

BUFR – Binary universal form for the representation of meteorological data. BUFR is the name of a binary code for the exchange and storage of data.

CREX – Character form for the representation and exchange of data. CREX is the name of a table-driven alphanumeric code for the exchange and storage of data.

Comparison between BUFR and CREX format -

BUFR offers packing. Therefore, voluminous data (e.g., satellites, ACARS, wind profilers) will require fewer resources for transmission and storage than CREX. BUFR also permits the transmission of quality information with the original observational data. However, BUFR data is not human readable. Because it is not human readable, BUFR processing assumes the availability of well-designed computer programs to process (decode or encode) the messages.

CREX is simpler than BUFR and consequently easy to understand, to code and, because it is an alphanumeric code form, to read with only several hours of explanation. It is therefore particularly useful where computer equipment is not available. However, CREX does not offer packing, and has much less comprehensive capability for including quality information than BUFR.

NetCDF (Network Common Data Form) is a set of software libraries and machine-independent data formats that support the creation, access, and sharing of array-oriented scientific data. It is also a community standard for sharing scientific data. The Unidata Program Centre supports and maintains netCDF programming interfaces for [C](#), [C++](#), [Java](#), and [Fortran](#). Programming interfaces are also available for Python, IDL, MATLAB, R, Ruby, and Perl.

Data in netCDF format is:

- **Self-Describing.** A netCDF file includes information about the data it contains.
- **Portable.** A netCDF file can be accessed by computers with different ways of storing integers, characters, and floating-point numbers.
- **Scalable.** Small subsets of large datasets in various formats may be accessed efficiently through netCDF interfaces, even from remote servers.
- **Appendable.** Data may be appended to a properly structured netCDF file without copying the dataset or redefining its structure.
- **Sharable.** One writer and multiple readers may simultaneously access the same netCDF file.
- **Archivable.** Access to all earlier forms of netCDF data will be supported by current and future versions of the software.

GRIB is a **file format for the storage and transport of gridded meteorological data**, such as Numerical Weather Prediction model output. It is designed to be self-describing, compact and portable across computer architectures. The GRIB standard was designed and is maintained by the World Meteorological Organization.

The Hierarchical Data Format version 5 (HDF5), is an **open source file format** that supports large, complex, heterogeneous data. HDF5 uses a "file directory" like structure that allows you to organize data within the file in many different structured ways, as you might do with files on your computer.

The ASCII data (American Standard Code for Information Interchange), file format is the most commonly used file format for measurement files. It is a general text format that can be imported e.g. into Microsoft Excel or MATLAB (MathWorks Inc). ... The measurements of a specific transducer are stored as a single column in the ASCII file.

GTS Data Format

Sl. No	Data Type	Format of Data
1	Satellite	HDF/BUFR
2	Satellite	GIF/JPEG
3	Radar	NETCDF/BUFR
5	NWP	GRIB
6	Cyclone	TEXT
7	Marine	TEXT
8	NWFC	TEXT
9	Observation	TEXT/BUFR
	<ul style="list-style-type: none"> • Surface 	
	<ul style="list-style-type: none"> • Upper Air 	
	<ul style="list-style-type: none"> • Aviation Data 	
	<ul style="list-style-type: none"> • Buoy Data 	