AIPSLETTER

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A newsletter for users of the NRAO
Astronomical Image Processing System

Written by a cast of *AIPS*

Edited by
Eric W. Greisen, Glen Langston
National Radio Astronomy Observatory
520 Edgemont Road, Charlottesville, VA 22903–2475
804–296–0211, x209; TWX 910–997–0174; Fax 804–296–0278
aipsmail@nrao.edu
6654::aipsmail or ...!uunet!nrao.edu!aipsmail

15APR92 Available, but Support for VMS and FPS Questioned

The 15APR92 version of *AIPS* is now available. However, the last computer running the VMS operating system in the AOC in Socorro was unplugged in April, while NRAO Charlottesville's old VAX has been limping along without a service contract for some time now, and threatens to die at any moment. In other words, we have been unable to test the 15APR92 version either on a VMS operating system or on an FPS array processor. Given all the changes described later in this AIPSLETTER, it is almost certain that there will be significant problems executing the 15APR92 version of *AIPS* on a VMS machine. In addition, of course, we can no longer write a VMS-BACKUP-format release tape.

We know that this is an unfortunate situation. But we do not know how unfortunate. We *must* hear from you as soon as possible if you expect to require that *AIPS* continue to run on FPS array processors and/or under the VMS operating system. If we have little or no response, then we will continue as we are, paying unreliable lip service to VMS and abandoning array processors. If there is overwhelming response, then NRAO will have to consider buying — or accepting a donation of — a small, modern VMS computer. If there is a modest response, then we will consider cooperative arrangements with some VMS-based institution to develop and maintain the necessary VMSisms.

VMS fans, the ball is now in your court — please send us your thoughts on this matter using any of the addresses in the masthead.

Along similar lines, system managers should be aware that 15APR92 *AIPS* supports Sun computers as Berkeley operating systems. We are examining Sun's shift to Bell UNIX-based operating systems, but do *not* support them in the current release.

Personnel

Dean Schlemmer has left the *AIPS* group and NRAO to work at the University of Virginia.

Chris Flatters has returned to Socorro to develop software for orbiting VLBI observations.

Gareth Hunt will (mostly) be leaving the *AIPS* group to become project manager for the *AIPS*++ project.

Brian Glendenning will (mostly) be leaving the *AIPS* group to become project computing scientist for the *AIPS*++ project.

A New Face for *AIPS*

When *AIPS* was first designed, NRAO was considered to be advanced to have three computers — a ModComp, a VAX, and an IBM mainframe — in the same building. Primitive file transfers were possible between the first two of these, but "sneaker-net" was still the most common means of file and data transfer. Things have changed! At this writing, there are 57 computers running *AIPS* in the AOC in Socorro and an additional 28 in Charlottesville. For all the obvious maintenance, reliability, disk conservation, and user convenience reasons, these computers should share their resources in a relatively transparent way without degrading their performance. `15APR92` *AIPS* is the first "network-wise" release and is based upon principles pioneered by Mark Calabretta at the Australia Telescope.

Network "wisdom" required changes to the way *AIPS* is installed, to the directory structure, and to the way the `AIPS` program is started. The main points of interest are summarized here. More details will be found in the *AIPS Unix Installation Guide* and the *AIPS Unix Porting Reference Manual* that will accompany the `15APR92` release. For users, the most visible changes are

- `15APR92` *AIPS* includes a new server process which provides graphics display capability for workstations. It is called `TEKSERVER` and provides a fast, Tektronix-emulation window for *AIPS* graphics tasks such as `TKPL` and `XGAUS`. It plots lines and characters much faster than do the TV server programs.
- Users may specify, when they start `AIPS`, which computers are to provide the data areas. One simply adds `da=`*host1*`,`*host2*`,`... to the command line to have *host1*, *host2*, ... *AIPS* data areas included along with those of any default hosts. This has the disadvantage that `INDISK`s and `OUTDISK`s can change if you change your selection of disk hosts. However, it has the advantage that you do not waste time accessing and — usually accidentally — writing data areas on computers you do not desire. *AIPS* disk reservation and disk-dependent `TIMDEST` limits are supported through the full set of available data areas.
- Users may specify, when they start `AIPS`, which device or workstation is to provide the display services. One adds `tv=[`*tvdisp*`][:][`*tvhost*`]` where *tvdisp* is the device/workstation on which the displays appear and *tvhost* is the computer that will run the server processes for these displays. Both of these default to your workstation, even if you are `rlogin`'d to some other computer. The full functionality of this option is available only under X-Windows, but the script will run the `SSS` server when *tvhost* is running SunView. There is only one image catalog file for each potential display machine, and the correct one is used no matter what machine is running your `AIPS` program.
- `15APR92` *AIPS* contains a full implementation of remote tape handling (see section below). Users may specify on the `AIPS` command line a list of computers which may be used to provide remote tape services. Adding `tp=`*host1*`,`*host2*`,`... to the command line insures that the remote tape daemons have been started on *host1*, *host2*, ... in case they had not been started earlier.
- If more than one printer device is available, the `AIPS` startup script provides a menu for easy selection. Adding `pr=`*n*, where *n* is the *AIPS*-assigned number of the desired device avoids repeated looks at the full menu.

