Calculate Slew

A simple way to calculate the slew time for an arbitrary VLBI (AZ/EL) antenna.

Requirements

- A folder named `skds`, containing schedule summaries for each session. These files should be named `<session>.azel` (e.g. r1727.azel). The creation of these files are explained in section `Generate .azel`.
- A folder named `logs`, containing folders for each session, corresponding to the .azel-files. Each of the folder holds the log files for that particular session. (E.g logs/r1727/r1727ft.log)
- That trakl or flagr is turned on for the antenna.
- An up-to-date version of the file `antenna.cat` that holds a sumary of all the antennas' specifications. This file should be placed in `src/`.

The folders `skds` and `logs` are currently present in this folder and are populated with data for 5 sessions.

Run the program

`./calculate_slew.sh`, runs the program and the output is stored in `data/`. If one wishes to generate graphs to get a visual representation of the calculated models the flag `--graph` can be used as: `./calculate_slew.sh --graph`. These graphs are stored in `img/`.

House keeping

There are two programs that should be run before `./calculate_slew.sh`. `src/getStationSpecs.py` pulls the antennas' specifications from the file `antenna.cat`. `src/create_extract.py` also uses `antenna.cat`, it creates the file `extract.py` and ensures all the antennas in `antenna.cat` can be used.

Note: If you have limited disk space, or simply reluctant to waste space and time, remove the antennas not in use from *your copy of* `antenna.cat` before running the scripts above.

Output from the program

If run without the `--graph` flag, the program stores two `.dat`-files for each antenna. The files are named `<station>_az.dat` and `<station>_el.dat` depending on if azimuth or elevation is calculated. `data/` also contains the file

`lsq_result.dat` which holds the desired least square solution for each antenna, i.e. the antenna speed and offset.

If the program is run *with* the `--graph` flag, all of the above is true, but the program also stores graphs showing the solution for each antenna - both in azimuth and elevation. These graphs are stored in `img/`.

Generate .azel

The `.azel`-files are generated by the following commands:

```
$> sked <session>.skd

sked> xl wrap

sked> unit <session>.azel

sked> li ^-*

sked> q

$> mv <session>.azel /path/to/calculate_slew/skds/
```

Unfortunately, this has to be done manually at the time. Maybe Mr. Gipson can shed more light on the matter of automatizing this.