Met Office

About NetCDF (Network Common Data Form)

What is NetCDF?

NetCDF, or Network Common Data Form, is a robust interface and library designed for array-orientated data access. It is composed of three essential elements:

1. Variables, which are used to store the data itself.
2. Dimensions, which describe the structure and relevant size information for the variables.
3. Attributes, which add supplementary information about the variables or the dataset as a whole.

Why the Met Office Relies on NetCDF

NetCDF is the Met Office's standard when it comes to storing and sharing weather and climate data, owing to several key strengths:

- It efficiently handles **large, multi-dimensional datasets.**
- It includes **metadata that helps users interpret and understand the data.**
- It is **widely supported by scientific tools and software.**

These features make NetCDF ideal for:

- Storing forecast model outputs, such as global and UK grid data.
- Managing climate datasets.
- Archiving observations and historical data.

In essence, NetCDF is the go-to solution for storing complex environmental information, be it forecasts, observational records or outputs from scientific models.

NetCDF in the Scientific Community

NetCDF plays a significant role within atmospheric and oceanic science, offering network transparency and compatibility with computers handling different data types, including integers, characters and floating-point numbers.

How Iris Supports NetCDF at the Met Office

Iris is the Met Office's main Python library for scientific weather and climate data, built to handle NetCDF files using CF conventions (these are metadata standards describing variables, units, and their spatial-temporal relationships). Iris offers a flexible, format-neutral interface that streamlines working with various datasets and is **the Met Office's main tool for processing scientific weather and climate data -** especially NetCDF files.

Met Office

It enables scientists and developers to load, analyse and visualise complex multi-dimensional datasets in a standardised manner.

Find Out More

Looking for guidance on using Iris with NetCDF? Visit:
https://scitools-iris.readthedocs.io/en/stable/