Views   This command will attempt to open all the instrument package views saved in the current session file. If no session file is in use, or no views have been saved, *SatView* will inform you that no views could be opened.

View List   This command will open the View List dialog box for the instrument package.

Read From   This command will open the Attach Resource dialog box for the instrument package.

Properties   This command will open the Instrument Package Properties dialog box for the instrument package.

4.4.2   Instruments

When an instrument package is open all the instruments that it contains are listed under the instrument package. An instrument's name is the same as the instrument's header. An instrument's header in most cases is defined in its *Instrument file* and is used to identify the instrument throughout *SatView*. You can scroll through the list with the up/down arrow keys or select an instrument with the mouse. When you select an instrument, its name is highlighted.

To the left of the instrument's name, an icon is displayed that indicates the **Instrument Type**. This property is defined in the Instrument Properties dialog box. The following list shows the icon used to represent each **Instrument Type**:

📘?   UNKNOWN

📍   PROFILER

🔵   REFERENCE

⚙️   OPTICS

📐   TRACK

🔴   SQM

📘!   DUT

     SATMET Data

     GPS Data

If the instrument has not been enabled (see below), a   will appear over the icon. If the instrument's *telemetry* has been synchronized, a   will appear around the icon. Instrument *telemetry* synchronization is discussed in section **29.0 Instrument Control Panel**.

If you right click on an instrument, a context menu will pop up. The first two menu item commands can be accessed by double clicking on the instrument name or with the ENTER key. This behavior is controlled by the **Double click on an instrument** option of the *SatView* Properties dialog box. The follow is a list of the menu items.

Open Views   This command will attempt to open all the instrument views saved in the current session file. If no session file is in use, or no views have been saved, *SatView* will inform you that no views could be opened.

Control Panel   This command will open the instrument's Control Panel.

View List   This command will open the View List dialog box for the instrument.

Enabled   This command will enable or disable the instrument from reading *telemetry* from the resource. When an instrument is enabled, a check mark will appear to the left of this menu item. See the **Enable** button of the instrument's Control Panel for more information on this command.

Properties   This command will open the Instrument Properties dialog box for the instrument.

4.5   Log Status console

The Log Status console displays the status of the next or current *Log file*. If a successful *Log Status Check* has been performed, *SatView* is ready to Start Logging. The LED labeled **Ready** turning on indicates this status. Logging cannot begin until this LED is on. Otherwise, if a *Log Status Check* fails, this LED will turn off.

While *SatView* is logging and instrument *Telemetry* is being recorded to the *Log file*, the LED labeled **Logging to file** will be on. Otherwise, this LED will be off.

4.6   Next/Current Log File indicator

This indicator displays either the next or current *Log file*, depending on whether *SatView* is logging or not. If *SatView* is not logging, the edit box will contain the name of the next *Log file*, if it is available. The edit box label will read "**Next Log**". The name of the file will be displayed regardless of whether a *Log Status Check* was successful.

While *SatView* is logging, the edit box label will read "**Logging**" and the edit box will contain the name of the current *Log file*.

4.7   Edit File Name command

This button is a shortcut to the Edit File Name command of the Log menu.

4.8   Start/Stop Logging button

This button is a convenient way to start and stop logging in *SatView*. If *SatView* is not logging, you can use this button to start logging. Conversely, if *SatView* is logging, you can use this button to stop logging. At

the same time, this button either starts or finishes plotting for an Instrument Package's Depth Profile View if one exists and it has been configured.

If *SatView* is auto logging, you can use this button to cancel this mode. See the Logging Options dialog box for more information on auto logging.

4.9   Log Timer

The Log Timer feature in *SatView* gives you more control over when to start and stop logging. The timer value is displayed in a black box in the following format, representing hours, minutes, and seconds respectively:

HH:MM:SS

When *SatView* is not logging, the timer value will not be displayed or will be shown grayed out. If one or more logs have been completed, *SatView* will display the timer value showing the total time of the last log.

When *SatView* is logging, the timer value will appear white. The value shown will indicate a running tally of the time spent logging.

If *SatView* is auto logging, the timer value will appear green during the interval between logs. The value will display a countdown to the start of the next log. See the Logging Options dialog box for more information on auto logging.

4.10   Status Bar

The status bar is displayed at the bottom of the application window. To display or hide the status bar, use the Status Bar command from the View menu.

The left area of the status bar describes actions of menu items as you use your mouse pointer or arrow keys to navigate through menus. This area similarly shows messages that describe the actions of toolbar buttons as you depress them, before releasing them. If after viewing the description of the toolbar button command you wish not to execute the command, then release the mouse button while the pointer is off the toolbar button.

The right areas of the status bar allow you to view important states of *SatView* at a glance. The first, or leftmost area, indicates the current **File Naming Mode**. These two modes are described in the Logging Options dialog box.

The last area will show the letters "**A/C**" if all *communications resources* in the Communications Resource List have been connected. Otherwise, this area will be blank. See the Connect All command under the Setup menu for further information.

5.0   File menu

5.1   New command

Use this command to create a new session in *SatView*. This will restore all application defaults, close all instrument views and control panels, and initialize the Communications Resource List, Session Log Output, and Session Comments windows.

This command will create a session log entry indicating that a new session has begun. All entries from the last session will be deleted.

Shortcuts

Toolbar:

Keys: CTRL+N

5.2   Open command

Use this command to open an existing *SatView* session. *SatView* displays an *Open dialog box* for you to choose your session file. *SatView* also saves the names of the four most recently used session files for quicker access.

This command will create a session log entry indicating that a new session has begun with this session file. All entries from the last session will be erased.

Shortcuts

Toolbar:

Keys: CTRL+O

5.3   Save command

Use this command to save the active session to its current name and directory. When you save a session for the first time, *SatView* displays the *Save As dialog box* for you to name your session file. If you want to change the name and directory of a session that was previously saved, use the Save As command.

Shortcuts

Toolbar:

Keys: CTRL+S

5.4   Save As command

Use this command to save and name the active session. *SatView* displays the *Save As dialog box* for you to name your session file. To save the current session with its existing name and directory, use the Save command.

5.5   Properties command

Use this command to open the *SatView* Properties dialog box.

5.6   Exit command

Use this command to exit the application and end your *SatView* session. *SatView* will not prompt you to save the session file before exiting.

This command will create a session log entry indicating that the current session is ending. However, additional entries may follow as *SatView* closes.

Shortcuts

Title Bar: Double-click SatView control menu button .

Title Bar: Click the close button .

6.0   Setup menu

6.1   Remove Instrument Package command

Use this command to remove the selected instrument package in the Instrument Package Panel. When an instrument package is removed all its instruments are removed. When an instrument package is removed, any associated views that are currently opened will be closed.

Shortcuts

Toolbar:

6.2   Add Instrument command

Use this command to open the Add New Instrument Package or Instrument dialog box. To add a new Instrument to an existing Instrument Package the Instrument Package in the Instrument Package Panel must be selected before invoking this command. To add a new Instrument to a new Instrument Package an Instrument belonging to any existing Instrument Package must be selected.

Shortcuts

Toolbar:

6.3   Remove Instrument command

Use this command to remove the selected instrument from its instrument package in the Instrument Package Panel. When an instrument is removed, its Control Panel and any associated views that are currently opened will be closed.

Removing an instrument will create a session log entry indicating the name of the instrument removed.

Shortcuts

Toolbar:

6.4   Resource List command

Use this command to show or hide the Communications Resource List window.

Shortcuts

Toolbar:

Keys: CTRL+R

6.5   Connect All command

Use this command to connect all *communications resources* in the Communications Resource List. This would be the same as clicking the **Connect** button in every resource's Communications Resource Control Panel.

This command will create session log entries for every resource that is connected. Each entry will indicate success or failure of the connection.

The Status Bar will indicate if all resources are connected.

Shortcuts

SEA·BIRD
SCIENTIFIC

Toolbar:

Keys: CTRL+C

6.6   Disconnect All

Use this command to disconnect all *communications resources* in the Communications Resource List. This would be the same as clicking the **Disconnect** button in every resource's Communications Resource Control Panel.

This command will create session log entries for every resource that is disconnected. Each entry will indicate success or failure of the disconnection.

Shortcuts

Toolbar:

Keys: CTRL+D

7.0   Log menu

7.1   Options command

Use this command to open the Logging Options dialog box.

Shortcuts

Toolbar:

Keys: CTRL+P

7.2   Station Setup command

Use this command to open the Station Setup dialog box.

Shortcuts

Toolbar:

Keys: CTRL+T

7.3   Edit File Name command

Use this command to enable manual editing of the next *Log file* name. This file name is located in the Next/Current Log File indicator of the main display. The Edit File Name command is only made available when the **File Naming Mode** of the Logging Options dialog box is set to USER DEFINED. Normally, this area is kept read-only so the *Log file* name cannot be changed inadvertently.

You can manually edit the *Log file* name once this menu command has been issued. The menu command itself will display a check mark indicating *SatView* is in the Edit File Name mode. You will notice that the background color of the edit box will indicate that you can now edit its contents. When you finish editing the file name, disable the Edit File Name mode by selecting this command again (or press the ENTER key). If you have not specified a file name extension for your *Log file*, *SatView* will automatically append the default extension, ".raw". *SatView* will then issue a *Log Status Check* for the new *Log file*.

By default, the *Log file* name specified here is relative to the **Log Directory** of the Logging Options dialog box. You can specify subdirectories or use "..\" (for a directory one level up from the current) in the file

name if you wish. To temporarily override the **Log Directory**, you can specify the full (or absolute) path of your *Log file* name. A file's full path contains a drive letter (i.e. **c:**, **a:**, etc.) at the beginning of the Log file name. *SatView* will not create directories so make sure that the path specified exists before you start logging.

Shortcuts

Main Display: Edit

Keys: CTRL+E

7.4   Confirm Log File command

Use this command to force *SatView* to issue a *Log Status Check* for the currently displayed *Log file* name. This file name is located in the Next/Current Log File indicator of the main display.

7.5   Start Logging command

Use this command to start logging instrument *telemetry* to the next *Log file*. The next *Log file* is located in the Next/Current Log File indicator of the main display. The manner in which *SatView* performs a log depends on the settings you have chosen in the Logging Options dialog box.

Before logging can begin, a successful *Log Status Check* must be performed, which is normally done automatically. You can use the Confirm Log File command if you want to issue a *Log Status Check* yourself.

This command, if successful, will create a session log entry indicating the name of the current *Log file*.

SatView may, if needed, display a Log Warning dialog box at this time. However, this is only done in special circumstances.

In some cases, it may be necessary to control the timing of a SatView log from another application, such as task scheduler. See section *32.0 Automating data collection with task scheduling software* for more information.

Shortcuts

Main Display: Start Logging

Toolbar:

Keys: CTRL+L

7.6   Stop Logging command

Use this command to stop logging instrument *telemetry* to the current *Log file*. This command would normally be preceded by the Start Logging command. *SatView* may perform a *Log Status Check* after you stop logging if necessary.

This command, if successful, will create a session log entry indicating the name of the current *Log file*.

