

# Underway Geophysics Lab Cookbook

## SITEFIX

The Underway tech is responsible for providing the Operations Manager with the official position of every hole visited on a leg. The “Sitefix” utility gives you an easy means of doing this. “Sitefix” averages latitude and longitude from GPS fixes stored in the .raw files collected by the WINFROG Master (or WINFROG1). The result is a final fix and plot for the hole. Sitefix resides on the SUN (on both HESS and ROSS) and runs via UNIX commands. At the end of this chapter is a listing of frequently used UNIX commands.

When you get on site, stop event collection for the transit in WINFROG1 and start a new event collection for the hole. Ideally, to get a reliable Sitefix plot for a hole, you should have at least a few days of event collection. Remember that you should not do a Sitefix using any of the fixes during periods out of the hole (e.g. when out of the hole when doing re-entries).

### OBTAINING AN AVERAGE POSITION WITH SITEFIX

Here are the general guidelines for the Sitefix procedure. Please note that UNIX is case sensitive.

- Get the local spud-in time for the hole from the Operations Manager.
- Convert local time to GMT. A desktop time (H9K Timer) resides on WINFROG2 to help you with this.
- Log onto the SUN called HESS.

hess% **Logon: underway**

hess% **Password: underway**

hess% **cd sitefixer/rawfiles**

*to change directory to rawfiles*

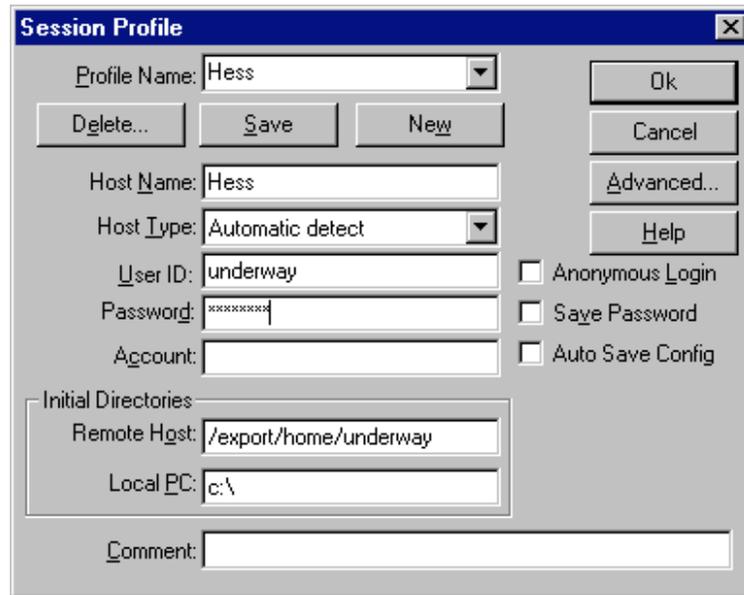
hess% **ls**

*to list old files in directory*

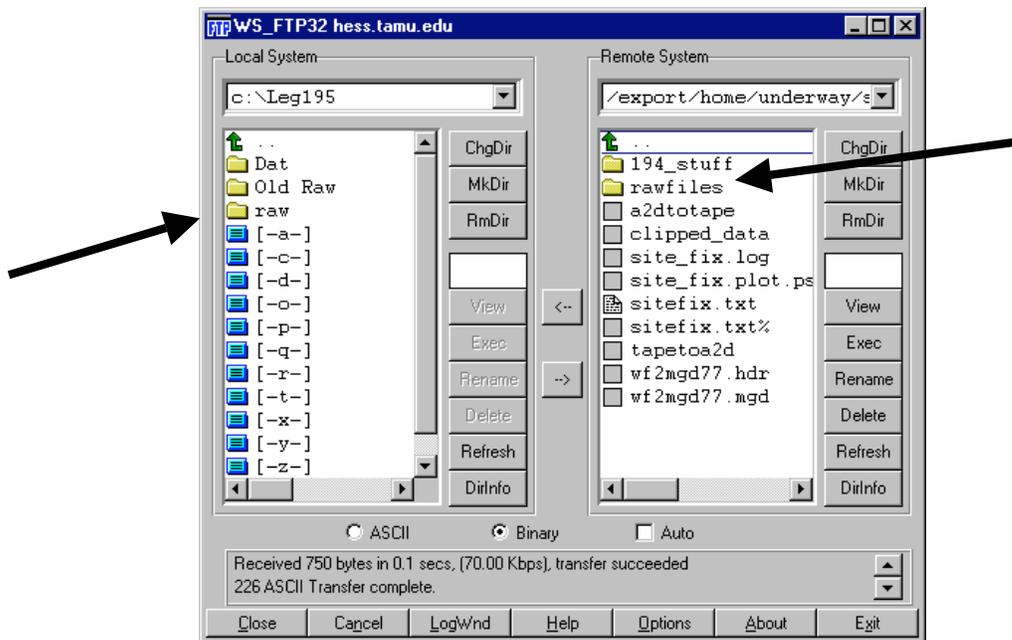
hess% **rm <filename>**

*to remove old files from rawfiles directory or  
