

Space-time spectra of Northern Hemispheric Rossby waves at tropospheric and stratospheric levels during extended winter

SND-ID: 2024-441. **Version:** 1. **DOI:** <https://doi.org/10.57804/1dne-qk60>

Download data

allyears_NDJFMA_35_75_spectra_v_61d_strato.nc (214.35 MB)

allyears_NDJFMA_35_75_spectra_v_61d_tropo.nc (321.5 MB)

Download all files

2024-441-1.zip (~535.85 MB)

Citation

Riboldi, J., & Schutte, M. (2025) Space-time spectra of Northern Hemispheric Rossby waves at tropospheric and stratospheric levels during extended winter (Version 1) [Data set]. Uppsala University. Available at: <https://doi.org/10.57804/1dne-qk60>

Creator/Principal investigator(s)

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Description

Data contains daily Rossby wave spectra that were obtained from a double Fourier transform, in space and time, and displayed in harmonics with wavenumber n and phase speed c . The underlying dataset for the space-time Fourier analysis is meridional wind of ERA5.

For further details about data, see section 2.3 in Schutte et al., 2024

(<https://doi.org/10.5194/wcd-5-733-2024>).

Data is split into two files:

1. allyears_NDJFMA_35_75_spectra_v_61d_strato.nc - spectra averaged between 35°N - 75°N for the stratosphere (10, 50, 100 and 200 hPa) and,
2. allyears_NDJFMA_35_75_spectra_v_61d_tropo.nc - spectra averaged between 35°N - 75°N in the troposphere (250, 400, 500, 600, 700 and 850 hPa).

The files contain data for November to April (NDJFMA) for years 1979 to 2021.

Data contains personal data

No

Language

[English](#)

Time period(s) investigated

1979-11-01 – 2021-12-31

Data format / data structure

[Geospatial](#)

Geographic spread

Geographic description: The Rossby wave spectra were computed for the Northern Hemisphere between 35°N and 75°N.

Responsible department/unit

Earth Sciences

Research area

[Climate research](#) (Standard för svensk indelning av forskningsämnen 2011)

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

[Climatology / meteorology / atmosphere](#) (INSPIRE topic categories)

Keywords

[Wave spectra](#), [Meteorological geographical features](#), [Rossby waves](#), [Stratosphere](#), [Troposphere](#)

Publications

Schutte, M., Domeisen, D. I. V., & Riboldi, J. (2024). Opposite spectral properties of Rossby waves during weak and strong stratospheric polar vortex events. In Weather and Climate Dynamics (Vol. 5, Issue 2, pp. 733–752). <https://doi.org/10.5194/wcd-5-733-2024>

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Schutte, M. K., Portal, A., Lee, S. H., and Messori, G.: Dynamics of stratospheric wave reflection over the North Pacific, EGUsphere [preprint], <https://doi.org/10.5194/egusphere-2024-2240>, 2024.

DOI: <https://doi.org/10.5194/egusphere-2024-2240>

Accessibility level

Access to data through SND

Data are freely accessible

Use of data

[Things to consider when using data shared through SND](#)

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Versions

Version 1. 2025-02-11

This resource has the following relations

Is derived from [ERA5 hourly data on pressure levels from 1940 to present](#)

Is variant form of [Space-time spectra of Northern Hemispheric Rossby waves during extended winter](#)

Related research data in SND's catalogue

[Space-time spectra of Northern Hemispheric Rossby waves during extended winter](#)

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