Shortcuts

Main Display: Stop Logging

Toolbar:

Keys: CTRL+L

8.0   View menu

8.1   Session Log command

Use this command to show or hide the Session Log Output window. This window shows all entries made by *SatView* to the session log as they occur.
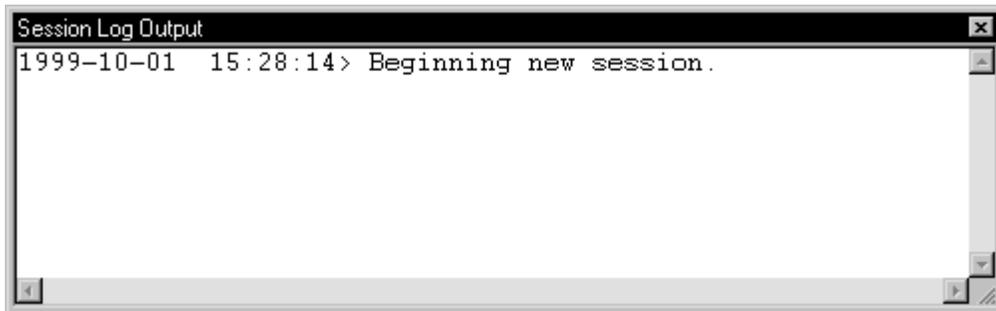

Figure 2

Shortcuts

Toolbar:

8.2   Session Comments command

Use this command to show or hide the Session Comments window. This window can be used for entering and viewing comments relevant to the current session. These comments could be used to identify the differences between session files. You may also want to use them to keep notes on work you have done.

Figure 3

Shortcuts

Toolbar:

8.3   Toolbar command

Use this command to show or hide the toolbar, which includes buttons for some of the most common commands in *SatView*. A check mark appears next to the menu item when the toolbar is displayed.

8.4   Status Bar command

Use this command to display and hide the Status Bar, which describes the action to be executed by the selected menu item or depressed toolbar button. A check mark appears next to the menu item when the Status Bar is displayed.

9.0   Window menu

9.1   1 - Resource List command

If the Communications Resource List window is currently displayed, you can use this command to set the input focus to this window. Otherwise, this command will be disabled. Setting a window input focus could be accomplished quite easily by clicking your mouse pointer anywhere inside the window. This command, however, is available mainly for providing a keyboard shortcut.

To return input focus back to the application window, use the ALT+~ keyboard shortcut. The "~" character is located to the left of the "1" key.

Shortcuts

Keys: ALT+1

9.2   2 - Instrument Ctrls command

Use this command to toggle the input focus to each Instrument Control Panel currently displayed. If no control panels are opened, this command will be disabled. *SatView* remembers the last control panel that had the input focus. Therefore, each time this command is issued, the next control panel in order according to the Instrument Package Panel, will receive the input focus.

Setting a window input focus could be accomplished quite easily by clicking your mouse pointer anywhere inside the window. This command, however, is available mainly for providing a keyboard shortcut.

To return input focus back to the application window, use the ALT+~ keyboard shortcut. The "~" character is located to the left of the "1" key.

Instrument Control Panels can be opened from the Instrument Package Panel.

Shortcuts

Keys: ALT+2

9.3   3 - Resource Ctrls command

Use this command to toggle the input focus to each Communications Resource Control Panel currently displayed. If no control panels are opened, this command will be disabled. *SatView* remembers the last control panel that had the input focus. Therefore, each time this command is issued, the next control panel in order according to the Communications Resource List, will receive the input focus.

Setting a window input focus could be accomplished quite easily by clicking your mouse pointer anywhere inside the window. This command, however, is available mainly for providing a keyboard shortcut.

To return input focus back to the application window, use the ALT+~ keyboard shortcut. The "~" character is located to the left of the "1" key.

Communications Resource Control Panels can be opened from the Communications Resource List.

Shortcuts

Keys: ALT+3

9.4   4 - Session Log command

If the Session Log Output window is currently displayed, you can use this command to set the input focus to this window. Otherwise, this command will be disabled. Setting a window input focus could be

accomplished quite easily by clicking your mouse pointer anywhere inside the window. This command, however, is available mainly for providing a keyboard shortcut.

To return input focus back to the application window, use the ALT+~ keyboard shortcut. The "~" character is located to the left of the "1" key.

Shortcuts

Keys: ALT+4

9.5   5 - Session Comments command

If the Session Comments window is currently displayed, you can use this command to set the input focus to this window. Otherwise, this command will be disabled. Setting a window input focus could be accomplished quite easily by clicking your mouse pointer anywhere inside the window. This command, however, is available mainly for providing a keyboard shortcut.

To return input focus back to the application window, use the ALT+~ keyboard shortcut. The "~" character is located to the left of the "1" key.

Shortcuts

Keys: ALT+5

10.0   Help menu

10.1   Help Topics command

Use this command to open the *SatView* Help Contents window. This window will enable you to navigate through all of *SatView's* help topics. Press the F1 key to get help on this or any other help window.

To get help on individual menu commands, use your mouse or keyboard to select the menu item, then press the F1 key.

10.2   About command

Use this command to display the copyright notice and version number of your copy of *SatView*.

11.0   The Session File

The Session File is used by *SatView* to save session information so you don't have to go through the setup process every time you use the application. Once you start a new session in *SatView*, you will have to initialize a few settings before you can log any instrument *telemetry*. Once these settings have been established, you can save the setup in a session file at any time. Session files are a convenient way to quickly restore *SatView* to a previous configuration. This quickly lets you get on with the important task of logging data.

When a session file is opened or saved, *SatView* will display the file name in the application's Title bar. *SatView* session files use the ".sat" file extension. These files store the following information:

The current *Log file* name;

The Session Comments;

The Logging Options;

The Station Setup;

The Instrument Package Panel including all instrument package properties, all instrument properties and including the instrument's initialization information of the Add New Instrument Package or Instrument dialog box.

All opened Instrument and Communications Resource Control Panels including their state and position information;

All opened instrument package and instrument views including their state and position information.

When a session is saved all the Control panels and instrument views that are open have their information recorded in the session file. State information (minimized or normal window) and information specific to each type of view is also saved. In addition, *SatView* saves this information with the instrument/resource properties, which keeps a record in your system registry. This means that views and control panels will remember where they were from the last time they were opened if a session file is not used.

When a session file is opened, *SatView* will restore the settings to the items listed above. After the Instrument Package Panel has been restored, *SatView* will initialize each instrument package and its instruments, in that order.

To save your session, use the Save or Save As commands under the File menu. *SatView* will not prompt you to save any changes to the file while it is running. There are a few reasons for this, including the fact that session settings change frequently. If you move an instrument view or control panel window, your session has changed, but you may not want to save this to the session file. Therefore, saving session files is left completely up to you. In addition, session files behave like any other document file in Windows, so they are completely integrated with Windows Explorer. The key advantage here is that you can launch *SatView* directly from the session file itself.

Session files can be quite useful if you want to set up several different sessions using the same instruments, but with different modes of operation. For example, say you have a Profiler and Reference system that you want to deploy. You could set up *SatView* for these instruments and save the session. Suppose that later you want to use the same Profiler with an SQM II (SeaWifs Quality Monitor) to check the Profiler's stability. This would involve setting up the Profiler with an SQM rather than a Reference. This could also involve different logging options and different instrument views. This would be another session.

Normally, when you first start the program, no session file is opened, unless of course you launch *SatView* from a session file in Windows Explorer (or use the command prompt). However, you can set up *SatView* to open a specific session file every time *SatView* is started. This can be done in the *SatView* Properties dialog box. If you do not intend to use multiple sessions, this may be a useful feature.

This option is also useful if you want to create default sessions. A default session would be small and only specify a minimal amount of information. This information, however, would be common to all future sessions that you will later create, based on the default. You could then use this session file as a starting point for another session using specific instruments in a specific mode of operation.

Once you've created your default session, give the file a generic name such as "Default.sat". Save it in the same directory as the *SatView* executable file (which is probably ...\Program Files\Satlantic*SatView*, but you may choose any directory that is convenient). To ensure that you do not save over your default session, change the file attributes of the file to read-only. That way, when you save a new session file based on the default session, *SatView* will always prompt you for a new file name.

12.0   The Session Log

During every session in *SatView*, an event log is maintained. This Session Log contains information on when significant events occurred and why. You could use this information to troubleshoot a problem encountered during your session, or use it to coordinate data collected with other sessions.

Each entry follows a specific session log format. An event time stamp is appended to the beginning of the entry using the following template:

YYYY-MM-DD HH:MM.SS>

The "YYYY" section represents the year. The next section, "MM", represents the month, and "DD" the day. The rest of the time stamp represents hours, minutes, and seconds respectively. Following the time stamp is the text description of the event. Some events have more than one line of text. In that case, the additional lines are indented to show that they are all part of the same event.

There are many types of entries made to the session log during any given session. Although it would be impractical to explain the exact meaning of each event, there are numerous topics in *SatView's* on-line Help that discuss particulars of session log events.

You can view session log events as they occur by opening the Session Log Output window. You can also have *SatView* save the session log to a file with the "**Maintain a session log file**" option of the *SatView* Properties dialog box.

13.0   *SatView* Properties dialog box

This dialog box is used to specify session independent *SatView* properties. These properties are available to affect certain application behaviors at a global level. Therefore, they are not saved to session files. Instead, they are stored in your system registry. When you run *SatView*, these properties will be restored from the last time the application was used.
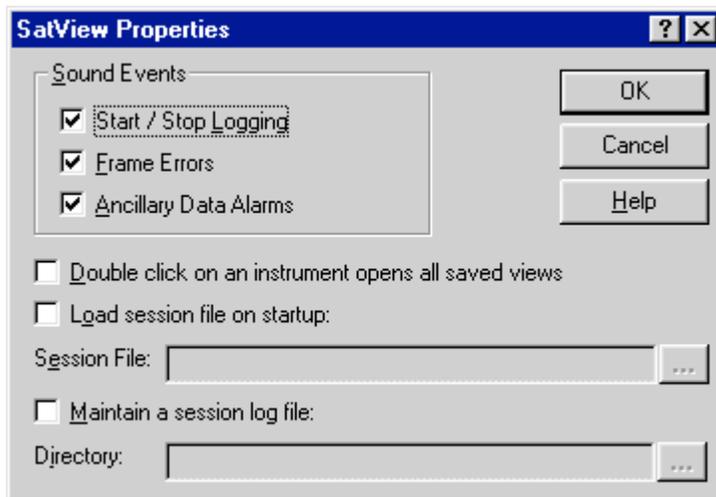

Figure 4

Use the Sound Events section to specify times for which *SatView* should make audible notifications. You can control which sound *SatView* plays using the Windows Control Panel. Open the **Sounds** application and choose a sound file for the **Asterisk** event. This will be the sound played for all *SatView* Sound Events.

Use the **Double click on an instrument** property to make *SatView* open all saved views for an instrument when the instrument name is double clicked. The next property can be used to specify a session file to load on *SatView* startup. You can maintain a text file of the session log with the last property.

Use the dialog box's context sensitive help for more detailed descriptions of each element in the dialog.

14.0   Communications Resource List

This window displays the list of all the *communications resources* detected by *SatView* when the current session was either created or opened. *SatView* initializes each detected resource. For more information on this procedure, refer to section *16.0 Initializing a Communications Resource*.