you can use a wildcard to remove files  
(e.g. rm \*.raw).*

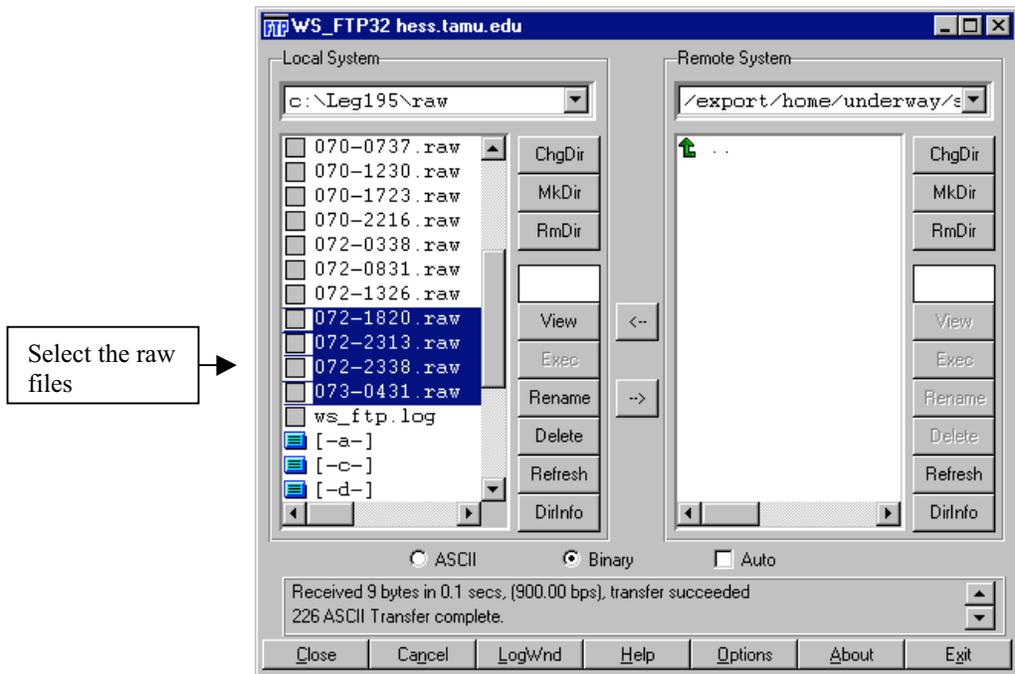
- Next, go to WINFROG1 and start up Windows based FTP (File Transfer Program) by clicking on the WS\_FTP icon on the desktop. A Session Profile box will appear (below). Specify the Host Name and Password (i.e. Hess, Underway).



- On the Local System (WINFROG1), get into the Leg####raw subdirectory and on the Remote System (HESS), get into /export/home/underway/sitefixer/rawfiles.



- Find the rawfiles in c:\Leg####\raw that correspond to just after spud-in time and the latest time that the pipe was in the hole. The file names are based on the Julian date and GMT. Transfer the files from WINFROG1 c:\Leg####\raw to Hess /export/home/underway/sitefixer/rawfiles.



- Continue with the following on the SUN:

`hess% ls` *to check if the files transferred*

The listing of files should look something like this:  
 072-1820.raw 072-2313.raw 072-2338.raw 073-0431.raw

`hess% cat *.raw > s1` *to concatenate all raw files and  
 and redirect the results to a new file which we  
 named "s1" in this case. The name of the  
 new file is not important. You can call it  
 anything you'd like.*

`hess% ls` *do another listing of the files in the directory*

The listing of files will look like this with a new file, s1:  
 072-1820.raw 072-2313.raw 072-2338.raw 073-0431.raw s1

- Winfrog 2.62\_21 has a quirky record format that messes up Sitefix. You'll need to remove #300 lines in the .raw file. To do this, use the "grep" command. The grep command searches files for a pattern.

