difx2mark4

Program difx2mark4 creates a Mk4 output fileset from the DIFX (also known as SWIN) format visibilities created by mpifxcorr and several other files carrying information about the observation. When run, difx2mark4 requires the following files to be present:

1. *baseFilename*`.difx/`
2. *baseFilename*`.input`
3. *baseFilename*`.calc`
4. *baseFilename*`.im`
5. *baseFilename*`.vex`

Note that difx2mark4 expects to see difx v2.0 model files. All the input files to difx2mark4 are expected to be in the current working directory.

A mk4 fileset consists of a set of files all having the same 6 character alphabetic suffix, which is generated automatically based upon the current time, and which serves to keep filesets easily associated. Within the fileset there will be one ASCII pseudo-vex root file, named <source>.suffix. There will be one binary type 1 file for each correlated baseline, named e.g. QZ..suffix for stations Q and Z. There will also be a binary type 3 file for each station, named e.g. Q..suffix for some station Q.

Usage

difx2mark4 should be invoked from the command line as follows:

`difx2mark4` [*options*] [*baseFilename*]

*baseFilename*X is the prefix of a jobfile to convert; it is OK to use the `.difx` filename instead

other options currently supported include:

- `-h` or `—help` : print usage information and exit
- `-v` or `—verbose` : increase verbosity of output; use twice or thrice to get even more
- `-e` *nnnn* : put the output in a directory for experiment *nnnn* (defaults to 1234)
- `-d` or `—difx` : run on all .difx files in the directory, in which case the baseFilename is not necessary
- `—override-version` : runs even in the event of a mismatch of the difx2mark4 version and the datafile version
- `-r` or `—raw` : run in *raw* mode, which suppresses normalization
- `-k` or ''–keep-order' : don't sort antenna order into alphabetic

Usage examples

Explicitly convert all scans from job 3327_20 into (possibly multiple) mk4 filesets:

```
difx2mark4 3327_20
```

Convert all data in .difx sub-directories into mk4 scans in expt. directory 4567, with verbosity level

one:

```
difx2mark4 -v -d -e 4567
```

As needed, you can adjust the mapping of stationcodes.

Memos

- Visibility Amplitude Scaling: A Comparison of DiFX to the Mark4 Hardware Correlator visibility_amplitude_scaling.pdf
- Multitone Phase-cal Mode in Fourfit multitone_phasecal.pdf
- MultibandDelay Correlator Comparsion (DiFX - Mark4) mbd_correlator_comparisons.pdf

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