However, the resources listed here are not necessarily connected to their physical medium. You can scroll through the list with the up/down arrow keys or select resources with your mouse. You can connect and disconnect any one of these resources at any time. If a resource is not connected, other applications are free to use it.
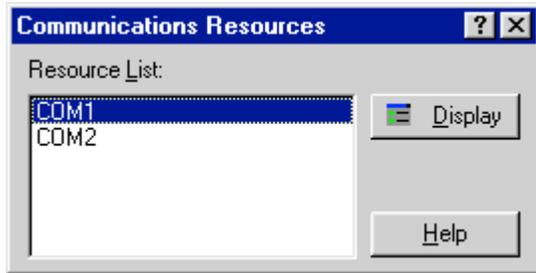

Figure 5

You can open a Communications Resource Control Panel with the **Display** button.

Use the dialog box's context sensitive help for more detailed descriptions of each element in the dialog.

15.0   Resource Properties dialog box

The Resource Properties dialog box for an existing resource can be accessed with the **Properties** button of a Communications Resource Control Panel.
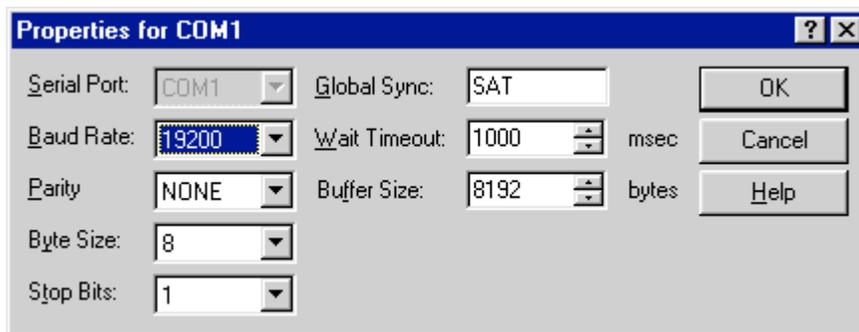

Figure 6

When this dialog from a Communications Resource Control Panel, the window caption should read "**Properties for XXXX**", where XXXX is the name of the resource. The **Serial Port** field will be read-only because you cannot alter the name of an already existing resource. If the resource is not connected, you will be able to modify the resource properties in the same manner as you would a new resource. Then click **OK**. Otherwise, if the resource is connected, all dialog fields will be read-only and you will not be able to modify any resource properties.

When you have changed the properties of an existing resource, *SatView* will attempt to perform a resource initialization. For more information on this procedure, refer to section *16.0 Initializing a Communications Resource*.

Use the dialog box's context sensitive help for detailed descriptions of each element in the dialog.

16.0   Initializing a Communications Resource

Communications resource initialization is a very simple process invoked by two different events. The first is after you click the **OK** button in the Resource Properties dialog box. The second occurs when a session file is opened, usually with the Open command of the File menu.

If *SatView* is able to initialize the resource, a session log entry will be created.

17.0   Add New Instrument Package or Instrument dialog box

This dialog box is used to either add a new Instrument Package or to add a new Instrument to either a new or an existing Instrument Package in the Instrument Package Panel. *To add a new instrument to an existing Instrument Package the Instrument Package must first be selected. To add a new Instrument to a new Instrument Package an Instrument belonging to any existing Instrument Package must be selected.* All instruments used by Satlantic describe their *telemetry* composition in a *Calibration file* or *Telemetry definition file*. These *Instrument files* give *SatView* all the information necessary for logging and displaying the instrument's data. These files are therefore the basic element in adding any new instrument. You can add as many instrument packages or instruments as you want at any time to the Instrument Package Panel.

SatView offers you four initialization modes for adding instruments. Two of these modes are used for adding special case instruments in which you do not specify an *Instrument Package file* directly. To select a mode, choose one of the four radio buttons next to the mode description.
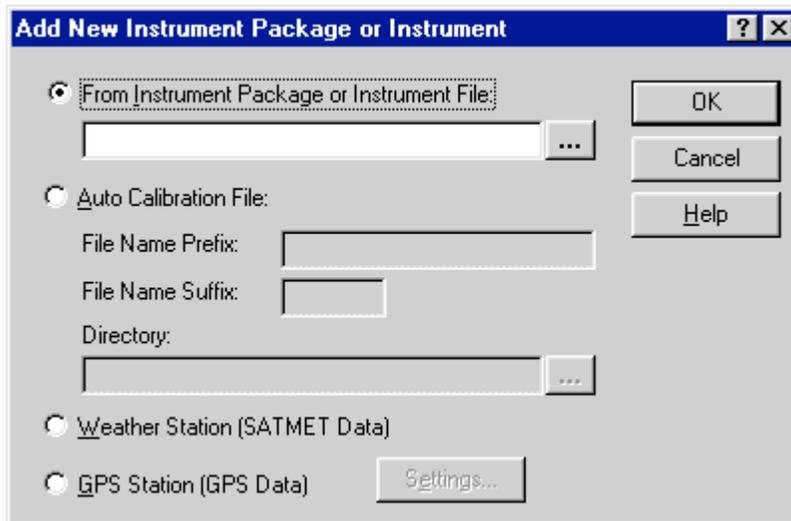

Figure 7

Once you complete the dialog and click **OK**, *SatView* will attempt to read and process the selected Instrument Package's *Instrument file(s)* or the selected *Instrument file*. For more information on this procedure, refer to section **20.0 Initializing an Instrument**.

Use the dialog box's context sensitive help for more detailed descriptions of each element in the dialog.

17.1   From Instrument Package or Instrument File initialization mode

In this mode, you simply specify either an *Instrument Package file* for the new instrument package or an *Instrument file* for the new instrument in the space provided.

You can also drag and drop one or more of these files directly onto the Instrument Package Panel. This is effectively the same as opening this dialog box and choosing this initialization mode.

17.2   Auto Calibration File initialization mode

In this mode, *SatView* can be set up to open the most recent version of a *Calibration file* from a given directory. This gives you the ability to add updated *Calibration files* to this directory without having to save a new session file. This mode will only work with *Calibration files* because the ".cal" file extension is assumed.

Specify a file name prefix that identifies the file name up to just before the last character of the file title. Then specify a file name suffix that can be any letter used as the last character of the file title. The suffix specifies the first character that *SatView* will use in its search to locate the latest version of the *Calibration file*. *SatView* will stop the search at the letter "**Z**". The search is case insensitive and occurs only in the directory specified. Subdirectories are not searched.

For example, assume the following search criteria was entered:

File Name Prefix: pro001

File Name Suffix: C

SatView will search for the existence of "pro001C.cal", "pro001D.cal", until "pro001Z.cal". *SatView* will then choose the latest version found as the desired *Calibration file*.

17.3   Weather Station (SATMET Data) initialization mode

This special case mode is used only to specify a MET-1000 weather station. *SatView* will internally select the *Instrument Package* file containing the *Telemetry Definition* file used to specify weather station telemetry. The *Instrument Package* file was predefined by Satlantic and included with the *SatView* installation. In the Instrument Package Panel this instrument package's name is **Weather Station** and the name of its instrument is **SATMET Data**.

It should also be noted that the *communications resource* associated with this instrument package must not be shared with any other instrument package.

17.4   GPS Station (GPS Data) initialization mode

This special case mode is used only to specify a GPS data source. This mode has many variations from which you can choose. Click the **Settings** button next to this mode description to open the GPS Settings dialog box. *SatView* will internally select the Instrument Package file containing the *Telemetry Definition* files used to specify all the possible types of GPS telemetry. Depending on the settings you chose *SatView* uses one or more of the *Telemetry Definition* files. The *Instrument Package* file was predefined by Satlantic and included with the *SatView* installation. In the Instrument Package Panel this instrument package's name is **GPS Station** and the name of its instrument is **GPS Data**. See *SatView's* on-line Help for more information.

18.0   Initializing an Instrument Package

Instrument Package initialization is the process of extracting Instrument file(s), extracting its 'Properties.txt' file, setting instrument package properties, initialization of each instrument that it contains and initializing instrument package views. This procedure is invoked using three different actions. The first is after the OK button is clicked in the Add New Instrument Package or Instrument dialog box. The second is by dragging and dropping *Instrument Package* file(s) or *Instrument* file(s) onto the Instrument Package Panel. The third occurs when a session file is opened, usually with the File menu's Open command.

When an Instrument Package file is used the first step after extracting all the files that it contains is to load the properties specified in its 'Properties.txt' file. This is how an instrument package's name and

baud rate are provided. When only an *Instrument* file is used the instrument package name must be specified using the Instrument Package Properties dialog box and its baud rate defaults to 19200.

19.0   Instrument Package Properties dialog box

The Instrument Package Properties dialog box can be accessed from one the **Properties** context menu item when you right click on an instrument package in the Instrument Package Panel.
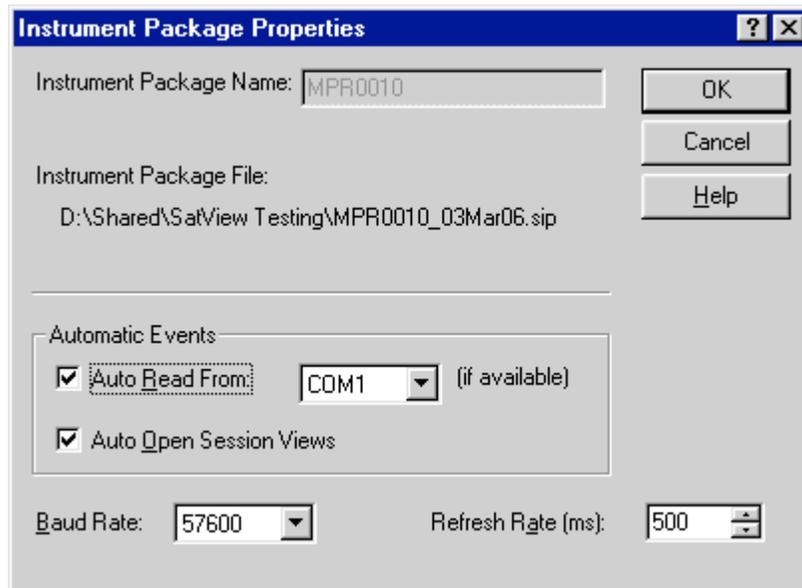

Figure 8

This dialog box is used to view and change the properties of any instrument package in the Instrument Package Panel. These properties govern much of the behaviour of the instrument package in *SatView*. The dialog caption should read "**Instrument Package Properties**".

If the Instrument Package Name property has been provided this property will not be accessible. When the Instrument Package Name has not been provided a name must be specified before the properties can be accepted. When an Instrument Package with no name has the setting of its properties cancelled, the Instrument Package is not added to Instrument Package Panel.

♦   Instrument Package Name is used to identify this instrument package. If the Instrument Package does not have a name then a name must be specified.

♦   Instrument Package File identifies the **Instrument Package** file used to define this instrument package.

♦   Use Default Salinity is used to indicate that you want the instrument package's Ancillary View to use the default salinity value specified in the adjacent input field.

♦   Auto Read From is used to indicated that you want the instrument package to automatically read from the specified **communications resource** when initialized. You can choose which resource to read from by selecting the resource name in the adjacent combo box field. This feature will only work if the resource exists in the **Communications Resource List**.

♦   Auto Open Session Views is used to indicate that you want the instrument package to automatically open any saved instrument package views when initialized. Because these views are only saved in session files, this property is only effective when a session file is in use.