`hess% grep -v "300" s1 > s2.raw` *print all lines except those that contain  
 "300" and rename the file to "s2.raw".*

`hess% ls` *list all the files in the directory*

The listing of files will look like this with a new file, s2.raw:

```
072-1820.raw 072-2313.raw s1
072-2338.raw 073-0431.raw s2.raw
```

**hess% rm \*.raw**

*remove all files except s2.raw (i.e. the concatenated and grepped file). Use the wild card "\*" to get rid of the .raw files.*

Hess will query as follows:

```
rm: remove 072-1820.raw (y/n)? y
rm: remove 072-2313.raw (y/n)? y
rm: remove 072-2338.raw (y/n)? y
rm: remove 073-0431.raw (y/n)? y
rm: remove s2.raw (y/n)? n
```

*Do not delete the s2.raw file!*

**hess% rm s1**

*You will have specify "s1" to delete it.*

```
rm: remove s1 (y/n)? y
```

**hess% cd ..**

*"cd.." will move you up one directory or you can type cd sitefixer.*

**hess% site\_fix.pro**

*to run the Sitefix program*

The program will query as follows:

Input name of site: Hole 1200A Final

- This information will appear in the header on the final plot that you will give to the Operations Manager. Make sure you use the correct format.

Input start time (mm/dd/yy, hh:mm:ss): 03/11/101,12:00:00

- The month, day and time are the regular calendar month (not the UNIX month), day and GMT time just after spud-in. The year is in UNIX years (year 2000 = 100, year 2001 = 101, year 2002 = 102, etc.).

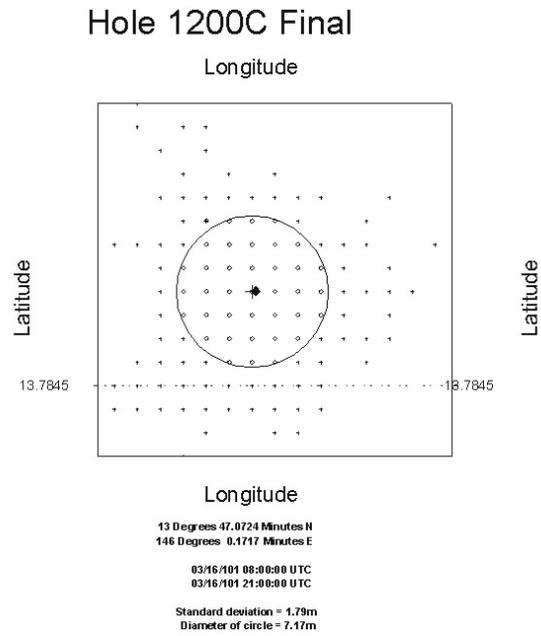
Input end time (mm/dd/yy, hh:mm:ss): 03/11/101,23:00:00

- Again, the month, day and time are the regular calendar month (not the UNIX month) and day and GMT time a day or two after spud-in. The year is in UNIX years.

