Данные реанализа и формат netCDF

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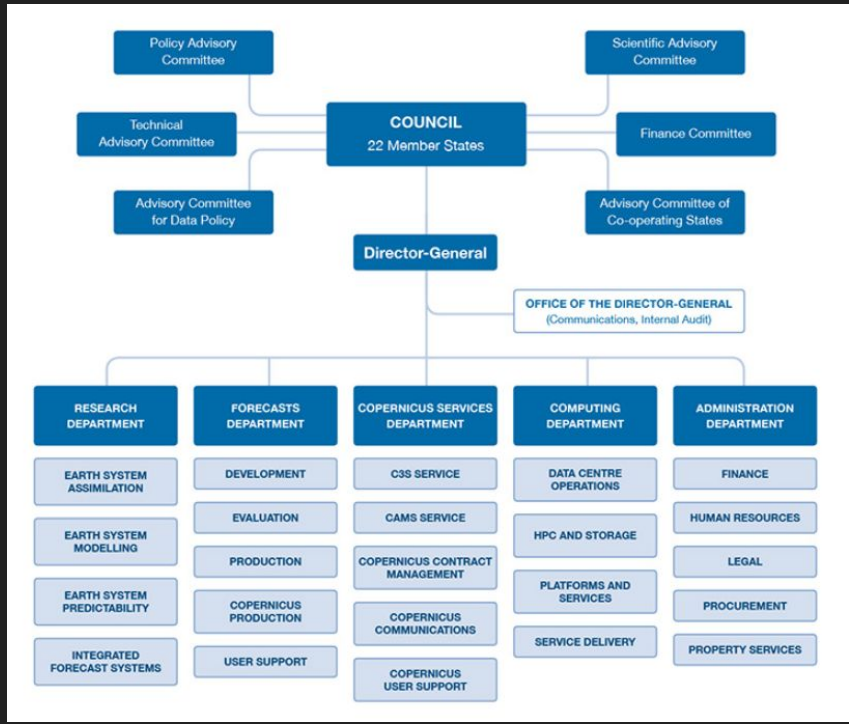
Данные реанализа

European Centre for Medium-Range Weather Forecasts (ECMWF)- is an independent intergovernmental organisation supported by most of the nations of Europe and is based at Shinfield Park, Reading, United Kingdom. It operates one of the largest supercomputer complexes in Europe and the world's largest archive of numerical weather prediction data



Numerical Weather Forecast

$$\frac{du}{dt} - v(f+f_*) = -m\left(\frac{\partial \phi}{\partial x} + \frac{1}{p_s} RT \frac{\partial p_s}{\partial x}\right), \quad \ldots 1$$

$$\frac{dv}{dt} + u(f+f_*) = -m\left(\frac{\partial \phi}{\partial y} + \frac{1}{p_s} RT \frac{\partial p_s}{\partial y}\right), \quad \ldots 2$$

$$\frac{\partial \phi}{\partial \sigma} = -RT/\sigma, \quad \ldots 3$$

$$\frac{\partial p_s}{\partial t} = -m^2\left[\frac{\partial}{\partial x}\left(\frac{p_s u}{m}\right) + \frac{\partial}{\partial y}\left(\frac{p_s v}{m}\right)\right] - p_s \frac{\partial w}{\partial \sigma}, \quad \ldots 4$$

and

$$\frac{d\theta}{dt} = 0, \quad \ldots 5$$

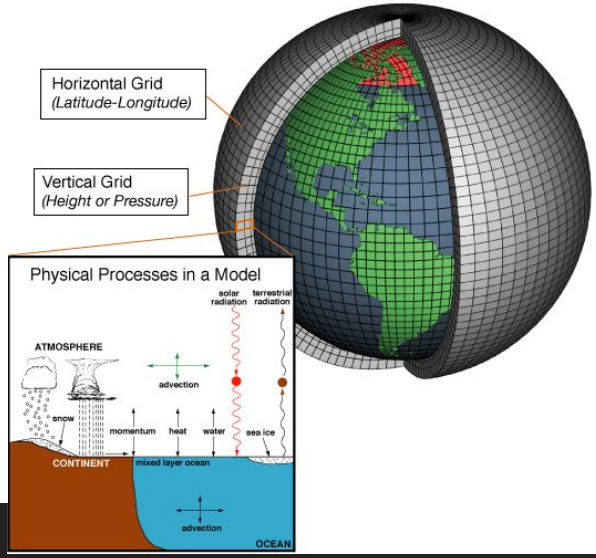
where

$$\frac{d}{dt} = \frac{\partial}{\partial t} + m\left(u\frac{\partial}{\partial x} + v\frac{\partial}{\partial y}\right) + w\frac{\partial}{\partial \sigma}, \quad \ldots 6$$