For *AIPS* Managers, the significant changes are

- The *AIPS* environment is configured via plain-text files to list the disks with time-destroy limits and exclusive user lists (`$NET0/NETSP`), to list the required (disk 1 or more) and optional disk areas (`$NET0/DADEVS.LIST`), to list host names, architectures, sites, and descriptions (`$AIPS_ROOT/HOSTS.LIST`), and to list the system-parameter files (`$NET0/SPLIST`). The program `SETSP` sets parameters in the (numerous) `SP` files, while procedures `SYSETUP` and `DASETUP` set up the basic control files (`AC`, `GR`, etc.) and data areas, respectively.
- The directory tree has been changed to support multiple architectures and multiple hosts. There are architecture-specific areas for binaries, memory files, libraries, and a new `PREP` area for intermediate results of compilation and linking.
- The installation process (finally) contains an `INSTEP1` procedure. It will automate — for the commonly used *AIPS* architectures — most of the process of setting up and preparing the *AIPS* system for re-compilation.

- The 15APR92 version of LIBR and LINK in $SYSSUN contain support for SUN shared libraries. Dynamic linking can reduce the size of the binary load modules from 300 to about 80 Megabytes. Under this option, COMLNK often produces alarming messages about unresolved external references, but it produces working executables anyway. Programs running while their shared libraries are rebuilt have had a nasty habit of dying abruptly, however, and all tasks using the APLNOT library require over 8 Mbytes of swap space whether they use the few memory-hungry subroutines or not.

Workstation TV Displays

The *AIPS* package can use the MIT X-Windows System for grey-scale display on workstation computers through a program called the television server. XAS is the most portable of the *AIPS* television servers since it uses vanilla X11 services. This means that XAS should function with all X-Window System managers, including olwm (OpenLook), olvwm, twm, tvtwm, and others. For 15APR92, XAS was rewritten to use the same Y and Z routines as the XVSS (OpenLook) and SSS (SunView) servers. It was given 2 grey-scale memory planes and 4 graphics overlay planes with a much wider dynamic range for the images. All color, zoom, scroll, cursor, and window resize/move functions are now fully and correctly supported. XAS now allows (via the .Xdefaults file) user-defined cursor shape, graphics and cursor colors, and initial geometries. All three servers were given a new function to tell the client their basic parameters. This allows TVINIT (subroutine YINIT) to test the parameters of the TV servers and correct the TV parameter file. Subroutine YWINDO will also do this on TV open if a window-size error occurs. This allows different users to use different servers on same the host (at different times) without requiring an *AIPS* Manager to reset the TV parameter file.

Remote Tapes

An *AIPS*-like solution to provide remote tape services was implemented in 15APR92. A daemon program, TPMON, was written to receive, effectively, tape Z-routine calls over some network socket and then execute them on the local host. The new *AIPS* procedures automatically see that appropriate TPMONs are running locally and will also start them on remote machines as specified by the user. TPMON1 handles pseudo-tape disk files and hence is needed even on tape-less computers. TPMON2, TPMON3, ..., TPMONn handle true tape devices 1, 2, ..., $(n-1)$, respectively. For real tape devices, the MOUNT command is now required and the user may specify a remote computer and remote tape drive number at that time. For pseudo-tape disk files, the user specifies INFILE or OUTFILE with the grammar:

INFILE = '<*host_name*>::<*logical_name*>:<*file_name*>'

where <*logical_name*> must be an environment variable known to the remote TPMON, *i.e.*, FITS or some other generic variable such as HOME (note that both of these are on the remote machine). User-defined variables will not be known to the remote TPMON and, hence, cannot be used. Tapes must also be DISMOUNTed from the AIPS program either explicitly or automatically in the EXIT. Even the abort handler will attempt dismounts from AIPS!