Clip value in standard deviations: 2

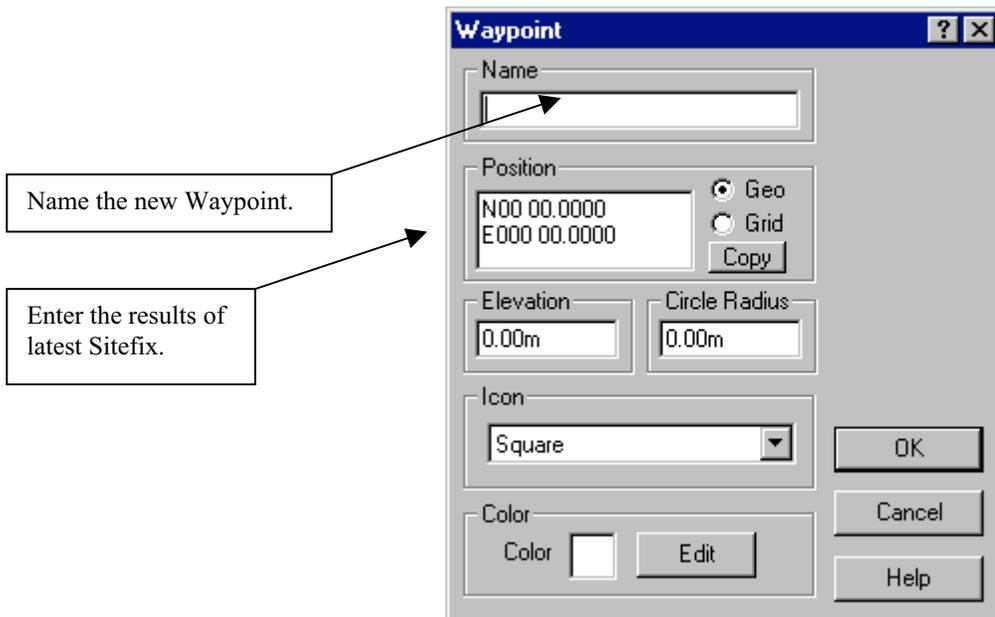


The final Sitefix plot looks like this:

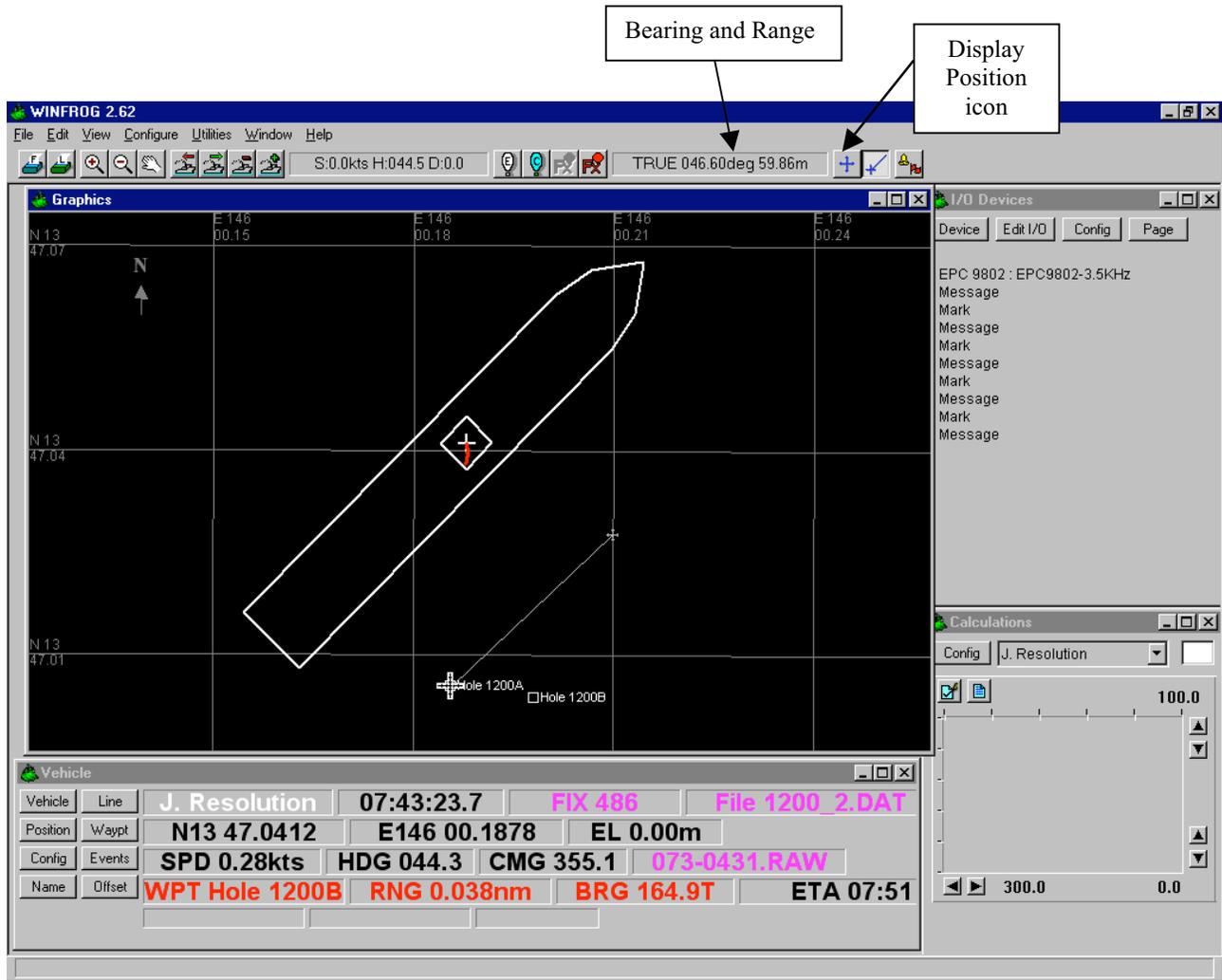


## CHECKING THE RESULTS OF SITEFIX

Before handing out the plot, double check your results by asking the DPO (Dynamic Positioning Operator) for the distance traveled from the last hole to the current hole. Also ask for the bearing. For example, the DPO might tell you that the ship moved due east, 25 meters. To compare his results with your results, go to WINFROG1 and enter the latest Sitefix results (average latitude and longitude) as a Waypoint by going to the menu bar at the top of the window and selecting File>Working>Waypoint>Add. The screen below will appear. Give the new Waypoint a name (e.g. Hole 1200B). Enter the latitude and longitude in Position and click OK.



To get the bearing and distance traveled (range) from the last Waypoint to the current one, click on the blue “+” (Display Position) on the top icon bar. On the Graphic display, mark the first Waypoint with the “+” and then draw a “rubber band” line to the second Waypoint (i.e. the new Waypoint). The bearing and range will appear in the upper right hand corner, just to the left of the Display Position icon. Check this information against the information given to you by the DPO. If the results are close, your Sitefix plot is most likely accurate. At this point, you can deliver the plots to everyone. You might want to hand deliver the Operations Manager’s.



Note, if the distance traveled appears as nautical miles rather than meters, reset the units by going to Configure on the top menu bar. Choose Units. Set Distances to meters.

### The UNIX utime Utility

If the program fails to give you an Average Position check that the times for the raw files you have selected correspond to the time you are entering when you are queried by site\_fix.pro. You can do this with the UNIX utility “utime”. Here is the procedure.

**hess% head s2.raw**

*to display the first few lines of the concatenated and grepped file, s2.raw.*

```
910,Lehmkuhl LR40,984702812.25,41.30,0
303,NMEAGPS1,984704991,00,2012.00,13.78431547,146.00262725,1,12,0.9,43.81,54.72,0.00,0
800,GeoMetrics 886,0.00,0.00,0.00,0.00,1188784,4869810
450,EPC9802-
3.5KHz,984702812.42,13.78460999,146.00293051,0.00000000,0.00000000,0.000,0.000,0.000,0.00000000,0.00000000
```

```

450,EPC9802
12KHz,984702812.42,13.78460999,146.00293051,0.00000000,0.00000000,0.000,0.000,0.000,0.00000000,0.00000000
351,J. Resolution,2936,13.7846100,146.0029305,984702812.42,0.00,31.01,0.03
910,Lehmkuhl LR40,984702872.31,40.80,0
303,NMEAGPS1,984702872.01,2072.00,13.78431530,146.00263177,1,12,0.9,44.47,54.72,0.00,0
800,GeoMetrics 886,0.00,0.00,0.00,0.00,0.00,1188784,4869810
450,EPC9802-
3.5KHz,984702872.42,13.78461067,146.00293449,0.00000000,0.00000000,0.000,0.000,0.000,0.00000000,0.00000000

```

- The lines will print to the screen. Look at the first NMEA GPS line. You should see a 9 digit number that corresponds to the number of seconds since 00:00:00 January 1, 1970. This is the way UNIX time is recorded. Copy this number using the copy key on the left side of the SUN keyboard. Then type the utime command.

**hess% utime**

```

local time
984704991
101,2,16,1,9,51
5,74,0

```

```

convert: 1=yr2sec, 2=sec2yr, 3=both
2

```

- Typing the utime command results in a display of the local UNIX time (984704991) and the GMT conversion (101, 2, 16, 1, 9, 51). It then asks you how you want to convert the time you plan to enter. Option 1 = year to seconds, Option 2 = seconds to year or option 3 = both. Select option 2.

```

enter unix time
984702812

```

*using the paste key on the left side of the SUN keyboard, paste the time that you copied from the head of the raw file.*

```

gmt time:101,2,16,0,33,32

