Current Summary Plot Status

Is Sciplot Currently Running?

1) To see if sciplot is running, login to juneau as lzp and run:

```
ps -ef | grep sciplot
```

2) Also, if sciplot is running, it will place a lock file to prevent itself from looping. In order to find out if this lockfile exists, login to juneau as lzp and use the command:

```
ls -l /var/tmp/sciplotlock
```

If it does exist then either sciplot is running or it was left there by accident. If it has been left by accident then sciplot has fallen behind in producing summary plots. If sciplot has fallen behind in making summary plot because a lockfile was left in place by accident, then remove it by typing:

```
rm /var/tmp/sciplotlock
```

What Orbit is Sciplot Currently On?

When sciplot starts, it looks for the orbit on which to start processing data in the file **/disks/cdwork/ workdir/plotorbit**. This file contains a single orbit number. Sciplot updates this file just before finishing each time, so it knows where to start next time. Note that while sciplot is running the orbit will be behind - check the datamanager explained in the online data section. However, if sciplot is not running and the orbit is still behind, look for the lockfile explained above and remove it.

Is This a Recent Orbit?

To find out how old the orbit is, type in the command orbittime and the orbit number. It will return the date and time of the orbit. For orbit number 12990, for example, one would type:,

```
orbittime 12990      # Returns orbit start and end times un UTC
```

Online Data

Sciplot can only make CDFs from the data that is online. If sciplot has fallen behind, it maybe because there is no data online. To check if data is online, go to the datamanager - just type

```
datamgr
```

There you can enter an orbit number to find out if the data is online for that orbit. One of several things may happen:

1) If all of the data is there, ie 170 of 170 selected files are on line, you have found sciplot to be running on juneau, and it is for an orbit later than that in the plotorbit file, then sciplot will automatically run the next orbit, and you should do nothing.

2) If all of the data is there, ie 170 of 170 selected files are on line and it is for an orbit later than that in the plot orbit file, but sciplot is not running on juneau, then check to see if the sciplotlock exists.

3) If less than the total amount of data appears online,, such as 49 out of 163 files, then you need to run a command called trimFileList. Login to juneau as lzp and enter the command trimFileList -q -u 'directory name'. For example, if the orbit is located in cd 15 type:

```
trimFileList -q -u '/disks/FAST_CD_15/F*'
```

However, be careful, don't type this command if data is being copied to the local harddrives. This can cause trimFileList to include only a partial update of the new files. Check this by finding the latest date on the newest cd. For example, if the newest cd is FAST_CD_15, then run the command:

```
ls -l /disks/FAST_CD_15
```

If this date is recent then check to see if it is growing in size with the command du -sk 'directory name', such as:

```
du -sk 'FAST_CD_15'
```

If it is growing in size then the directory is being updated and wait until later to run trimFileList.

Also, before running trimFileList, you should check to see if dbupdate is running:

```
ps -ef | grep dbupdate
```

If it is, then it will run the script trimFileList automatcially when it fisnishes. If you try to run trimFileList while dbupdate is running, it will result in incomplete data.

4) If the datamanager returns no data, such as 0 of 0 selected files are online, and the orbit is less than a day old, then the data has just not reached us yet. However, if the orbit is more than a day old, there may be something wrong, and you should let somebody know.

Checking Summary Plots

The script sciplot makes summary plots. Often something goes wrong, so the summary plots should be checked everyday. There are several ways to do this, but is a good idea to try all of them at least some of the time.

```
1)   cd /disks/juneau/cdf1
```

Then cd into each of the directories ees, ies, tms, acf, or dcf and run the command:

```
ls -l | sort -t_ -n -k 4
```

Look for missing orbits, and if some are found run sumplot explained below.

2) Go to the website http://sprg.ssl.berkeley.edu/fast/scienceops/cdfreport/ and look at the missing orbits for each datatype, ESA electrons, ESA Ions, Teams, AC Fields, and DC Fields. Then run them using sumplot explained below.

3) Go to http://sprg.ssl.berkeley.edu/htbin/fastcgi/sumplotsNetscape/recentplot.pl and enter recent orbits. This takes a while, but it is essential to make sure that summary plots are actually getting made and that they are not just being produced without data or that the entire CDF is being made. Look at the Electron data to make sure that no more than five thin lines exist in the data. Also check to make sure chunks of data aren't missing. If they are see the section below on diagnosing summary plot problems.