Memory Files

The structure of *AIPS* MEmory files was also revised in 15APR92. Space for POPS procedures and for temporary and permanent variables was increased:

950	→	1450 words of temporary literal storage
14760	→	21928 words of program storage
4173	→	6221 words of variable storage
4096	→	10240 words of source (text) storage.

The work area for text is now kept in core to save disk. This has the side effect of speeding *POPS* compilations enormously. The "virgin" *POPS* vocabulary (RESTORE 0) area is now in a release-dependent, *POPS*-number-independent file, while the user temporary storage area (STORE 1 / RESTORE 1) area is kept in host-dependent, *POPS*-number-dependent files. Storage areas 2 and 3 have been eliminated since they are seldom used and the files are now large (150 Kbytes per *POPS* number per host per storage area).

Additional Improvements in 15APR92

Other corrections and improvements made to *AIPS* for the `15APR92` release include:

AFILE Introduced new task to manipulate text A-files produced by the Haystack VLBI `FRNGE` program.

AHIST Developed new task to produce an "adaptive" (rolling window) histogram-equalized image.

AIPS Corrected conversions between celestial and galactic coordinates to account correctly for epoch and created a new `AIPS` help file which is also available as a UNIX `man` page.

BPASS Corrected and improved the handling of multiple polarizations with large numbers of IFs/channels and the handling of changes in reference antenna (required for interpolating in time).

CALIB Raised buffer sizes which were limiting self-calibration models to the first 1000 clean components.

CHNDAT Corrected the handling of the frequency increment in a large number of calibration and other *uv*-data routines.

CLCOR Changed opcode meanings to help users avoid a common input error for polarization-angle corrections.

CLIP Improved to work on compressed *uv*-data.

CVEL Rewrote to handle multi-source files more simply and to clean up numerous other details.

DDT Modified for running the huge test and added a whole new spectral-line test called `VLAL`.

FILLM Corrected (u, v, w) to make them refer to the reference frequency rather than the frequency of the current scan, changed `VLAOBS` default to mean all programs matching the other adverbs, corrected date in appended files, weights, default integration time, and first entry in CL tables.

FITLD Wrote new task to load any number of FITS images and *uv*-data sets from tape.

FITTP Dropped the conversion of FQ to CH tables and the warning about binary extension files, corrected limits on the number of columns in tables, and added support for new VLBA binary tables.

FRING Corrected least-squares fitting, the use of flagged or uninitialised data, and the optional display of the results.

HOLGR Submitted from the AT a new task to process antenna holography data.

IMLIN Added new task to fit the continuum with a polynomial baseline and subtract it from spectral-line images.

KNTR Added the option to plot the half-power beam contour.

LISTR Improved the scan listing format and corrected the calculation of the matrix average and RMS of phase.

LWPLA Made the Postscript output more readable so that the files may be edited using public domain tools and corrected handling of long buffers of grey pixels and characters.

MAPIT Changed automatic imaging and self-calibration routines to allow more user input, an OLAF-like interactive mode, and an initial self-calibration model.

MK3IN Added the capability to select scans based on the A-file text information, corrected the sign of the phases of the phase cals, added tables to contain Haystack `FRNGE` results, and made numerous minor corrections and documentation improvements.

MX Improved the minor cycle cleaning step by including a larger portion of the synthesized beam during the early stages of deconvolution; this mainly helps data with very poor phase calibration.

PHSRF Added new task to reference all channels of a *uv*-data set to the phase and, optionally, amplitude of the average of a set of channels.

SBCOR Installed temporary new task to correct VLBI data that contain mixed MKIII/VLBA baselines.

SN2CL Fixed bugs related to duplicated records and unselected calibrators.

SNCOR Added options to zero fringe rates, to multiply amplitudes, to flag solutions with delays or rates outside specified ranges, and to reference all phases to a single IF.

SNPLT Changed to allow plotting of all IF-dependent variables on the same page and to allow plotting of the SNR/weight column.

SPLIT Corrected error which could cause some data to be written without the bandpass correction.

