1 INTRODUCING THE CGIS SOFTWARE

The COBE Guest Investigator Support (CGIS) software provides access to COBE data and to the tools written specifically for their analysis. Access to the popular packages IRAF and SAOimage is also provided. In addition, users can use the CGIS software to browse the online documentation.

Figure 1.1 shows a schematic view of how these packages are connected. This guide shows you how to use the capabilities of each package to successfully extract and reduce COBE data.

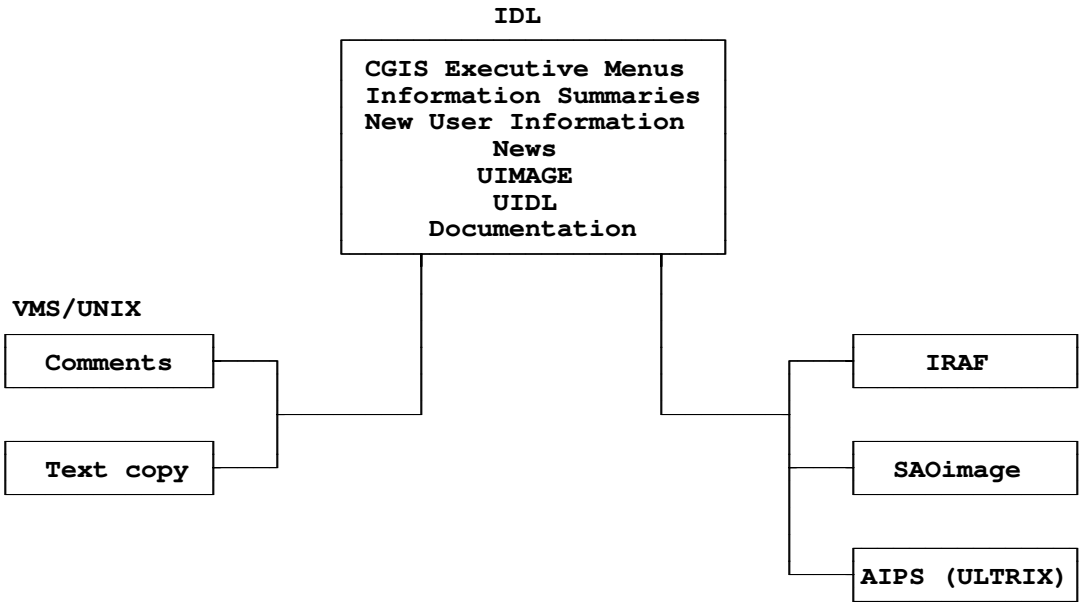

Figure 1.1 Schematic view showing the connection between the packages available in CGIS.

1.1 ORGANIZATION OF THIS USER'S GUIDE

This document is intended as a guide for anyone using the CGIS software. The remainder of this chapter will define some of the conventions used in this guide and tell you where to find more help.

* Chapter 2 explains how to start up the CGIS software and explores the capabilities of the CGIS Executive.

* Chapter 3 is a tutorial which introduces users to working with the data and software immediately.

* Chapter 4 discusses data access and analysis using the menu-driven package UIMAGE.

* Chapter 5 deals with data analysis using UIDL from the command line.

* Chapter 6 briefly discusses the other packages available via the CGIS Executive, namely IRAF, SAOimage and AIPS.

* Chapter 7 is the troubleshooting section of the guide.

* Appendix A presents a UIMAGE menu tree and the UIMAGE help files.

* Appendix B lists short descriptions of each analysis routine available in UIDL.

* Appendix C gives the **`Viewing Text Screens`** help file for VT240 terminals.

* Appendix D demonstrates the UIMAGE software by presenting some figures produced with it.

* Appendix E is a listing of the FITS headers from the COBE Project Data Sets.

* Appendix F lists short descriptions of IDL User Library routines.

* Appendix G contains four diagrams of the COBE skycube, two with coordinate grid overlays and two showing the Quadtree pixelization scheme.

1.2 CONVENTIONS USED IN THIS GUIDE

There are several typographical conventions in this document that you should know in order to make the best use of this guide:

* The `RETURN` or `ENTER` key is indicated by `<CR>`.