♦   Baud Rate is used to select the **baud rate** used by the communications resource selected using the **Auto Read From** property or the **Read From** menu item.

♦   Refresh Rate is used to select the **refresh rate** timeout (in msec) used for refreshing all the instrument package's views and its instrument's views with updated information. Be careful not to specify too many different refresh rates for all your instrument packages; SatView can only handle a limited number.

SatView stores a copy of the most recent properties for every instrument package defined by the application in your system registry. See section 18.0 **Initializing an Instrument Package** for more information.

When you press the **OK** button, *SatView* will attempt to carry out all the automatic events defined in the dialog box.

20.0   Initializing an Instrument

Instrument initialization is the process of reading *Instrument file(s)*, setting instrument properties, and initializing instrument views. This procedure is invoked during Instrument Package initialization.

The first step in this procedure is to read the *Instrument file(s)*. When this occurs, *SatView* will add an entry to the session log for every file read. The entry will look similar to the following:

1999-08-03 09:58:54> Calibration File read successfully.

File name: 'C:\Program Files\Satlantic\SatView\CAL\MPR010e.cal

Lines read: 179

Number of sensors: 37

Frame type: Fixed

Frame size: 130 bytes

SATMPR0010 - 0 error(s)

The following is a description of each of the entry components:

File name:	Indicates the full path of the *Instrument file*.
Lines read:	The total number of lines read in the file.
Number of sensors:	The number of useful sensors found in the file (not including the leading INSTRUMENT and SN sensors, dummy sensors, or ignored sensors).
Frame type:	The type of frame (fixed or variable length). Normally, a *Calibration file* is fixed and a *Telemetry definition file* is variable.
Frame size:	This message component will only be displayed if the frame type is fixed. The exact size of the frame (in bytes) is indicated.

The last line indicates the instrument header (in this case SATPRO0001). *SatView* uses this header to identify the instrument throughout the rest of the program. The header is also used to identify the instrument's *telemetry* from any other instrument. If any errors in the file format are detected while reading the file, they will be listed, along with any appropriate corrective actions, after this line. In addition, a message dialog box will be displayed informing you that these errors are present in the file.

Once the *Instrument file(s)* are read, *SatView* will attempt to retrieve the instrument properties. Unless the instrument properties are being retrieved from a session file, *SatView* will determine if it has read this instrument before. Any previously read instruments would have a record of its properties in your system registry. This record is continually maintained to reflect the most recent properties set for the instrument. If a record exists, those properties will be used for your new instrument. Otherwise, *SatView* will use default properties and display the Instrument Properties dialog box.

SatView will then look for application specific sensors for internal usage. These sensors for example may describe the expected frame rate for the instrument (RATE sensor). *SatView* always attempts to perform telemetry frame error checking so it will also look for the FRAME COUNTER sensor and the CHECK SUM sensor.

Next *SatView* will create a list of all the available instrument views. The types of views available for the instrument depend on sensors defined in the *Instrument file*.

If the instrument is read successfully, it will then be added to the Instrument Package Panel.

21.0   Instrument Properties dialog box

The Instrument Properties dialog box can be accessed from two places. The first is with the **Properties** context menu item when you right click on an instrument in the Instrument Package Panel. The second is by pressing the **Properties** button in an Instrument Control Panel.
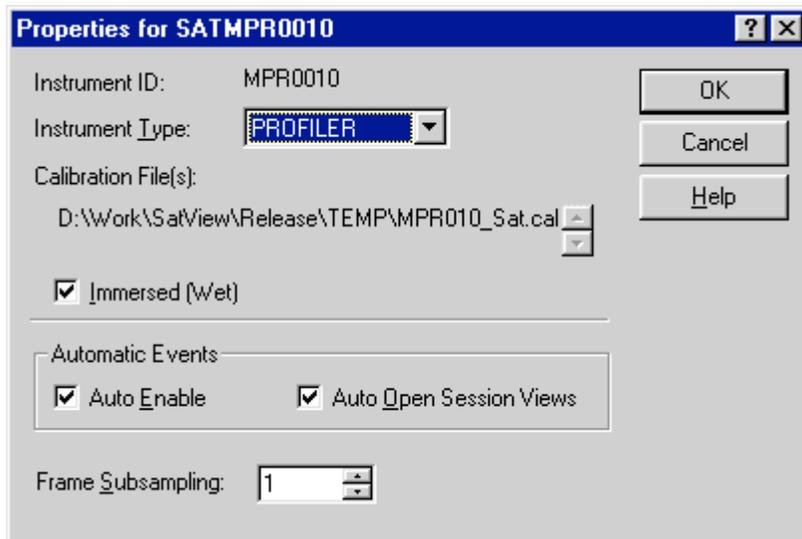

Figure 9

This dialog box is used to view and change the properties of any instrument contained by an instrument package in the Instrument Package Panel. These properties govern much of the behavior of the instrument in *SatView*. The dialog caption should read "**Properties for XXXX**", where XXXX is the name of the instrument.

If the properties of this dialog are for a special case instrument (ie. **SATMET Data** or **GPS Data**), certain properties may not be accessible. The **Instrument Type** property, for example, is set by *SatView* and cannot be changed. For more information on these instruments, see the Add Instrument dialog box.

♦   Instrument ID is used in the **Log file** header to identify this instrument. This string is usually the instrument header with the "SAT" prefix removed.

♦   Instrument Type identifies how the instrument is being operated. SatView uses this field to determine how the instrument will be recorded to a **Log file**.

♦   Calibration File(s) identifies the **Instrument** file(s) used to define this instrument.

♦   Immersed (Wet) is used to indicate that you want the immersion coefficents of all OPTICX fit types defined in the **Instrument files** to be used. Otherwise, SatView will set these coefficients to 1.0, indicating the instrument is being operated in air. This property will affect the value of all calibrated optical output displays.

♦   Auto Enable is used to indicate that you want the instrument to automatically enable itself when it is attached to a **communications resource**. Instruments can be enabled and disabled from the **Instrument Package Panel** or **Control Panel**.

♦   Auto Open Session Views is used to indicate that you want the instrument to automatically open any saved instrument views when initialized. Because these views are only saved in session files, this property is only effective when a session file is in use.

♦   Frame Subsampling is used to specify the number of frame subsamples that you want SatView to use when the instrument **telemetry** is recorded to a **Log file**. A subsample specifies the ratio of frames read to every frame recorded. For example, a value of 1 (the default) would indicate that every frame read will be recorded. A value of 2 would indicate that for every two frames read, only one would be recorded.

SatView stores a copy of the most recent properties for every instrument defined by the application in your system registry. See section 20.0 ***Initializing an Instrument*** for more information.

When you press the **OK** button, *SatView* will attempt to carry out all the automatic events defined in the dialog box.

22.0   Logging Options dialog box

This dialog box is used to setup logging options for your *SatView* session. *SatView's* primary purpose is to log instrument *telemetry* to *Log files*. These options specify the manner in which *SatView* will create these files. Once these options are set, you can use the Start Logging and Stop Logging commands under the Log menu to record your *Log files*. Additional information regarding the logging status can be obtained from the main display.
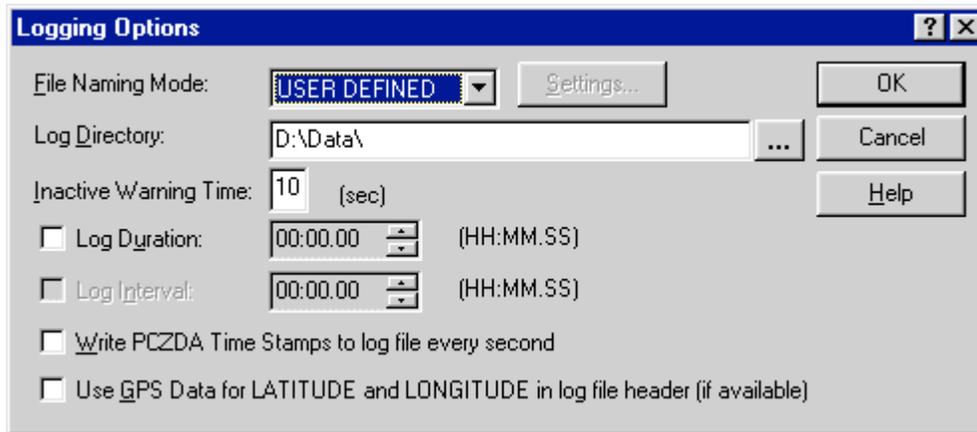
Figure 10

The first option in the dialog is the **File Naming Modes**. This mode specifies the file naming conventions *SatView* will use for naming your *Log files*.

- USER DEFINED

- AUTO CAST

- TIME STAMP

- SQM

The Status Bar will indicate which **File Naming Mode** is currently in use after you dismiss the dialog box.

You may want to have *SatView* time your logs. By enabling the **Log Duration** option, *SatView* will automatically stop your log after the time interval elapses. If you enable the **Log Interval** option as well, *SatView* will automatically start logging again after the last log has stopped and the specified interval has elapsed. If both of these options are enabled, a caption will appear to the right that reads:

AUTO LOG ENABLED

When this is indicated, *SatView* assumes control of when to start and stop logging. Because of this, the behavior of the Start and Stop Logging commands will change slightly. *SatView* will do nothing until you start your log, at which point auto logging begins. When you wish to cancel auto logging, use the Stop Logging command. Auto logging will be cancelled even if a *Log file* is not being logged at the time.

In some cases, it may be necessary to control the timing of a SatView log from another application, such as task scheduler. See section **32.0 Automating data collection with task scheduling software** for more information.

If you enable the **Write PCZDA Time Stamps** option, *SatView* will write time stamp frames to the *Log file* every second. The frame follows a similar format to the NMEA 0183 v2.30 sentence formatter for ZDA, except local time is used. The following is a sample PCZDA frame, indicating 1:24:30 pm on August 3, 1999:

$PCZDA,132430.00,03,08,1999,,

If you enable the **Use GPS Data for LATITUDE and LONGITUDE** option, *SatView* will use your **GPS Data** instrument to fill in the LATITUDE and LONGITUDE *Log file headers*. If no **GPS Data** instrument is available, *SatView* will take no action. *SatView* will use the most recent GPS *telemetry* for these fields at the time you start logging. See the Add Instrument dialog box for more information on the **GPS Data** instrument.

The following example shows how these fields will be formatted. This example shows a longitudinal position of 159 degrees, 43.09 minutes west:

159 43.09" W

When you press the **OK** button to dismiss the dialog, *SatView* will issue a *Log Status Check* if the *Log file* name has been affected by the changes you made.

Use the dialog box's context sensitive help for more detailed descriptions of each element in the dialog.

22.1   USER DEFINED File Naming Mode

This file naming mode allows you to specify the exact name of your next *Log file*. The other file naming modes allow *SatView* to determine the name of your *Log files* automatically. When this mode is enabled, use the Edit File Name command under the Log menu to edit the file name.

22.2   AUTO CAST File Naming Mode

This file naming mode uses the cast information provided by the Station Setup dialog box (also known as the Cast Card) to automatically name *Log files*. This feature is similar to the auto-casting feature found in Satlantic's ProView application.

