

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?

DLR is using the ICARTT data format since the ICARTT-ITOP campaign for its in-situ aircraft campaigns (for data exchange among the involved groups, for data storage, and as input data for several commercial software, like IGOR, Sigmaplot, Origin)

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.

Yes

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

No inconsistencies found for our applications

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

No

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?*)

ICARTT is well suited for data sampled with in-situ instruments. I have no experience regarding remote sensing instruments.

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

It is easy to implement.

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?

We are presently using ICARTT for the data distribution of our in-situ aircraft campaigns.

8. Why do you choose to use the ICARTT format over other data formats for your applications?

The implementation is easy for the different measurements groups. The use is easy for the modeling groups using the aircraft data.

9. Does the ICARTT file format meet your requirements for storing and accessing data?

No problems

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.

Not aware of problems

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?*)

see answer 8.

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.*)

We archived data from about 10 aircraft campaigns. Each campaign includes about 100 data 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?

The user community is the European research groups participating in aircraft experiments (mainly from Germany, UK, France), total about 50 groups.

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