* The left, center, and right workstation mouse buttons are `<MB1>`, `<MB2>`, and `<MB3>`, respectively, unless otherwise defined by the user.

* The `CONTROL` key is shown by a carat: `^`. The user must keep the control key depressed while typing the following key stroke.

* The names of **`menu items`** are in fixed-width (typewriter) bold font.

* Examples show the **`computer display`** in fixed-width bold font, with the `USER'S ENTRIES` in plain fixed-width font. Note that although the user's entries are usually shown in upper case letters, VMS is *not* case sensitive; capitals letters are used for readability. The users are warned in the text where letter case is an issue (*i.e.*, UNIX and IRAF).

* *Non-literal user input* is shown in lower case italics.

You will note as you move the cursor down the menu (either via the mouse or the arrow keys on a text terminal) that the entire line of the menu is highlighted. We will refer to this highlighted line as a *bounce bar*.

1.3 WHERE TO FIND MORE HELP

The **`CGIS Main Menu`** holds both **`News`** of the latest CGIS software developments and a **`HELP`** option which contains a summary of the branches of the CGIS Executive and information on moving around in the CGIS Executive. The **`Documentation`** branch houses the online versions of the *COBE Guest Investigator Handbook*, this *User's Guide*, the *Proposer Information Package*, the *COBE Software Catalog*, and the *CDAC Orientation Handbook*. There are also short information summaries on terminals, printers, *etc.*, under the heading **`CDAC Peripheral Hardware`**. Network addresses for the COBECL cluster and similar topics are found under

Remote Access Information. Note that much of the information in the summaries does not apply to the quest investigator program

Each of the subsystems listed in Figure 1.1 (UIMAGE, IDL, IRAF, *etc.*) provides its own online help information. Access to this information will be discussed in the appropriate sections below.

In addition to this guide, you can obtain a printed copy of any of the documents listed above from the Documentation Support Contact (see the phone list in section 7.2 to find this person). The document summary page at the beginning of this guide gives the scope and audience of each.

1.4 WARNINGS TO WORKSTATION USERS

Workstation users should be aware of two important characteristics of UIMAGE and UIDL. Since UIMAGE runs under IDL, both UIMAGE and UIDL image windows will be referred to in the next two sections as IDL display windows.

1.4.1 Deleting Windows

It is possible to close an IDL display window on VAXstations and DECstations by clicking <MB1> on the dash (-) in the upper left hand corner of the IDL window and then choosing **Close**. This does NOT delete the data object that was displayed in the window from UIMAGE's memory, so this method of closing a window is generally not recommended.

To delete an object from the memory in UIMAGE, use the **Remove an object** option from the **Data I/O and Management** menu (see section 4.4.2.1). To delete a variable from UIDL, use the **DELVAR** command.

If you are using UIMAGE and would like to keep an object in memory but remove it from the display, use the **Display/hide an object** from the **Data I/O and Management** menu (see section 4.4.2.3). To remove a display window while working in UIDL, use the **WDELETE** command. Both of these operations maintain the data object or variable in memory while removing it from the display.

Users may also make windows into icons by clicking <MB1> in the small box labeled with a dot and located in the upper right hand corner of the IDL display window. This retains the data in

memory while clearing most of the workspace. To resurrect the window, double click on the icon.

1.4.2 Resizing Windows

To resize a window on a VAXstation or DECstation, one can press and hold <MB1> on a corner of the window, drag the window to its new size, and release the mouse button. Users who attempt to resize an IDL image display window in this way will be surprised to see that the image has disappeared. These windows must be resized in a different manner.

When working in UIMAGE, you must use the **Resize all display windows** option from the **Display Manipulations** menu (see section 4.4.2.10). To resize a window in UIDL, use the **WINDOW** command along with its input parameters **XSIZE** and **YSIZE** to create the new window (see section 5.7.1).

If you mistakenly resize a window, use **Refresh an image** (see section 4.4.2.5) in UIMAGE to re-display the data or issue a **TV** or **TVSCL** command (or the command you used to display the image initially) to re-display your image.