STARS Added columns to allow 20 different types of star markers, rotations, and labels and changed plot tasks to support them.

TVFLG Rearranged and reworded the menu, speeded handling of graphics channels for workstations, corrected gridding and other errors.

UVCOP Corrected to scale (u, v, w) to new reference frequency when selecting by FQ ID.

UVLIN Added new task to subtract continuum from spectral-line *uv*-data using a linear fit to real and imaginary parts.

UVLSF Submitted new task to subtract a least-squares-fit linear continuum/bandpass from spectral-line *uv*-data, with the option to write a continuum *uv*-data file.

UVSUB Improved to work on compressed *uv*-data.

VBPLT Corrected plotting of VLBI closure-phase models.

XTRAN Corrected handling of negative declinations in finding coordinates from optical images.

ZABORS Fixed a nagging problem in the *AIPS* abort handlers which occasionally caused tasks to hang waiting on message or accounting files.

Communications

The `15APR92` version of *AIPS* is now available via a variety of tape formats including Exabyte, QIC-24 Cartridge, TK50, and 9-track 1600- and 6250-bpi tapes and also via Internet `ftp`. We urge you to obtain the latest version. The *AIPS* group is unable to provide useful support for releases which are now more than a year out of date. In addition, this release supports new capabilities for the VLA and VLBI, has modern, networked support for tapes, displays, etc., and is incompatible in significant ways with previous releases (thereby inhibiting partial installations).

The next planned release of *AIPS* will be as `15APR93`, but a VLBI-oriented `15OCT92` release may also be made. Significant bug fixes will be made available via anonymous `ftp` (see "Patch Distribution" below). This should reduce the total effort required to maintain *AIPS* at NRAO and the user's home institution. The *AIPS* News Letter will be targeted for the 15^{th} of April and October in future, omitting the January and July issues. There are two quick ways to distribute news to the *AIPS* community. The old way — which still works — is to send mail to bananas@nrao.edu for forwarding to all addresses in that exploder. The new way is to post a message with the USENET News group "alt.sci.astro.aips". This news group allows *AIPS* users to discuss methods of radio-astronomical data reduction and provides a forum for discussion of *AIPS* questions, bugs, and features.

System managers should be aware that `15APR92` *AIPS* supports Sun computers as Berkeley operating systems. We are examining Sun's shift to Bell UNIX-based operating systems, but do *not* support them in the current release.

VLBA/VLBI Post-processing Software

VLBI Polarization Calibration

The 15APR92 release of *AIPS* contains the initial version of routines that allow the calibration of polarization sensitive VLBI data. These routines are incorporated into the standard *AIPS* calibration tasks, principally PCAL and SPLIT. However, the details of the calibration procedure differs substantially from those used for VLA data. Optimal procedures have not yet been established so documentation is not well developed. Persons wishing to calibrate VLBI polarization data should contact Bill Cotton (Internet: bcotton@nrao.edu). The software in the 15APR92 release only allows imaging data which has both cross polarized correlations (RL and LR) measured for each visibility. The next release will allow imaging with only RL or LR for sources with weak circular polarization.

VLBI Data Processing Workshop

On March 19, 1992 a small workshop was held in the AOC to discuss the current state of the VLBI software within *AIPS* and the plans for future development. The workshop was an informal one, but lists of suggestions and priorities were developed.

The Workshop started with a presentation by Bill Cotton of the programmer's view of multi-IF VLBI calibration. One of the principal points that Bill made was that display of multi-IF VLBI data is not satisfactory at all, and this area should be an area of active research. The second presentation was by Richard Porcas. He gave a user's view of the current software and pointed out areas that need improvement and development, and also areas where possible pitfalls can occur.

