



Ionosphere TEC (Total Electron Content) Corrections

Imported User 127 - 2023-11-01 - CASA

It is now possible to apply TEC (Total Electron Content) corrections within CASA. Note that the following procedure currently only corrects for Faraday rotations, and no corrections will be applied to dispersive delays as is possible with the AIPS TECOR task.

For instructions on applying TEC corrections, please see the CASA P-Band guide found at https://casaguides.nrao.edu/index.php/VLA_Radio_galaxy_3C_129:_P-band_continuum_tutorial-CASA4.7.0#Ionospheric_TEC_Corrections

It is known that certain distributions of the Linux OS (i.e. Scientific Linux) have had issues in generating a TEC map. A few reasons for this are:

1. Linux is not able to uncompress the downloaded file with the provided command within `tec_maps.py`
2. Linux is missing the `curl` tool, which is used to download online content.

Solution:

Manually download the IONEX file from NASA's Crustal Dynamic Data Information System (CDDIS) webpage, which can be found at

https://cddis.nasa.gov/Data_and_Derived_Products/GNSS/atmospheric_products.html#iono

You can search for the IONEX file via their ftp server

<ftp://cddis.gsfc.nasa.gov/gnss/products/ionex/>

Search by **YYYY/DDD/igsgDDD#.YYi.Z** where,

YYYY = Year

DDD= 3-digit day

#= file sequence number for the day. 0: file contains all existing data of the current day

e.g. For an observation conducted on 2014/01/04, the IONEX file is
`/2014/004/igsg0040.14i.Z`

Uncompress the file with the command `"gzip -d <filename>"`, and place the unzipped file in your current working directory. Following the instructions in the CASA P-Band guide should now produce a TEC map successfully.