

Laboratory Session: NeQuick Hands-on

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Laboratory Assignment



How does the NeQuick model represent the ionosphere over your home?

The aim of this exercise is to understand how an ionospheric profiler like NeQuick works and ‘help’ it to better represent the ionospheric parameters over a station (group of stations or area) near to your city.

EXERCISE DESCRIPTION

1. Get TEC from a GNSS station near to your city every 1hour and for at least 3 days. You are free to choose the epoch, the source and the calibration method! 😊
2. Run the NeQuick 2 (in climatologic default mode) to compute the TEC for the same epoch of your TEC of reference and compare the results.
3. Adapt NeQuick 2 by modifying parameters to better represent your TEC. Compare the results.

TIPS

- Better use quiet periods ;)
- You can use VTEC or STEC
- Other models, data and also profiles can be added to the exercise.
- Feel free to use the tools of your preference.

RESOURCES

- T/ICT4D website:
NeQuick2: <http://t-ict4d.ictp.it/nequick2/nequick-2-web-model>
TEC: <http://t-ict4d.ictp.it/nequick2/gps-tec-calibration-online>
- IRI website:
http://omniweb.gsfc.nasa.gov/vitmo/iri2012_vitmo.html
- Daily F10.7:
ftp://ftp.swpc.noaa.gov/pub/indices/quar_DSD.txt

ftp://ftp.ngdc.noaa.gov/STP/space-weather/solar-data/solar-features/solar-radio/noontime-flux/penticton/penticton_observed/listings/listing_drao_noontime-flux-observed_daily.txt

- Ionosonde characteristics and ionograms:

<http://giro.uml.edu/didbase/scaled.php>

<http://ulcar.uml.edu/DIDBase/>

REFLEXION PROMPTS

- + What are the general characteristics of the ionosphere over your region? (high, middle or low latitudes, near the crests, trough, etc)
- + How does NeQuick perform compared with the TEC used as reference?
- + What do you consider necessary to 'help' the model to better describe the ionospheric parameters over your region?