4) In the fast software workspace there are two scripts which e-mail you missing orbits. One is called sumplot.automated and e-mails you everyday to report missing cdfs for the past several days. The other is cdfcheck

and that script e-mails you once a week with the past week's missing and bad cdf's. Both are run as LZP Cronjobs. Sumplot.automated is run once a day, while cdfcheck is run once a week. In order to receive the e-mails the scripts will need to be editted so that $ARCHIVEMASTER is set your e-mail address.

5) In order to see the last cdf made go to the website:
http://sprg.ssl.berkeley.edu/fast/soc/archive_status/file_links/astat_sumplots.txt
This website contains the last summary plot made for each data type and when it was made.

Sumplot

If sciplot falls way behind, or if an orbit summary plot is not made, then it is time to run sumplot in order to make that orbit. Log on to junueau as lzp and find an empty machine. First check to make sure that sdt is not running:

```
ps -ef | grep sdt
```

Next clean the shared memory in order to speed up the process:

```
cleanipc
```

Now, it is time to run sumplot. If all or most of the summary plots are missing for an orbit use the command:

```
sumplot -a
```

When only one or two of the summary plots for an orbit are missing use the following depending which one(s) is/are missing:

```
sumplot -e  EESA plots
sumplot -i  IESA plots
sumplot -t  Teams plots
sumplot -f  Fields plots
sumplot -E  EESA and IESA plots
```

Diagnosing CDF Problems

SDT

SDT is a plotting program that will graph cdfs so that you know whether or not you are looking at the entire cdf online. You will need to set up a directory for SDT. Once in SDT, use the fast survey data called check_fsrvy in the configuration manager and hit select. Once a window with several empty graphs has come up use the right most mouse button on the side of that window to bring up data manager, enter a suspicious orbit, and hit the return to sdt button. In order for the data to load, the sdt window must be on top of everything else. SDT will help you to determine if there should be lots of vertical lines through your summary plots or large chunks of data missing. If a SDT shows no reason to suspect veritical lines or large portions of missing data, then proceed to the summary plot output files.

Vertical Lines.
If you are expieriencing verticle lines running through the summary plots then look at the second graph from the top, the FSVY. The FAST satellite has been programmed so that at a certain level of activity the FAST Survey Collection turns on and after the activity falls, it turns itself off again. This graph tells you when the mechanism has been triggered on or off. The graph will jump from zero to one to indicate that it has been turned on and from one to zero to indicate that it has been turned off. Everytime the mechanism turns on or off it loses a little piece of data and may result in tiny vertical lines. If the FSVY graph jumps from one to zero for every vertical line, then there is nothing you can do to fix the problem. However, if there are more vertical lines than there are jumps, chances are that there is missing data in the CDFs and they should be run again using sumplot. If it is hard to tell, then it is

possible to zoom on any of the questionable spots. Click the left most mouse button at the bottom of all of the graphs at the place where you would zoom in on the left side and click the middle mouse button at the bottom of all of the graphs to to set a line on the right side. Then click the left mouse button and choose zoom in at the top of the menu.

`Missing Chunks of Data.`

If you are experiencing missing chunks of data, take a look at the third graph from the top, called VC4SEGS. This graphs how full the memory is. If the memory reaches is full, indicated by the white line reaching the top of the graph before it can empty out into a ground station, it will just leave a chunk of missing data. Look to see if your chunk of missing data corresponds to a full memory. Once again if, that is the case then there is nothing that can be done to retrieve the missing data. However, if the chunk exists and the memory was not full according to SDT, then chances are the summary plot was made before all of the data was recieved and should be run again.

Sumplot Output Files

Sometimes CDFs are not made at all. Everytime sciplot or sumplot is run it produces an output file. It is best to first run sumplot on orbits that did not run the first time - mostly likely data hadn't been recieved and so it was skipped. However, if sumplot is run and the orbit still remains problematic, it is time to check the output files. Since you have run sumplot on the orbit they will be located offline (as opposed to sciplot which is considered online since it is the automated). First:

```
cd /disks/juneau/home/lzp/offline
```

Then look for output files with the following in them:

```
outIDL
errIDL
outUI
errUI
```

The numbers following correspond to their orbits. Find the output file of the orbit you are interested in.

Temp Logs

Another place to look for problems is in the directory:

```
/disks/juneau/www/TEMPLOGS
```

It is worthwhile to note that the numbers corresponding to the output files are not the orbit numbers, but instead the job numbers. If you are looking at the second to last orbit that you ran on sumplot, then look for the second to last job number's output files. Hopefully these will help in diagnosing the problem.