The **Station ID** field of the Cast Card will represent the first section of the file name. This section can be up to 31 characters in length. The **Cast** field will represent the second section of the file name to be appended to the first. The second section is the cast letters (AA-ZZ) which, combined with first section, forms the file title for your next *Log file*. Once you start logging, *SatView* will use this file title with a ".raw" file extension for the *Log file* name. After you stop logging, the cast letters will be automatically incremented and a *Log Status Check* will be performed on the new file name. The **Cast** field of the Station Setup dialog box will reflect this change.

For example, if the **Station ID** field is filled in with "Test" and the **Cast** field is filled in with "AA", the *Log file* names will be "TestAA.raw", "TestAB.raw", etc. This will continue until the entire range has been used up (or in this case, "TestZZ.raw" has been logged).

22.3   TIME STAMP File Naming Mode

This file naming mode bases the *Log file* name on the exact time you start logging. Because the file name is unknown until logging has begun, the *Log file* name shown in the main display will read "**(TIME STAMP)**" until you start your log. This also means that a *Log Status Check* cannot be performed before logging begins. Time based file names should always be unique, so *SatView* assumes that your next *Log file* will not already exist. When a log begins, *SatView* will create a file name based on the following format:

YYYY-DDD-HHMMSS.raw

The "YYYY" section will represent the year. The next section, "DDD", will represent the Julian Day, where January 1 is day 001. The last section, "HHMMSS", will represent the local time of day in hours, minutes, and seconds respectively.

22.4   SQM File Naming Mode

To use this mode, *SatView* needs additional information for determining SQM *Log file* names. You should specify these settings by clicking the **Settings** button next to the **File Naming Mode** dropdown box to open the SQM File Naming dialog box. This dialog box will explain the SQM file naming convention. See *SatView's* on-line Help for more information.

23.0   SatView's Time Tag Format

This section describes, in detail, the data format of the time tags appended to each frame. This information would be useful for post processing applications that must interpret Satlantic *Log files*.

SatView records an additional seven bytes to the end of each frame (except **GPS Data**) logged to a *Log file*. These 7 bytes can be interpreted in two sections; 3 bytes for the date tag and 4 bytes for the time tag, respectively. Each section should be read as an unsigned binary integer with the most significant byte first.

The resultant date tag number represents the year and day of year in the following format:

YYYYDDD

YYYY represents the year and DDD the day of year where January 1 is 001. The resultant time tag number represents the time of day in the following format:

HHMMSSmmm

HH, MM, and SS represent hours, minutes, and seconds (in local time) of the 24-hour clock. The mmm section represents milliseconds.

24.0   Station Setup dialog box (Cast Card)

This dialog box is available to you for defining information contained in the next *Log file header*. You can change the information in this dialog box at any time (except while logging).

Figure 11

SatView is configured for use with Satlantic's freefall optical profile measurement system, the SPMR and SMSR instruments. It is therefore important for SatView to allow for individual casts (or profiles) to take place very quickly, so casts can be made in rapid succession.

To simplify setup for the operator, data logging within *SatView* is modeled on a typical experiment format. The format is based on a cruise being composed of multiple stations/locations where there would be a series of profiles/casts at each station. *SatView's* Cast Card allows the operator to enter some ancillary information, related to the station, which will be saved as header information in each *Log file*. This information also provides the basic requirements needed to allow the program to automatically generate file names for the AUTO CAST **File Naming Mode** (see the Logging Options dialog box for more information).

The AUTO CAST **File Naming Mode** can generate automatic *Log file* names by appending a cast letter onto the station name. This provides a degree of freedom from concern about data entry errors or overwritten files during sometimes-hectic fieldwork. It also allows the logging process to be initiated at the touch of a button, providing easier operation and synchronization between the operator and the deck hands deploying the instrument.

The following is a description of each of the fields found in this dialog box:

Cruise ID   Identifies the cruise on which this series of casts will be taken.

Investigator   Identifies the principal investigator for whom this series of casts will be taken.

Affiliation	Identifies the affiliation of the principal investigator.
Email Contact	Identifies the email address of the principal investigator.
Experiment	Identifies the experiment being performed by the principal investigator.
Operator	Identifies the operator of *SatView* during the casting session.
Latitude	Identifies the latitude co-ordinates for this series of casts.
Longitude	Identifies the longitude co-ordinates for this series of casts.
Time Zone	Identifies the time zone for this station. *SatView* uses the computer's local time when computing time specific information. This field gives a reference to the time zone currently in use.
Cloud Cover	Specifies the amount of cloud cover as a percentage.
Wave Height	Specifies the approximate wave height in metres.
Wind Speed	Specifies the measured wind speed in metres per second.
Comments	General comments. This field may be used to provide information on the current weather or water conditions.
Report Document	Identifies the cruise report document file name.
Station ID	Identifies the station for this series of casts. A station is simply a series of up to 31 characters used to identify the current casting session.
Cast	Identifies the current cast with two letters. The range is from AA to ZZ.

When you press the **OK** button to dismiss the dialog, *SatView* may issue a *Log Status Check* if needed.

25.0   Attach Resource dialog box

The Attach Resource dialog box can be accessed from the **Read From** context menu item when you right click on an instrument package in the Instrument Package Panel.
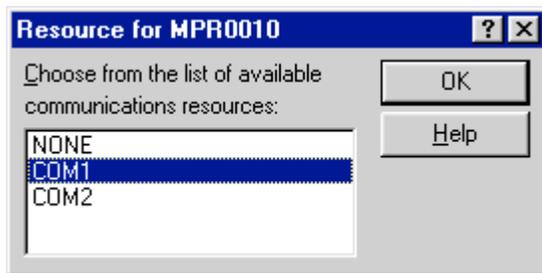

Figure 12

This dialog box is used to attach a *communications resource* to an instrument package. When you attach a resource, you are informing *SatView* of where to read the *telemetry* for each instrument contained in the instrument package. The dialog caption should read "**Resource for XXXX**", where XXXX is the name of the instrument package.

The list box in this dialog displays a copy of the resources found in the Communications Resource List. You can scroll through the list with the up/down arrow keys or select resources with your mouse. If the instrument package is already attached to a resource, the appropriate resource in the list will be highlighted. Otherwise, "NONE" will be highlighted, indicating the instrument package is not attached to

any resource. When an instrument package is attached to a communications resource the baud rate specified for the instrument package is used to configure the communications resource.

Attaching and detaching resources will create session log entries indicating the affected instruments and resource.

26.0   Instrument Package View List dialog box

An instrument package's View List dialog box can be accessed with the **View List** context menu item when you right click on an instrument package in the Instrument Package Panel.
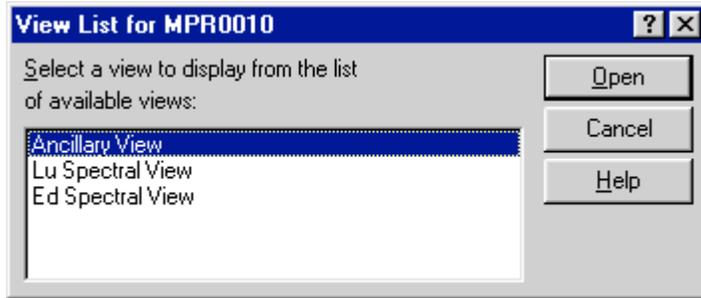

Figure 13

This dialog box provides you with quick access to an instrument package's view list. The view list contains all the available views of sensor information for the instrument package. The available views for an instrument package are determined during its initialization. The dialog caption should read "**View List for XXXX**", where XXXX is the name of the instrument package.

You can scroll through the list with the up/down arrow keys or select views with your mouse. Once you make your selection, the view will be opened with the input focus. If the view is already opened, the view will get the input focus.

27.0   Instrument View List dialog box

An instrument's View List dialog box can be accessed with the **View List** context menu item when you right click on an instrument in the Instrument Package Panel. An instrument's View List can also be accessed from an Instrument Control Panel.

Figure 14

This dialog box provides you with quick access to an instrument's view list. The view list contains all the available views of sensor information for the instrument. The available views for an instrument are determined during its initialization. The dialog caption should read "**View List for XXXX**", where XXXX is the name of the instrument.

You can scroll through the list with the up/down arrow keys or select views with your mouse. Once you make your selection, the view will be opened with the input focus. If the view is already opened, the view will get the input focus.

28.0   Communications Resource Control Panel

The Communications Resource Control Panel can be accessed with the **Display** button of the Communications Resource List. As with all control panels, *SatView* saves the window position and state information in session files. Communications Resource Control Panels will be restored to their saved configuration when a session file is opened.
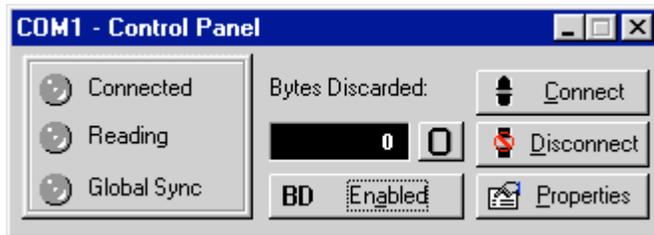

Figure 15

Control panels are separate windows from *SatView's* main application window that float freely on your Windows desktop. As with instrument views, control panels use the Help system in a different way from dialog boxes. The only way to access *SatView's* on-line Help in a control panel is to press the **F1** key, which will display the associated help topic. See *SatView's* on-line Help for more information on this control panel.

Communications Resource Control Panels can be used to control and monitor activity on a *communications resource*. The window caption should read "**XXXX - Control Panel**", where XXXX is the name of the resource. You could use this window to troubleshoot problems with instruments, or simply keep the window open for quick access to resource control. You can also connect or disconnect the resource, view or modify resource properties or monitor the distribution of incoming *telemetry*.

29.0   Instrument Control Panel

The Instrument Control Panel can be accessed with the **Control Panel** context menu item when you right click on an instrument in the Instrument Package Panel. As with all control panels, *SatView* saves the window position and state information in session files. Instrument Control Panels will be restored to their saved configuration when a session file is opened.
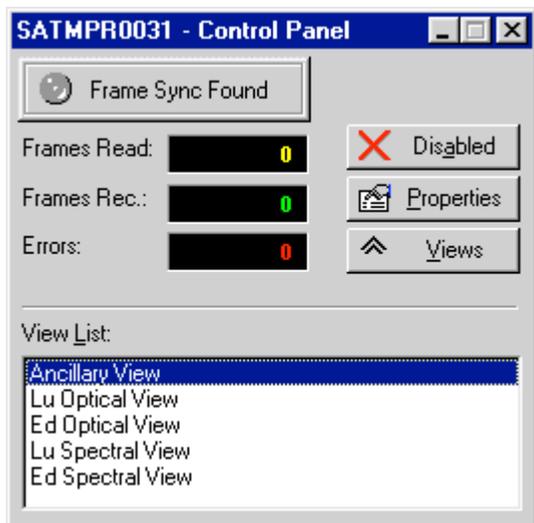
Figure 16

Control panels are separate windows from *SatView's* main application window that float freely on your Windows desktop. As with instrument views, control panels use the Help system in a different way from dialog boxes. The only way to access help in a control panel is to press the **F1** key, which will display the associated help topic. See *SatView's* on-line Help for more information on this control panel.

Instrument Control Panels can be used to control and monitor the acquisition of instrument *telemetry*. The window caption should read "**XXXX - Control Panel**", where XXXX is the name of the instrument. Use this control panel to do much of the work that is done by the context menu for an instrument in the Instrument Package Panel.

