

An improved bottomside for the ionospheric electron density model NeQuick

R. Leitinger, M. L. Zhang, S. M. Radicella

Abstract

The ionospheric electron density model NeQuick is a «profiler» which uses the peaks of the E-layer, the F1-layer and the F2-layer as anchor points. In the version prepared for and submitted to the International Telecommunication Union (ITU) the model uses the ITU-R (CCIR) maps for foF2 and M(3000)F2 and adapted maps similar to the ITU-R ones for foE and foF1. Since users found problematic behaviour of NeQuick under conditions of strong differences of foE and foF2 map structures, the profiling was adapted by changing the properties of the Epstein layers used for this purpose. The new formulation avoids both strange horizontal structures of the geographic distribution of electron density in fixed heights and unrealistic peculiarities of the height profile which occasionally occurred with the old version of the model. Since the Epstein layer approach allows for 8 parameters only (3 layer amplitudes and 5 semi-thicknesses) the adaptation was no minor task but needed careful planning of suitable strategies.

Keywords

ionosphere;electron density models;profilers

Full Text:

PDF

References

DOI: <https://doi.org/10.4401/ag-3217>

Published by INGV, Istituto Nazionale di Geofisica e Vulcanologia - ISSN: 2037-416X

USER

Username
 Password
 Remember me

MOST VIEWED

- OPERATIONAL EARTHQUAKE FORECASTING...
- ObsPy – What can it do for data...
- Twitter earthquake detection:...
- Magnitude and energy of earthquakes
- Comparison between low-cost and...

AUTHOR GUIDELINES





EARLY PAPERS

- ▶ Vol 61, 2018

FAST TRACKS

- ▶ Vol 56, Fast Track 1, 2013
- ▶ Vol 57, Fast Track 2, 2014
- ▶ Vol 58, Fast Track 3, 2015
- ▶ Vol 59, Fast Track 4, 2016
- ▶ Vol 59, Fast Track 5, 2016
- ▶ Vol 60, Fast Track 6, 2017
- ▶ Vol 60, Fast Track 7, 2017
- ▶ Vol 61, Fast Track 8, 2018

ARTICLE TOOLS

-  Indexing metadata
-  How to cite item
-  Email this article (Login required)
-  Email the author (Login required)

ABOUT THE AUTHORS

und Meteorologie (IGAM),
Universität Graz, Austria

M. L. Zhang
Laboratory for Space
Weather, Center for
Space Science and
Applied Research,
Chinese Academy of
Sciences, Beijing, People
s Republic of China

S. M. Radicella
The Abdus Salam
International Centre for
Theoretical Physics
(ICTP), Trieste, Italy

JOURNAL CONTENT

Search

Search Scope

All ▾

Browse

- [By Issue](#)
- [By Author](#)
- [By Title](#)

Journal Help

KEYWORDS

Central Italy
 Earthquake GPS
 Historical seismology
Ionosphere Irpinia
 earthquake Italy Mt.
 Etna Seismic hazard
 Seismic hazard
 assessment
 Seismology UN/IDNDR
earthquake
 earthquakes
 historical
 earthquakes
 ionosphere magnetic
 anomalies
 paleoseismology
 seismic hazard
seismicity
 seismology

NOTIFICATIONS

- [View](#)
- [Subscribe](#)

USAGE STATISTICS INFORMATION

We log anonymous
usage statistics. Please
read the privacy
information for details.