

Review of ICARTT file format implementation and operational suitability

NASA's Earth Science Data Systems Standards Process Group (SPG) is considering the International Consortium for Atmospheric Research on Transport and Transformation (ICARTT) file format for adoption as a community standard. The ICARTT file format was developed to fulfill the data management needs for the ICARTT campaign in 2004. This file format is text-based and composed of a header section (metadata) with critical data description information (e.g., data source, uncertainties, contact information, and brief overview of measurement technique), and a data section. Although it was primarily designed for airborne data, the ICARTT format proved to be practical for other mobile and ground-based studies and various data types. The ICARTT file format has since been widely accepted in the airborne field study community and used in recent major airborne studies sponsored by NASA, NSF, NOAA and international partners.

You are invited to review this Requests For Comment (RFC) in the context of your **implementation experience** with this data format specification and its **suitability for operational use**. You only need to answer questions applicable to you. Please send your completed review to:

spg-rfc-019@lists.nasa.gov.

Implementation Experience questions:

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 ICARTT format specification? Did you use a pre-existing software package, and if so, what did you use?

I've used ICARTT formatted data from the ARCTAS field mission. The data was predominantly in the "1001" format. I have programs both in Fortran and IDL that I've written to read this format. I have never created an ICARTT formatted file.

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

Everything I've needed to understand and use data in this format is provided in the metadata.

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

None that I have found.

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

Everything seems pretty straight forward. I have significant experience with the AMES file format so the ICARTT format is pretty easy to digest.

5. (*Usefulness*) How well does this specification meet your information sharing needs? (*e.g., does it work well with the data types and data manipulations in your application? Does it properly represent your datasets? What are the pros and cons of this data format?*)

It works fine for me. I generally take files in this format and process them into a format that integrates easily with types of analysis I do.

6. (*Implementation*) What implementation challenges does the proposed standard present? Please provide details, if any.

Operational Suitability questions:

7. Do you currently use or plan to use the ICARTT format in a production setting? Do you plan to distribute data in this format to science collaborators and other researchers?

I do not as I do not provide data to other researchers.

8. Why do you choose to use the ICARTT format over other data formats for your applications?
9. Does the ICARTT file format meet your requirements for storing and accessing data?
10. Have you or your users encountered any difficulty when using some of the data in the ICARTT format? If you have, please provide a brief description of your experience.
11. What operational challenges or limitations does ICARTT present? Please provide details.
12. What benefits does the ICARTT file format present? Are there any drawbacks to using this file format? (*e.g., Does it offer the flexibility you want to package the data types in your applications? Does it facilitate interdisciplinary studies?*)
13. How much data do/will you provide or archive in the ICARTT format? (*Number of distinct data sets, total data volume, number of files.*)

14. How many users do you have or expect to have for data in the ICARTT format, and what is your expected user community?

15. (*User comments*) Any additional comments, observations or criticisms of the ICARTT format and the RFC can be provided here.

been All of the ICARTT data that I've used is in the 1001 format, and none of it has comma separated. This has been nice because it means I can use codes I have written to read AMES format data files. If the new version of the ICARTT files will have comma separated data, it will mean substantial revision of my current codes and some of the legacy codes I've been handed won't work at all.