You could also use this window to troubleshoot problems with instruments, or simply keep the window open for quick access to instrument views. From this control panel, you can view or modify instrument properties, attach and enable *communications resources*, or monitor incoming instrument *telemetry*.

30.0   Instrument Package Views

Instrument Package Views can be accessed from an Instrument Package's View List dialog box. *SatView* saves the window position and state information for instrument package views in session files. If you have enabled the **Auto Open Session Views** option in the Instrument Package Properties dialog box, the instrument package's views will be restored to their saved configuration when a session file is opened. You can also cause the saved instrument package views to open with the **Open Views** context menu item when you right click on an instrument package in the Instrument Package Panel.

Instrument Package views are separate windows from *SatView's* main application window that float freely on your Windows desktop. An Instrument Package view uses the Help system in a different way from dialog boxes. The only way to access help in an instrument package view is to press the **F1** key, which will display the associated help topic.

Each view is responsible for presenting you with merged information for a specific sensor in a specific format. Some views may display the same merged sensor information, but the presentation is different. These views are helpful in determining what an instrument's sensors for all instruments in an instrument package are reading before and during the logging of instrument *telemetry*. Each instrument package in *SatView* could have any number of these views, depending on the types of sensors defined in the instrument package's *Instrument file(s)*.

The following is a list of SatView's available instrument package views. Each instrument package in SatView could have any number of these views, depending on the types of sensors defined in each instrument's Instrument file(s). The instrument package's view list is determined during instrument package initialization.

- Ancillary View

- Spectral View

- Time Series View

- Depth Profile View

30.1 Instrument Package Ancillary View

The Ancillary View is used to view all calculated information values derived from non-optical (ancillary) sensors for an instrument package. See the instrument package views topic for information on how to access this view.

This display is equivalent to an Instrument Ancillary View's "**Data**" display. Most calculated values derived from instruments contained by an instrument package are displayed here. In some cases the values displayed represent a merged value derived from sensors from multiple instruments. Some examples of this are PAR(0+), PAR(Z) and LIGHT SATURATION.
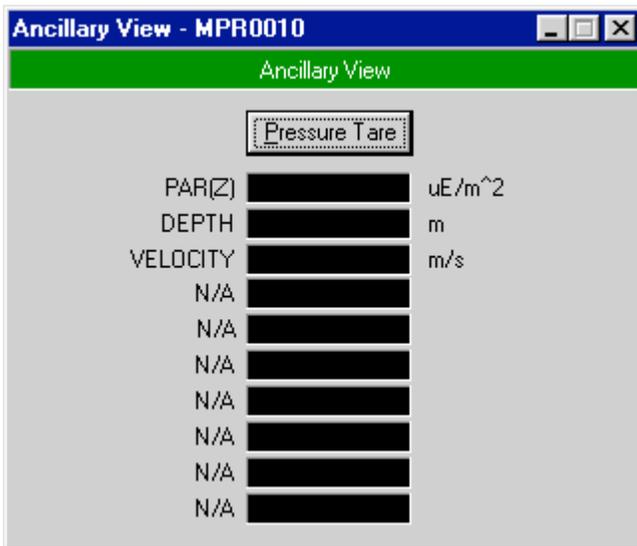

Figure 17

In addition, if the instrument package contains a PROFILER instrument you can perform pressure sensor tares from this display. Press the "**Pressure Tare**" button at the top of the window. This action will calibrate the pressure reading from the PROFILER instrument at zero depth. Once a tare has been made, you should notice that the offset in the DEPTH field is removed. The DEPTH value should read very close to zero at this point. The pressure tare information will be recorded in the Log file headers.

You can also use the Ancillary Data Alarms dialog box to specify Warning and Alarm ranges for each "**Data**" display field. You can access this dialog by double clicking on the desired field (value).

30.2   Instrument Package Spectral View

The Spectral View shows a merged spectrum for an optical sensor grouping for all instruments contained in an instrument package. The sensor grouping (or type of optical measurement) is indicated in the red panel below the view's title bar. This panel also indicates the type of spectrum displayed. All spectrum types show sensor values in their physical (calibrated) format. These values are in the standard units defined for the optical grouping. This information is defined in the Instrument file(s) for each instrument. See the instrument package views topic for information on how to access this view.
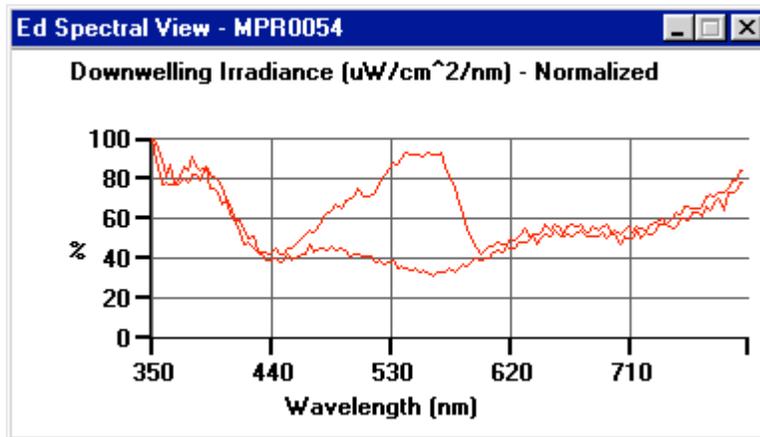

Figure 18

The default spectrum is "**Normalized**". This display normalizes all the sensor data to the maximum value in this set of optical sensors. If you right click anywhere inside of this window, a small context menu will appear. This menu allows the user to change the view type and their settings. By selecting "**Absolute**" in this menu, the display will change to show the absolute values of the sensors. The last spectrum type available is "**Logarithmic**" which is simialr to "**Absolute**" except the Y axis is a logarithmic scale.

Selecting "**Properties...**" from the context menu displays the Spectral View Options dialog box.

30.2.1 Spectral View Options

This dialog box allows you to change some properties of the view. In the **Absolute View Range** group box, the user can select the range of values displayed in the "**Absolute**" view. The **Y Resolution** allows you to specify the spacing between the tick marks on the Y axis. The **Plot Raw Counts** check box allows the raw counts to be plotted instead of the calibrated values. The **Logarithmic View Range** group box allows you to select the range of Log values to be displayed in the "**Logarithmic**" view.

In the **Wavelength Range** group box, the user can select the range of displayed wavelength values. The initial range values specifiy the entire wavelength range. The **X Tick Marks** allows you to select how many X Axis tick marks to display.

The **Show X Axis Grid Lines** and the **Show Y Axis Grid Lines** check boxes allow you to select whether or not to show gray lines in the background of the spectrum. The **Show Gain / Saturation Squares** check box allows the user to select whether to have Gain and Saturation squares appear.
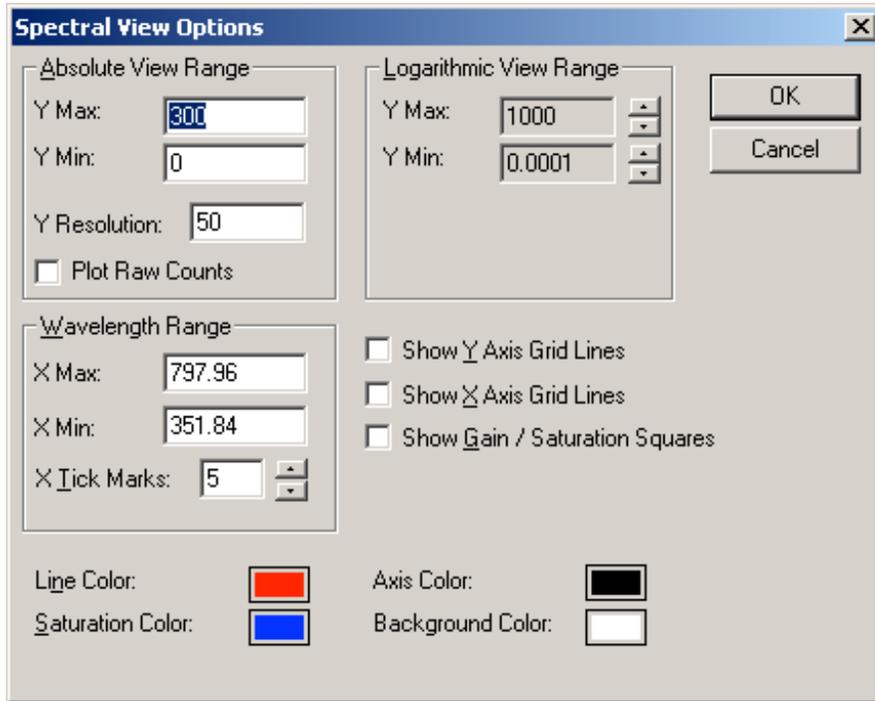
Figure 19

These squares will appear at each point on the spectra representing an optical sensor value. If the sensor's Fit type is OPTIC1 (defined in the Instrument file(s) for the instrument), then there are two gain ranges that the sensor could be in. If the sensor is in high gain, the squares appear as boxes in the same color as the line. If the sensor is in low gain, or if the Fit Type is OPTIC2 or OPTIC3, the boxes will appear the same as high gain, except the boxes will be one solid color. If the sensor is saturated, the square will be a solid box, but the color will be the Saturation color. The **Line Color**, **Saturation Color**, **Axis Color** and **Background Color** can each be modified by clicking on their adjacent color box.

30.3   Instrument Package Time Series View

The Time Series View shows one or more plots of ancillary and/or sensor data (Y axis) versus time (X axis). The maximum number of plots that can be displayed in real time at once is five.

When the Time Series View is first opened the Time Series Options dialog box is automatically displayed. The Time Series View must be configured using the Time Series View Options dialog box before any plots can be displayed. The Time Series View has a context menu that appears by right-clicking the mouse on the Time Series View's window.