and

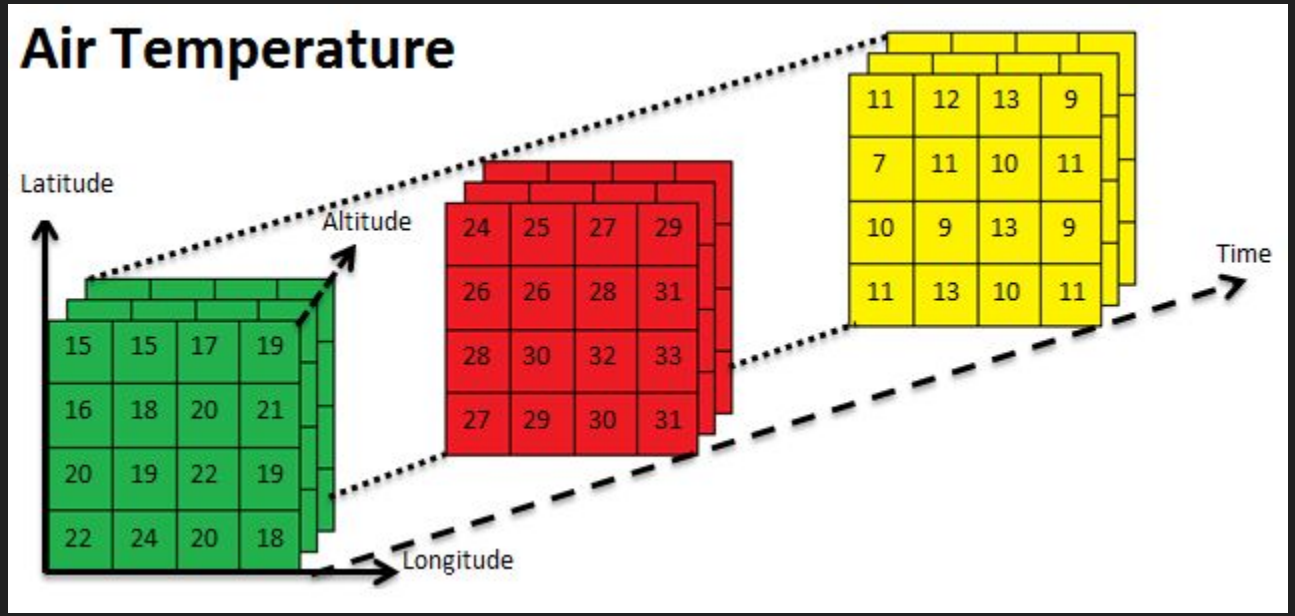
$$f_* = m^2\left[v\frac{\partial}{\partial x}\left(\frac{1}{m}\right) - u\frac{\partial}{\partial y}\left(\frac{1}{m}\right)\right]. \quad \ldots 7$$

In Eqns 1 to 7, u and v are the horizontal velocity components, w is the vertical velocity component ($w = d\sigma/dt$), ϕ, T, θ, p, p_s are the geopotential, temperature, potential temperature, pressure and surface pressure respectively, f is the Coriolis parameter, and m is the map factor for the chosen projection.



NetCDF

NetCDF (Network Common Data Form) is a set of software libraries and self-describing, machine-independent data formats that support the creation, access, and sharing of array-oriented scientific data. The project homepage is hosted by the Unidata program at the University Corporation for Atmospheric Research (UCAR). They are also the chief source of netCDF software, standards development, updates, etc. The format is an open standard. NetCDF Classic and 64-bit Offset Format are an international standard of the Open Geospatial Consortium



Спасибо за внимание!