

Here are my comments regarding the CF metadata conventions:

1. (Your background) Describe in a sentence or two your overall implementation experience related to the proposed specification. (e.g., specification implementer, tools developer, data provider, scientific analyst, science user, etc.) Have you directly implemented the CF metadata conventions? Did you use pre-existing software, and if so, what did you use?

I am a tools developer: I am the author a data server web application which gets a data request from a user, gets the data from a remote server, reformats the data into a common file format, and sends the data to the person requesting the data. This software tool is used at about 15 institutions.

I am also a data provider.

2. (Completeness) Does the specification (the online documents referenced) provide all the detail you need to implement it in software? (e.g., to read or write a data file; to implement or modify a profile or extension; or develop a tool such as a metadata translator) If not, describe what is missing in the specification.

Yes.

Minor request: it would be nice to have an attribute to indicate if a given pair of of latitude and longitude values identify the center of the area or the upper left or lower right. This would avoid confusion and misinterpretation. See

<http://www.ngdc.noaa.gov/mgg/global/gridregistration.html> which talks about grid_registration and cell_registration. Similarly, the geotiff community talks about raster_type, e.g., PixelIsArea, PixelIsPoint, but that isn't very descriptive.

3. (Accuracy) Do any parts of the specification contain inaccuracies, or internal inconsistencies? If so, please provide details.

Not that I am aware of.

4. (Clarity) Is any part of the specification ambiguous, or poorly explained? If so, please provide details.

No. It is generally well-written: clear and succinct.

5. (Balance) Does the standard describe the right set of concepts and attributes and enable the appropriate operations for its intended users? In particular, have the guiding principles outlined in section 5.2 been followed in the development of standard names?

Yes. It is a very practical standard. Everything in it is very useful.

6. (Usefulness) How well does this specification meet your information sharing needs? (e.g., Does it properly represent and describe your datasets? What are the pros and cons of these metadata convention attributes?)

The CF metadata standard has been very useful. Most source datasets that I work with have CF metadata. The software tool makes use of most of the CF metadata attributes when they are present in the source datasets. This helps search facility do a better job of helping users find datasets of interest (for example, by searching for a specific standard_name). And the metadata helps users understand a dataset when they first encounter it.

7. (Implementation) What implementation challenges does the proposed standard present? (e.g., does it conflict with other metadata requirements for your data? Is it compatible with the data formats you use?)

It is generally very compatible with other metadata standards.

The use of global and variable metadata and the format of the metadata is very compatible with the data formats I work with.

Minor request to clarify a minor conflict: it would be nice if the Conventions attribute were defined to be a comma-separated list of conventions that the dataset follows. That would make it compatible with the use of Conventions described at <http://www.unidata.ucar.edu/software/netcdf/conventions.html>. (Allowing a space separated list is trouble if a given convention name includes an internal space.)

8. (Flexibility) In what software environment(s) have you used the CF metadata conventions (e.g., Solaris, Linux, Windows, Mac OS X)?

Linux, Windows, Mac OS X.

9. (Standard Names) In your opinion, does the standard name table provide an adequately comprehensive set of names for the metadata representation?

The CF standard_names are great. The only limitation is that they don't include names for things that are in some of the datasets we work with, e.g., ocean properties, biological properties. I understand that may be beyond its realm. It may be that other standard_name conventions are more appropriate for those datasets. I note that new standard_names are frequently added to the standard. Overall, the CF standard_names are very good for their intended purpose.

Operational Suitability questions:

10. Do you currently use or plan to use CF conventions in a production setting? What types of applications do you use with CF Conventions? Does the metadata model work well with the data types and data manipulations in your application?

Yes. We use the CF conventions for data that is served by THREDDS and our data server web application. The metadata model works well.

11. Why do you choose to use the CF metadata conventions for your applications?

For the reasons stated in the CF overview: it provides a human-readable and computer-readable way of describing a dataset in a uniform way. The uniformity makes it easy to write data servers which look for specific attributes and then use that information appropriately.

We use CF specifically because it does what it intends to do very well, and because it is already widely used at other sites.

12. Have you or your users encountered any difficulty when using some of the data access or visualization tools (e.g., IDL, GrADS, etc.) on files with CF metadata? If you have, please provide a brief description of your experience.

If there are problems, it is usually because a data set failed to implement some aspect of the standard correctly. That's good, because I can then report the problem to the data provider and point to the relevant section of the CF standard. I don't have to try to persuade them with the reasons for doing things a certain way. They have already accepted that they will try to follow the standard. They fix the problem with the dataset and all is well.

13. Does the CF metadata conventions meet your requirements for discovering, accessing, providing interoperability of data and metadata? (e.g., Can it handle the data types in your applications? Do you provide catalog services that utilize CF conventions?)

Yes.

14. What operational challenges or limitations do the CF metadata conventions present? (e.g., Does it take a long time to learn how to use it? Does it require advanced processing power, large amounts of memory, complex configuration, etc.)

Because the CF standard is succinct, learning about it takes an appropriate and reasonable amount of time. Thankfully, it isn't a huge, complex standard that is burdensome to work with or requires lots of processing power, memory, or other resources. CF is very practical, function, and to-the-point.

15. What benefits do CF conventions present? Do the benefits of CF conventions outweigh the challenges? (e.g., Do the conventions offer the flexibility you want to package the data types in your applications? Do they facilitate interdisciplinary studies?)

The CF conventions make it easy to work with datasets from lots of different sources. That facilitates interdisciplinary studies (like Integrated Ecosystem Assessments). The benefits far outweigh the challenges and effort.

16. How much data do/ will you provide using these CF metadata specifications? (number of distinct data products or data sets, total data volume, number of files.)

We have roughly 25 TB of data, mostly level 3 satellite data from the CoastWatch program. The data is in roughly 250 different datasets. A given dataset can have anywhere from 1 to 10,000 data files.

17. How many users and user-groups do you have or expect to have for data using CF metadata conventions, and what is your expected user community?

Users are mostly scientists (mostly oceanographers and fisheries biologists), fisherman, teachers, students.

18. (User comments) Any additional comments, observations or criticisms of CF metadata conventions and the RFC can be provided here.

I support the acceptance of the CF conventions as a NASA ESDSWG standard.