Once the Time Series View's options have been specified the plotting of the selected ancillary and/or data values is started by selecting "**Start Plotting**" from the context menu. Selecting this option also has the effect of erasing all existing plots before starting to plot the currently configured plots. Updating of the plots with new data can be stopped at any time by selecting "**Finish Plotting**" from the context menu. Time Series plotting is also started when the "**Start Logging**" command is used and stopped when the "**Stop Logging**" command is used
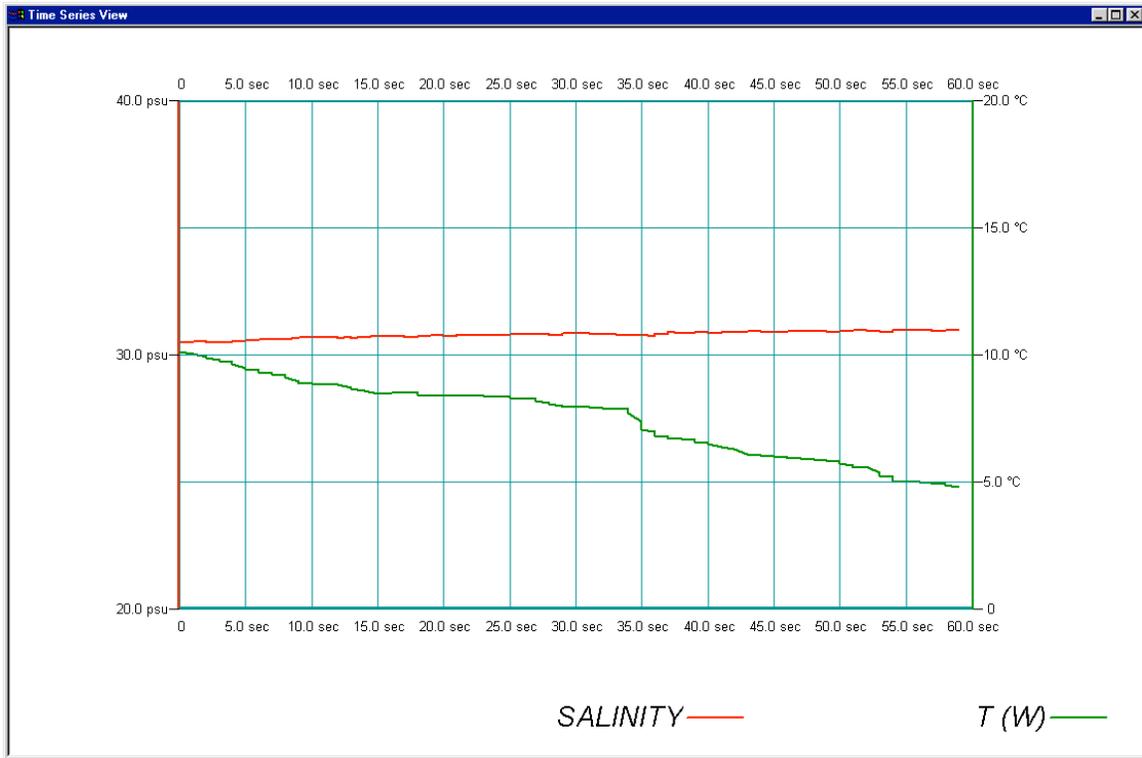
Figure 20

Selecting "Properties…" from the context menu displays the Time Series View Options dialog box.

30.3.1 Time Series View Options

This dialog box allows you to change some properties of the Time Series View. The Time property appears at the top of the dialog. The unit for time (second) is displayed here and the spacing between the grid lines on the X axis can be specified using the "**Resolution**" field.

The tabbed pane is used to specify the Y axis ancillary and/or sensor values to be plotted versus time. The first tabbed pane is for the derived ancillary value that originate from the Instrument Package's Ancillary View. Each of the other tabbed panes is for an instrument that belongs to the Instrument Package. There are five rows on each tabbed pane to allow the selection of up to a maximum of five plots from any one pane. The fields in each row are described below:

- "**Plot**" field is used to select this ancillary or sensor data for plotting.
- "**Data Name**" field is used to select the name of the ancillary or sensor data to plot.
- "**Units**" field is used to display the unit for the selected ancillary or sensor data.
- "**Min**" field is used to specify the Y-axis range's initial minimum value.
- "**Max**" field is used to specify the Y-axis range's initial maximum value.
- "**Resolution**" field is used to specify the spacing between the grid lines on the Y-axis.
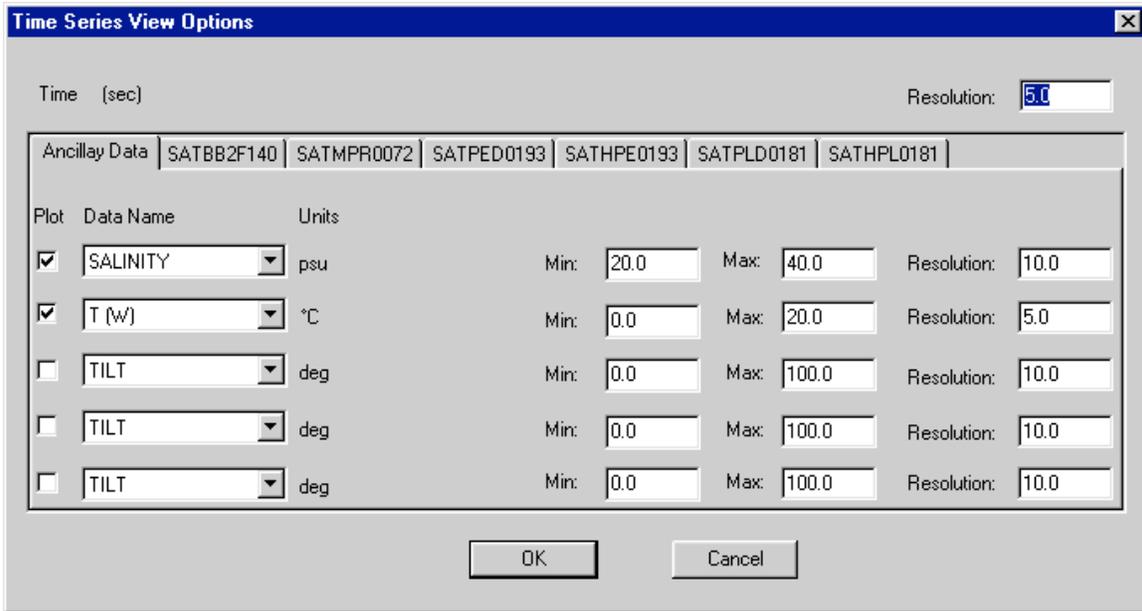
Figure 21

30.4   Instrument Package Depth Profile View

The Depth Profile View is only provided when depth can be derived from an Instrument sensor that is part of the Instrument Package. The Depth Profile View shows one or more plots of ancillary and/or sensor data (X axis) versus depth (Y axis). The maximum number of plots that can be displayed in real time at once is five.

When the Depth Profile View is first opened the Depth Profile Options dialog box is automatically displayed. The Depth Profile View must be configured using the Depth Profile View Options dialog box before any plots can be displayed. The Depth Profile View has a context menu that appears by right-clicking the mouse on the Depth Profile View's window.

Once the Depth Profile View's options have been specified the plotting of the selected ancillary and/or data values is started by selecting "**Start Plotting**" from the context menu. Selecting this option also has the effect of erasing all existing plots before starting to plot the currently configured plots. Updating of the plots with new data can be stopped at any time by selecting "**Finish Plotting**" from the context menu. Depth Profile plotting is also started when the "**Start Logging**" command is used and stopped when the "**Stop Logging**" command is used

Figure 22

Selecting "Properties..." from the context menu displays the Depth Profile View Options dialog box.

30.4.1 Depth Profile View Options

This dialog box allows you to change some properties of the Depth Profile View. The Depth properties appear at the top of the dialog. The unit for depth is displayed here and the initial range of depth values that can be plotted can be specified using the "**Min**" and "**Max**" fields. The spacing between the grid lines on the Y axis can be specified using the "**Resolution**" field.

The tabbed pane is used to specify the X axis ancillary and/or sensor values to be plotted versus depth. The first tabbed pane is for the derived ancillary value that originate from the Instrument Package's Ancillary View. Each of the other tabbed panes is for an instrument that belongs to the Instrument Package. There are five rows on each tabbed pane to allow the selection of up to a maximum of five plots from any one pane. The fields in each row are described below:

- "**Plot**" field is used to select this ancillary or sensor data for plotting.
- "**Data Name**" field is used to select the name of the ancillary or sensor data to plot.
- "**Units**" field is used to display the unit for the selected ancillary or sensor data.
- "**Log Scale**" field is used to select either a logarithmic or linear scale on the X-axis.
- "**Min**" field is used to specify the X-axis range's initial minimum value.
- "**Max**" field is used to specify the X-axis range's initial maximum value.
- "**Resolution**" field is used to specify the spacing between the grid lines on the X-axis.
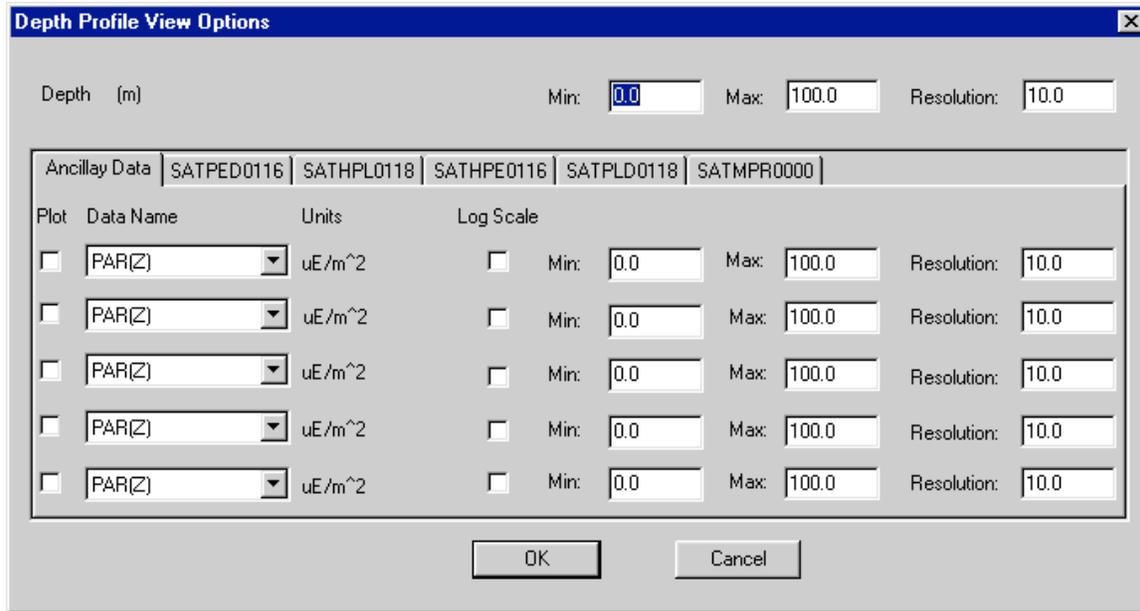
Figure 23

31.0   Instrument Views

Instrument Views can be accessed from an Instrument Control Panel or from an Instrument's View List dialog box. *SatView* saves the window position and state information for instrument views in session files. If you have enabled the **Auto Open Session Views** option in the Instrument Properties dialog box, the instrument's views will be restored to their saved configuration when a session file is opened. You can also cause the saved instrument views to open with the **Open Views** context menu item when you right click on an instrument in the Instrument Package Panel.

Instrument views are separate windows from *SatView's* main application window that float freely on your Windows desktop. An instrument view uses the Help system in a different way from dialog boxes. The only way to access help in an instrument view is to press the **F1** key, which will display the associated help topic.

Each view is responsible for presenting you with specific sensor information in a specific format. Some views may display the same sensor information, but the presentation is different. These views are helpful in determining what an instrument's sensors are reading before and during the logging of instrument *telemetry*. Each instrument in *SatView* could have any number of these views, depending on the types of sensors defined in the *Instrument file(s)*.

The following is a list of SatView's available instrument views. Each instrument in SatView could have any number of these views, depending on the types of sensors defined in the Instrument file(s). The instrument's view list is determined during instrument initialization.

- Ancillary View

- Optical View

- Spectral View

- Weather Station

- GPS Station

31.1   Instrument Ancillary View

The Ancillary View can be used to view all non-optical (ancillary) sensor information for an instrument. See the instrument views topic for information on how to access this view.

