Simulated microwave propagation delays and atmospheric sky brightness temperatures in the frequency range 14–40 GHz at the Onsala Space Observatory

SND-ID: 2021-243-1. **Version**: 1. **DOI**: https://doi.org/10.5878/31bx-v871

Download data

Antenna_pattern.nc *(4 MB)*

ARTS_OSO_LWC.nc *(70.95 MB)*

ARTS_OSO_no_LWC.nc *(70.95 MB)*

Coordinates.png *(128.49 KB)*

readme.txt *(1.44 KB)*

Associated documentation

readme.txt *(1.44 KB)*

Download all files

2021-243-1-1.zip *(~146.03 MB)*

Citation

Forkman, P., Flygare, J., & Elgered, G. (2021) Simulated microwave propagation delays and atmospheric sky brightness temperatures in the frequency range 14–40 GHz at the Onsala Space Observatory (Version 1) [Data set]. Chalmers University of Technology. Available at: https://doi.org/10.5878/31bx-v871

Creator/Principal investigator(s)

Peter Forkman - Chalmers University of Technology, Space, Earth and Environmental Science

Jonas Flygare - Chalmers University of Technology, Space, Earth and Environmental Science

Gunnar Elgered - Chalmers University of Technology, Space, Earth and Environmental Science

Research principal

Chalmers University of Technology - Space, Earth and Environmental Science

Description

The dataset contains time-series of signal propagation delay due to water vapour, liquid water path, and multi-dimensional time-series of atmospheric brightness temperature and transmission, in the frequency range 14 – 40 GHz, at the Onalsa Space Observatory. The simulations are carried out with or without liquid cloud water in the atmosphere. The normalized power-pattern of the antenna is also provided.

We have used atmospheric data from ECMWF and processed them with the open software package ARTS. Details are described in the published paper:
Forkman, P, Flygare, J and Elgered, G (2021).

Water Vapour Radiometry in Geodetic Very Long Baseline Interferometry Telescopes: Assessed Through Simulations, Journal of Geodesy.

The uploaded readme.txt file gives all the necessary information.
The three data files are saved in the NetCDF format (*.nc)

Data contains personal data

No

Language

English

Time period(s) investigated

2001-01-01 – 2004-12-30

Variables

10

Data format / data structure

Numeric

Geographic spread

Geographic description: The atmosphere above the Onsala Space Observatory

Responsible department/unit

Space, Earth and Environmental Science

Research area

Meteorology and atmospheric sciences (Standard för svensk indelning av forskningsämnen 2011)

Other earth and related environmental sciences (Standard för svensk indelning av forskningsämnen 2011)

Remote sensing (Standard för svensk indelning av forskningsämnen 2011)

Keywords

Microwave radiance, Geodesy, Air water vapour concentration

Publications

Forkman, P, Flygare, J and Elgered, G (2021).
Water vapour radiometry in geodetic very long baseline interferometry telescopes: assessed through simulations, , 95, 117.
DOI: https://doi.org/10.1007/s00190-021-01571-z

If you have published anything based on these data, please notify us with a reference to your publication(s). If you are responsible for the catalogue entry, you can update the metadata/data description in DORIS.

Polygon (Lon/Lat)

11.911497116089, 57.402294609985
11.911497116089, 57.388789991824
11.938623671018, 57.388789991824
11.938623671018, 57.402294609985
11.911497116089, 57.402294609985

Accessibility level

Access to data through SND
Data are freely accessible

Use of data

Things to consider when using data shared through SND

License

Versions

Version 1. 2021-10-04

Download metadata

DataCite
DDI 2.5
DDI 3.3
DCAT-AP-SE 2.0
JSON-LD
PDF
Citation (CLS)
File overview (CSV)

Published: 2021-10-04
Last updated: 2021-10-12