

Atmospheric Reanalysis

“Climate reanalyses combine past observations with models to generate consistent time series of multiple climate variables. Reanalyses are among the most-used datasets in the geophysical sciences. They provide a comprehensive description of the observed climate as it has evolved during recent decades, on 3D grids at sub-daily intervals.” ([Copernicus](#))

Global reanalyses are produced by major Numerical Weather Prediction centers and they are under continuous development. This wiki page focuses on some of the most commonly used current-generation reanalysis products: ERA5, MERRA2, JRA-3Q, and NCEP.

Source	Name and access link	Temporal coverage	Horizontal resolution	Available format	Documentation/further information
European Centre for Medium-Range Weather Forecast (ECMWF)	ERA5	hourly, daily and monthly (1940/01 - present, some variables start later)	0.25° x 0.25°	GRIB NetCDF	ERA5 documentation
Japanese Meteorological Agency	JRA-3Q	6-hourly, monthly (also hourly or daily for some variables) (1947/09 - present)	40 km	GRIB	JRA-3Q documentation
NASA Goddard Space Flight Center re-analysis	MERRA 2	hourly, 3-hourly, 6-hourly, daily and monthly values (1980/01 - present)	0.5° x 0.625°	NetCDF	MERRA documentation
National Center for Environmental Prediction (NCEP)	NCEP/NCAR Reanalysis 1	6-hourly, daily and monthly values (1948/01 - present)	2.5° x 2.5°	NetCDF	Kalnay et al (1996)

Note that there are more, including regional reanalysis products that may be more suitable for regional studies (e.g., [COSMO](#) and [CERRA](#) for Europe, [NARR](#) for North America, [EARS](#) for East Asia, [CARRA](#) for the Arctic).

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