There are two display types for this window. The first is the "**Data**" display. This is the default display indicated by the radio buttons at the top left of the window. This will show some calculated information based on available non-optical sensors specific to the instrument such as TILT, PAR(0+) and PAR(Z).
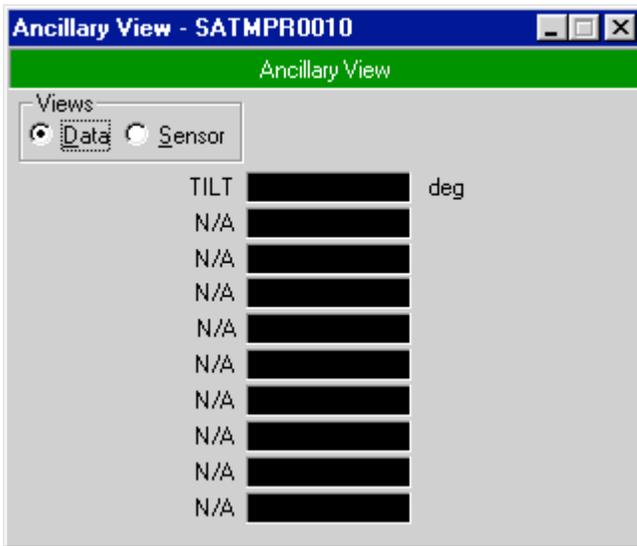

Figure 24

You can also use the Ancillary Data Alarms dialog box to specify Warning and Alarm ranges for each "**Data**" display field. You can access this dialog by double clicking on the desired field (value).

The "**Sensor**" display can be selected by selecting the "**Sensor**" radio button at the top left of the screen. These displays can be toggled back and forth by selecting these radio buttons. This display simply shows all information from non-optical sensors in this instrument. This display is also good for diagnostic purposes. When using this display, there are three ways to view the sensor information. These view types can be toggled using the button to the right of "**Sensors**". The first, and default method, is to show the physical (or calibrated) value of each sensor. The button should read "**Calibrated Values**". The next display, labeled "**Raw Counts**", shows the uncalibrated sensor values. This is usually raw A/D counts and it is not fitted to a physical value. Press the button again to show this same information in hexadecimal format. The button will now display "**Raw Counts (Hex)**".
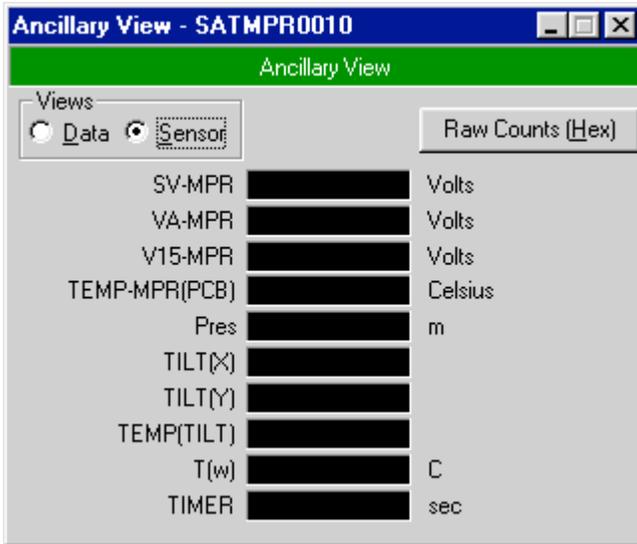
Figure 25

If for some reason SatView is unable to determine a sensor's value, an error string will be displayed instead.

31.2   Instrument Optical View

The Optical View shows a table of values for an optical sensor grouping and their corresponding wavelengths. The sensor grouping (or type of optical measurement) is indicated in the blue panel below the view's title bar. This information is defined in the Instrument file(s) for the instrument. See the instrument views topic for information on how to access this view.
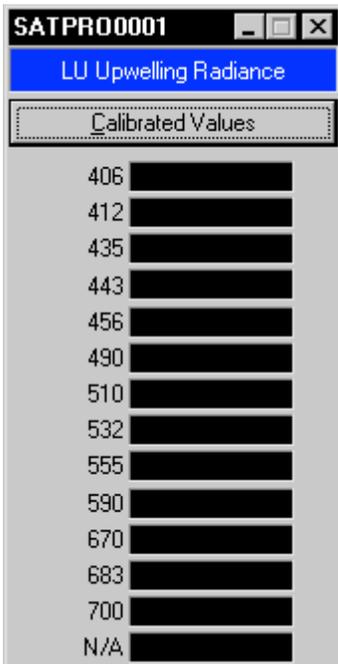

Figure 26

The default display shows "**Calibrated Values**". All field values in the table are shown as physical (or calibrated) values similar to the Ancillary View. These values are in the standard units defined for the optical grouping. If there are more than 14 optical sensors to be displayed, a scroll bar will appear on the right side of the display.

The view for each set of optical sensors can also be changed to "**Raw Counts**" and "**Raw Counts (Hex)**"similar to the Ancillary View, using the button below the title bar. These displays show uncalibrated data, so the values are not fitted to a physical value. If the Fit Type for the optical sensor grouping is OPTIC1, you can also view the gain range used for each sensor. Set the view type to "**Raw Counts (Hex)**" and the gain range bits (normally embedded in the sample data) will be separated off to the right.

For all view types, if an optical channel becomes saturated, the display box for that channel will invert to show black text on a red background.

If for some reason SatView is unable to determine a sensor's value, an error string will be displayed instead.

31.3   Instrument Spectral View

The Spectral View shows a spectrum for an optical sensor grouping. The sensor grouping (or type of optical measurement) is indicated in the red panel below the view's title bar. This panel also indicates the type of spectrum displayed. All spectrum types show sensor values in their physical (calibrated) format. These values are in the standard units defined for the optical grouping. This information is defined in the Instrument file(s) for the instrument. See the instrument views topic for information on how to access this view.
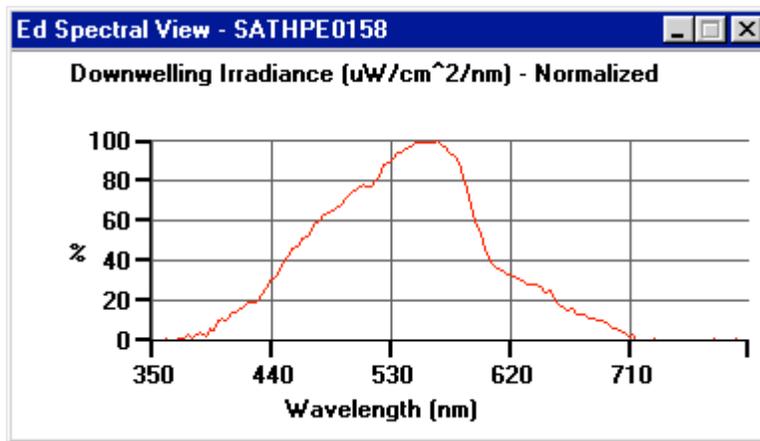

Figure 27

The default spectrum is "**Normalized**". This display normalizes all the sensor data to the maximum value in this set of optical sensors. If you right click anywhere inside of this window, a small context menu will appear. This menu allows the user to change the view type and their settings. By selecting "**Absolute**" in this menu, the display will change to show the absolute values of the sensors. The last spectrum type available is "**Logarithmic**" which is simialr to "**Absolute**" except the Y axis is a logarithmic scale.

Selecting "**Properties...**" from the context menu displays the Spectral View Options dialog box.

31.4   Weather Station View

The Weather Station View is only available from a **SATMET Data** instrument (see the Add New Instrument Package or Instrument dialog box for more information on this instrument type). See the instrument views topic for information on how to access this view.
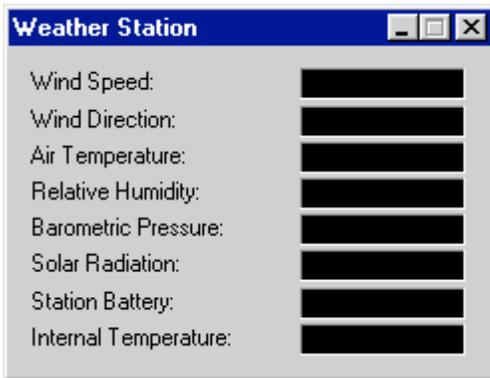

Figure 28

This display simply shows relevant weather and ancillary information for use with SatView. If for some reason SatView is unable to determine a sensor's value, an error string will be displayed instead.

31.5   GPS Station View

The GPS Station View is only available from a **GPS Data** instrument (see the Add New Instrument Package or Instrument dialog box for more information on this instrument type). See the instrument views topic for information on how to access this view.
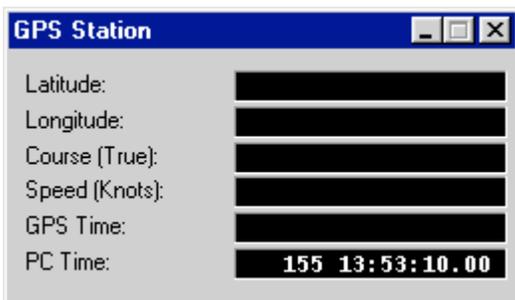

Figure 29

The **GPS Time** and **PC Time** give two different time measurements. The **GPS Time** field shows the time in UTC (Coordinated Universal Time) from the **GPS Data** instrument. The **PC Time** field gives local time from the computer. The format for each field is as follows:

DDD HH:MM:SS.00

The "DDD" section represents the Julian Day, where January 1 is day 001. The "HH:MM:SS.00" section represents the time of day in hours, minutes, and seconds respectively. Millisecond resolution is not given, so the last part of this section always reads "00".

If for some reason SatView is unable to determine a sensor's value, an error string will be displayed instead.

32.0   Automating data collection with task scheduling software

Having a dedicated operator handle routine data collection may not be desirable for some long term applications. These applications can benefit from automating periodic data collection by using standard task scheduling software.

A separate program such as Microsoft® Task Scheduler is needed to automate the recording of *Log files* with *SatView*. These programs can be set up to run *SatView* according to a desired logging schedule. *SatView* does not normally start logging data on its own, so two special option flags are needed on the command line. The function and the purpose of these option flags should be clear from the example command line below:

> satview sessionfile /LogNow /ExitIfDone

All command line parameters are case insensitive and the order of command line parameters after the application name is not critical. The **sessionfile** parameter represents the full or relative path of the session file to be loaded on application startup. A session file is needed to specify the information necessary for retrieving any instrument *telemetry* for the *Log file*. This parameter is not necessary if the **Load session file on startup** property of the SatView Properties dialog box has been enabled.

The **LogNow** and **ExitIfDone** switches are used for *Log file* scheduling. Each switch is delimited by either a forward-slash '**/**' or hyphen '**-**'. The usage of each switch is explained below:

LogNow Causes *SatView* to issue the Start Logging command immediately after the application has completed loading the session file. Because no user is assumed available to name the *Log file*, *SatView* will override the **File Naming Mode** of the Logging Options dialog box to TIME STAMP. This assures that no two *Log file* names will be the same.

ExitIfDone   An optional switch that is ignored if the **LogNow** switch is not specified. This causes *SatView* to close after the *Log file* has been completed. **ExitIfDone** will only work if a **Log Duration** is specified in the Logging Options dialog box. However, if a **Log Interval** is specified, this switch will be ineffective. If you issue a Stop Logging command before the *Log file* has completed, **ExitIfDone** will be canceled.