We spent a considerable amount of time discussing ideas for improving the software and the whole VLBI system. A list of the suggestions, arranged by general priority, follows:

Short-term priorities (< 6 months):

- Write a task to generate an HF table (the table that contains the output of the Haystack FRNGE program) from an *AIPS* CL table. The HF table will then be passed to the NASA SOLVE package to facilitate comparison between the *AIPS* and Haystack fringe-fitting tasks and, ultimately, the VLBA and MkIII correlators.
- Encode the integration time of a given visibility spectrum as a random parameter.
- Frequency shift MkIII data by a small amount so as not to lose the information in the channel at 0 MHz (relative). As a side benefit of this change, encode the lower sideband (LSB) and upper sideband (USB) data as separate IFs (in *AIPS* parlance). One advantage of this latter change is that it will obviate the need for the 130 degree difference between USB and LSB for VLBA – non-VLBA baselines.
- Develop a faster, more sophisticated version of IBLED, possibly incorporating table editing.
- Write a task to provide a data summary; *i.e.*, a list of the amount of data per IF per baseline.
- Develop a baseline-by-baseline fringe-fitting task followed by an antenna-based determination of residual rates and delays. This should lead to increased robustness of fringe-fitting, but would not have the signal-to-noise-ratio advantages of full global fringe fitting.
- Encode multi-band delay explicitly inside the SN and CL tables.
- Revamp ANCAL for multi-IF data
- Establish user documentation for various aspects of VLBI software.
- Create an e-mail exploder limited to those interested in VLBI software within the *AIPS* context. (*Eds. note: the AIPS USENET News group "alt.sci.astro.aips" and the bananas e-mail exploder offer less limited, but entirely suitable, mechanisms for this.*)

Longer-range ($\leq$ 2 years) priorities:

- Develop fringe-rate mapping for spectral line data.
- Generate multi-IF displays.
- Improve phase-referencing and Astrometry — John Conway and Tony Beasley will begin this development by attempting to provide geometrical and atmospheric corrections to a modified version of `CLCOR`.

Other suggestions for less essential, but nonetheless useful, developments:

- Read the #SK file in `MK3IN` to determine various parameters of the observation.
- Keep the amplitude of the phase-cal tone. We may need an explicit phase-cal table since the VLBA will have multiple tones per BBC.
- Combine spectral and IF averaging inside `SPLIT`.
- Add a task to estimate the coherence time of the data.
- Write an image editor, *i.e.*, have the ability to place a box on an image and edit the clean components within that box from the CC file. (*Ed. note: this is already available in* `TAFLG`.)
- Allow greater flexibility in using starting models, *e.g.*, allow the use of multi-component models without having to encode them as CC files attached to an image.
- Create the ability to plot a model map in one step.
- Write a task to take the phase difference between two sets of simultaneous VLBI data (*e.g.*, S/X), and to be able to use this to correct for ionospheric refraction or to scale atmospheric refractive effects from one frequency to another.

Patch Distribution

Since $\mathcal{AIPS}$ is now released only annually, we have developed a method of distributing important bug fixes and improvements via *anonymous* `ftp` on the NRAO Cpu `baboon` (192.33.115.103). Documentation about patches to a release is placed in the anonymous-ftp area `pub/aips/`*release-name* and the code is placed in suitable subdirectories below this.

Reports of significant bugs in `15APR91` $\mathcal{AIPS}$ have been relatively few; however, the documentation file `pub/aips/15APR91/README.15APR91` mentions the following items:

CALIB Corrected limit in self-calibration to allow > 1000 clean components for the source model.

CLIP Increased buffer size to allow clipping > 256 channels of spectral line *uv*-data.

FILLM Fixed calculation of (u, v, w) coordinates to be relative to a fixed reference frequency and made other less significant changes.

HORUS Fixed errors for uniform-weighted spectral-line images $\geq$ 1024x1024. Also fixed `MX`.

MAPIT Improved logic and interactivity of the procedures for automatic imaging and self-calibration.

VTESS Patched to allow it to handle 4096x4096-pixel images.

INSTEP4 Corrected procedure to compile and link all programs in the `AIPNOT` directory.

SunOS Described a work-around to a common bug in SunOS which causes `f77` to compile `DATA` statements incorrectly.

SunOS Revised `SYSSUN` procedures to support dynamic (shared) libraries for $\mathcal{AIPS}$ executables.

