

How to correlate near field sources such as spacecraft

mpifxcorr, which is the actual “correlator”, does not care at all about near-field vs far-field correlation. It uses a tabulated polynomial delay model for each antenna, so as long as that delay model is generated properly, mpifxcorr will work. There are two things one needs to do to get this delay model calculated properly for near-field objects - getting SPICE compiled in with calcif2, and setting up the ephemeris properly in the .v2d file for vex2difx

1. SPICE

You need to download, compile and install the C SPICE toolkit from NASA, available at <http://naif.jpl.nasa.gov/naif/toolkit.html>. Make use of the accompanying documentation to help get this done.

2. Extra steps in difxio and vex2difx compilation

Once SPICE is available on your system, you will need to make sure that it is picked up and linked against during compilation of the difxio library and the vex2difx application. To do this, add:

```
export SPICE_ROOT=/path/to/spice/rootdir/
```

to your setup.bash/setup.csh file, and source it. Make sure SPICE_ROOT is correctly set. Once this is done, you can run (or rerun) ./configure, make, make install for the difxio and vexdifx packages, or just rerun the ./install-difx script (with the -reconf option if you had already run it before).

3. Generating the model for mpifxcorr

See the documentation on [vex2difx](#) (under the SOURCE section) for information on how to add information for a specific source to the .v2d file. Once you have done that, you can just run vex2difx, calcif2 and mpifxcorr as usual.

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