

# Geodetic Post-processing

Geodetic observations require different post-processing to that of astronomy observations. The data is required to be submitted in a particular format. The Haystack Observatory Postprocessing System ([HOPS](#)) software is used for this purpose.

## Setting Environment Variables

```
source ~/corr_test.setup
```

This contains the geodetic environment variables:

```
export HOPS_STATION_CODE=/nfs/apps/vlbi/lba_locations/hops_station_code.txt
export DEF_CONTROL=/nfs/apps/vlbi/lba_locations/fourfit_control.txt
export PATH=${PATH}:/nfs/apps/vlbi/hops/x86_64-3.8/bin
export HOPS_QUIET='SHH'
. ~/bin/hops.bash
```

The following variables also need to be defined:

```
export CORDATA=/Exps/exp_name/
export DATADIR=/Exps/exp_name/
```

where an example is:

```
export CORDATA=/data/corr/corrrdat/p483a
```

## fourfit

From correlation the data need to be in the mark4 format:

```
difx2mark4
```

To run fourfit:

```
fourfit -txa 1234
```

This gives a set of plots to inspect.

To rerun fourfit:

```
fourfit -a 1234
```

# audit

## Creating the files required by audit

The input data file for audit is alist.out . This is created by the following command:

```
alist *
```

The experiment names (16383) need to be modified in this file to 1234.

Audit also requires an .ovex file for input, not a .vex. This is generated from a perl script:

```
./nspd_ovex.pl p483a.01.skd >> 1234.ovex
```

Changes have been made to the perl script when reading in the source name as it was not pulling in the data correctly.

The .ovex file now contains data with 1-letter code station IDs (mk4\_site\_ID). These may be incorrect and need to be checked manually. This step will be incorporated into the nspd\_ovex.pl code itself soon.

The complete list of [Mark4 Station Codes](#)

Station codes:

Station	2-letter code	1-letter code
Hobart26	Ho	H
Hobart12	-	-
KATH12M	-	-
YARRA12	-	-
WARK12M	Ww	W
HART15M	Ht	g
PARKES	Pa	e

Put this file, 1234.ovex, in the 1234/ directory.

## Running audit

audit allows the user to flag the baselines that have bad data.

To start audit, reading in an input list:

```
audit -f alist.out
```

Remove duplicate data based on SNR (or other parameters)

```
edit dup SNR
```

Print to screen a summary of the data:

```
sum 2
```

Choose parameters to use:

```
parameter 1 2 6 7
```

Write pcal to file:

```
pwrite pcal.txt
```

To sort, and only use data of certain quality:

```
gcodes 1-9  
sort baseline  
sort freq  
edit input
```

To plot the data:

```
psplot
```

This is where data can be flagged as bad and removed from the data set.

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