Note that we do not revise the original `15APR91` tape for these patches. No matter when you received your `15APR91` tape, you must fetch and install these patches if you require them. There are three documentation files, `README.15APR91`, `README_TOO.IBMRS6000`, and `README_TOO.SPARC`. A sample `ftp` session, with *italic font* for commands typed by the user, is given below.

```
% ftp 192.33.115.103                                    (if baboon.cv.nrao.edu doesn't work)
Connected to 192.33.115.103.
220 baboon FTP server (SunOS 4.1) ready.
Name (192.33.115.103:glangsto):  anonymous                             (any one can log in)
331 Guest login ok, send ident as password.
Password:   glangsto@nrao.edu                                    (use your e-mail address)
230 Guest login ok, access restrictions apply.
ftp> cd pub/aips/15APR91                                 (go to the directory with patches)
250 CWD command successful.
ftp> ls                                                      (list the directory contents)
200 PORT command successful.
150 ASCII data connection for /bin/ls (192.33.115.103,3154) (0 bytes).
HELP
Q
QY
README.15APR91
226 ASCII Transfer complete.
42 bytes received in 0.0064 seconds (6.4 Kbytes/s)
ftp> get README.15APR91                                          (get the instruction file)
200 PORT command successful.
150 ASCII data connection for README.15APR91 (192.33.115.103,3155) (4741 bytes).
ftp> cd Q/PGM/NOTST                                   (go to the directory with CALIB.FOR)
250 CWD command successful.
ftp> ls                                                                (list the contents)
200 PORT command successful.
150 ASCII data connection for /bin/ls (192.33.115.103,3164) (0 bytes).
CALIB.FOR
226 ASCII Transfer complete.
11 bytes received in 0.03 seconds (0.35 Kbytes/s)
ftp> get CALIB.FOR                                                        (get the program)
200 PORT command successful.
150 ASCII data connection for CALIB.FOR (192.33.115.103,3165) (102399 bytes).
226 ASCII Transfer complete.
local:  CALIB.FOR remote:  CALIB.FOR
104866 bytes received in 1.1 seconds (90 Kbytes/s)
ftp> quit                                                                (exit the program)
221 Goodbye.
```

Installing Patches

The *AIPS* files must be placed in the correct *AIPS* source areas, compiled, and linked for the fixes to take effect. These steps should only be done by the local *AIPS* Manager.

1. Set the *AIPS* environment variables (`$CDTST` or `CDNEW`) before you can compile and link.

2. Move the old version of the software to be changed to a backup area.

3. Move the new version to the replacement position.

4. Compile and link the software (`COMRPL` and `COMLNK`).

These steps are summarized in the `README.15APR91` file.

A sample session for `CALIB` is listed below:

% $CDTST	(Create the *AIPS* environment)
% mv $QPGNOT/CALIB.FOR $QPGNOT/CALIB.15APR91	(make the backup)
% mv CALIB.FOR $QPGNOT	(move the patch)
% COMLNK $QPGNOT/CALIB.FOR	(Compile and link the patch)

If no errors are logged, the patch is complete. Do the others.

As bugs to `15APR92` are found, the patches will be placed in the `ftp` area for `15APR92`.

Latest *AIPS* Memos

Below is a list of the latest *AIPS* Memos.

MEMO	DATE	TITLE and AUTHOR
69	91/03/28	The 1990 *AIPS* Site Directory. Alan Bridle and Joanne Nance, NRAO
70	91/04/24	The 1990 *AIPS* Site Survey. Alan Bridle and Joanne Nance, NRAO
71	91/04/08	A Comparison of DDT results IBM RS/6000 and Convex C-1. Patrick P. Murphy, NRAO
*72	91/05/07	*AIPS* Imaging and Self-Calibration: MAPIT Glen Langston, NRAO
*73	91/05/16	*AIPS* DDT History (supersedes memo 63) Glen Langston, Pat Murphy and Dean Schlemmer, NRAO
74	91/08/08	*AIPS* at the Australia Telescope National Facility Mark Calabretta, ATNF
75	91/09/23	15APR91 DDT Results on a Sun IPC, Sun Sparc-station 2 Convex C1, and an IBM RS/6000-Model 550 Brian Glendenning & Gareth Hunt, NRAO
*76	91/11/27	Summary of *AIPS* Continuum UV-data Calibration from VLA Archive Tape to UV FITS Tape (supersedes memo 68) Glen Langston, NRAO

To order, use an *AIPS* order form or e-mail your request to aipsmail@nrao.edu. Memos can also be gotten via anonymous `ftp`, except for figures which may be missing in those denoted by an asterisk.

To use `ftp` to retrieve the memos:

1. `ftp` baboon.cv.nrao.edu or 192.33.115.103
2. login anonymous, for password use your e-mail address
3. cd pub/aips/memos
4. (get/read AAAREADME for more information)

For a complete listing of the *AIPS* memos series, contact Ernie Allen at any of the addresses in the masthead.