```

*the GMT conversion will look like this*

- The GMT conversion 101,2,16,0,33,32 is read as Year: 2001, Month: February, Day: 16, hours/mins/sec: 00:33:32. The number should correspond roughly to the spud in time for the hole. Now do the same for the end (tail) of the file.

```

hess% tail s2.raw
800,GeoMetrics 886,0.00,0.00,0.00,0.00,0.00,1188856,4869810
450,EPC9802-
3.5KHz,984704492.74,13.78458151,146.00295025,0.00000000,0.00000000,0.000,0.000,0.000,0.00000000,0.00000000
450,EPC9802
12KHz,984704492.74,13.78458151,146.00295025,0.00000000,0.00000000,0.000,0.000,0.000,0.00000000,0.00000000
351,J. Resolution,2964,13.7845815,146.0029502,984704492.74,0.00,310.96,0.07
910,Lehmkuhl LR40,984704552.60,45.80,0
303,NMEAGPS1,984705155.08,3752.00,13.78432755,146.00260962,1,12,0.9,47.79,54.72,0.00,0
800,GeoMetrics 886,0.00,0.00,0.00,0.00,0.00,1188784,4869810

```

450,EPC9802-  
3.5KHz,984704552.75,13.78459789,146.00293879,0.00000000,0.00000000,0.000,0.000,0.000,0.00000000,0.00000000  
450,EPC9802  
12KHz,984704552.75,13.78459789,146.00293879,0.00000000,0.00000000,0.000,0.000,0.000,0.00000000,0.00000000  
351,J. Resolution,2965,13.7845979,146.0029388,984704552.75,0.00,28.07,0.04

**hess% utime**

local time  
984705155  
101,2,16,1,12,35  
5,74,0

convert: 1=yr2sec, 2=sec2yr, 3=both

2

enter unix time

984704552

gmt time: 101,1,16,1,2,32

NOTE: Months start at zero

- 2001, Feb, 16<sup>th</sup>, 01:02:32 should correspond to just before pulling out of the hole.

### **Frequently used UNIX commands**

cd = change directory

cd..= go up a directory

head = display the first few lines of a file

ls = list contents of a directory

ls -l = list contents of directory with privledges, owner and dates

lp = print a file

man = displays the reference manual page about a UNIX command

more = view contents of file one line at at time

mv = rename

pwd = display the name of the working directory

rm = delete

tail = display the last few lines of a file

utime = use to convert UNIX time in raw files to GMT time. UNIX time is measured in seconds since 00:00:00 UTC, January 1, 1970

!s = “bang” or run the last command that started with this letter (in this case “s”, as in run site\_fix.pro)

➤ = redirect the output of a command to a file

## SITEFIX – Short Version

```
hess% Logon: underway
hess% Password: underway
hess% cd sitefixer/rawfiles
hess% ls
hess% rm <filename>

WSFTP from WinFrog1( Leg###\raw) subdirectory to Hess
(export/home/underway/sitefixer/rawfiles).

hess% ls
hess% cat *.raw > s1
hess% ls
hess% grep -v "300" s1 > s2.raw
hess% ls
hess% rm *.raw Do not delete the s2.raw file!
hess% rm s1
hess% cd ..
hess% site_fix.pro
    Input name of site: Hole 1200A Final
    Input start time (mm/dd/yy,hh:mm:ss): 03/11/101,12:00:00
    Input end time (mm/dd/yy,hh:mm:ss): 03/11/101,23:00:00
    Clip value in standard deviations: 2
    Input any optional parameters: leave this blank

    Average position:
    13 Degrees 47.0037 Minutes N
    146 Degrees 0.1836 Minutes E

    Number of samples used: 1047
    Number of samples clipped: 151
hess% pageview *.ps
hess% lp *.ps
hess% mv site_fix.plot.ps 1200A.plot.ps
```

### UNIX Commands – Unix is Case Sensitive

cd = change directory  
cd.. = go up a directory  
head = display the first few lines of a file  
ls = list contents of a directory  
ls -l = list contents of directory with privileges, owner and dates  
lp = print a file  
man = displays the reference manual page about a UNIX command  
more = view contents of file one line at a time  
mv = rename  
pwd = display the name of the working directory  
rm = delete  
tail = display the last few lines of a file  
utime = use to convert UNIX time in raw files to GMT time. UNIX time is measured in seconds since 00:00:00 UTC, January 1, 1970  
ls = “bang” or run the last command that started with this letter (in this case “s”, as in run site\_fix.pro)  
> = redirect the output of a command to a file

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