Gripes Database

The gripes of *AIPS* users are currently recorded in an emacs-based *Gripes Database*. This database lists in chronological order the gripes of *AIPS* users, and, in many cases, the answers to these gripes. This database may be viewed by the astronomical community via an anonymous login on the cpu `gripe`. The viewing program supports VT100 terminals as well as most, if not all, workstation windows.

Full instructions for using the Gripe database may be obtained via anonymous `ftp` to baboon (192.33.115.103). The file is called `GRIPE.README` and is located in the area `pub/aips/gripes`. To use the gripe database from a computer running the unix operating system type:

```
rlogin gripe.nrao.edu -l gripe
```

The Gripes database will automatically begin execution.

Below is an example of the Gripes database form to view very recent Gripes that have keywords beginning with Work. Any mail sent by the session illustrated will go to glangsto in Charlottesville.

```
   AIPS Gripes Selection/options

 Selection criteria
     User (Joe Blow)                   ______________________________
     Status (new, answer)              ___________
     Keyword (MX, tape, Work-Around)   Work___________
     Beginning date (dd-mmm-yyyy)      15-Dec-91__
     Beginning Gripe no. (3456)        4700_
     Arbitrary string in a gripe       ___________________________________

 Options
     Display (index, full, one, exit)  index__
     E-Mail address (jblow@esu.edu)    glangsto@nrao.edu__________________

 Please send comments and complaints to glangsto@nrao.edu
     ^P moves up   the screen,   (^P= control-P)
     ^N moves down the screen,   <return> to see gripes
     Gripes are best viewed with a VT100 or an XTERM
```

When the Gripe database user types a <return>, the database will show all gripes with number greater than 4700 which have a "work-around".

```
                  AIPS Gripe index

  No.    User              Date         Status      Keyword(s)
4756   Elias Brinks       16-FEB-1992  ANSWER NEW   Work-around
     Adding files to tape after AVFILE doesn't work.
4757   Elias Brinks       16-FEB-1992  ANSWER NEW   Work-around
     add GETO2NAME verb
4763   Alan Bridle        13-APR-1992  ANSWER NEW   WORK-ROUND
      Slow Convex AIPS startup Script
```

Gripes 4756, 4757 and 4763 may be viewed in turn with still more <return>'s.

Upon the Gripe database user typing another <return>, the database will show the text for gripe 4756.

```
                    AIPS Gripe report _GRIPE-NO: 4756

_GRIPE-ENTERED: 16-FEB-1992 18:50:00   _SYSTEM: taos.aoc.nrao.edu
_STATUS: ANSWER NEW  _KEYWORD:  Work-around
_ONE-LINE: Adding files to tape after AVFILE doesn't work.
_USER: Elias Brinks   _USER-NUMBER: 1276   _AIPS-RELEASE:  15APR92

_GRIPE: Tape handling in AIPS TST is not fail safe. I tried to "edit" an
  existing Exabyte tape, sitting on TAOS and using its drive. I used
  AVFILE to skip a number of files. When I attempted to write a file
  (in fact overwriting an existing one) with FITTP and DOEOT -1 an error
  message appeared: ZTAP: LUN 31 IO ERROR AT 1 OP OF BAKF ERROR CODE 0005
  What's worse, as I had my FITTP set up in a POPS loop, when it got to
  the second file, the tape REWOUND!!!!! (and there is no off-line button
  on an Exabyte!!!

_ANSWERED-BY: Eric Greisen/Glen Langston     _ANSWER-DATE:  1992-March-9
_ANSWER: The Exabyte tape problem is a SUN Exabyte driver bug that
will only allow files to be written at the beginning of tape
or the end of information (double end-of-file or EOT).  Exabyte tapes
can be edited on IBM computers.

Your procedure would have worked much better if you had specified
DOWAIT = TRUE.  This allows FITTP to return a completion code to AIPS
which will stop the FOR loop before any further damage is done.
WAITTASK should only be used interactively or when you are certain you
want to continue even if the task involved fails.
```

Gripes 4757 and 4763 may be viewed with still more <return>'s.

In order to improve access to the Gripes database, we expect to move it from a computer in Charlottesville to one in Socorro. We will then change the alias `gripe` so that remote users should see no change. Suggestions and feedback from the community concerning the Gripes and the database would be appreciated.