

ASCII File Format List

Introduction

The [ASCII File Format Guidelines for Earth Science Data](#) lists recommended practices for formatting and describing ASCII encoded data files, such that the files will be self-describing and adhere to common conventions. Included recommendations address: General Structure, Header Information, Data Information, Location Information, Time Information, Missing Data, Limits of Detection, and Filenames.

This table is taken from the checklist in Appendix B of that document. The checklist summarizes the requirements and recommendations contained in the document. File formats that have been vetted with the checklist appear in the columns to the right of the checklist items. To see more information about these file formats, click on the name of the format in the table, or in the list of formats below

Formats

- [YAML Encoding ASCII Format for GRACE/GRACE-FO Mission Data](#)
- [SeaBASS](#)
- [NASA Aerogeophysics ASCII File Format Convention](#) (identified as IceBridge in the table below)
- [International Consortium for Atmospheric Research on Transport and Transformation \(ICARTT\) File Format Standards V1.1](#) (deprecated, use V2.0 instead)
- [ICARTT File Format Standards V2.0](#)

Table

Legend: **y** = meets criterion; **n** = does not meet criterion; - = not applicable and/or not required

Section	Requirement / Recommendation	Format				
		SeaBASS	IceBridge	ICARTT V1.1	ICARTT V2.0	YAML for GRACE
General Requirements	Create files with separate header and data sections – R1	y	y	y	y	y
	Use a consistent delimiter between data values throughout the file – R1	y	-	y	y	y
	Use escape mechanism if the designated delimiter character appears in text or data – R1	y	-	-	-	-
	Separate lines of text and rows of data with end-of-line (EOL) character(s), used consistently throughout the file – R1	y	y	y	y	y
General Recommendations	Use the standard US-ASCII character set, without extensions – R1	y	y	y	-	y
	Avoid ASCII control characters, except tab or EOL characters – R1	y	y	-	-	y
	Do not use empty lines or rows – R1	y	-	-	-	-
	Chose delimiter character to avoid need for escape mechanism – R1	-	-	y	y	y
	Terminate file with same end-of-line (EOL) character(s) used to separate data rows – R1	-	-	-	-	y
	Use unique, descriptive file names – R7	-	-	y	y	y
Header Section Required	Clearly delineate header section as described in this document – R2	y	y	y	y	y
	List unique variable names (columns) – R2	y	y	y	y	y
	Define units of measure for each variable – R2	y	y	y	y	y
	Identify community-specific convention used for data representation and/or units of measure, if applicable – R3	y	-	-	-	y

	Specify conventions used for latitude, longitude, and elevation if applicable – R4	y	y	-	-	y
	Identify type of elevation measurement used, if applicable – R4	y	y	y	y	y
	Indicate which data grid index runs faster, if applicable – R3	-	-	-	-	-
	Reference any additional documentation needed to understand the data in the file, preferably by DOI – R2	y	-	y	y	y
	Specify time representation if not using ISO 8601 – R5	-	y	-	-	-
	Specify time zone and offset if using local time instead of UTC or GMT – R5	-	-	-	-	-
	Specify single location or time associated with all data in the file, if not specified with each data row – R3	y	y	y	y	y
	Define missing or out of bounds data fill values, any other flag values – R6	y	y	y	y	y
Header Section Recommended	Provide as much metadata as practical, all metadata if possible – R2	y	y	y	y	y
	For each variable, provide long and short names and description – R2	-	-	y	y	y
	Describe gridding scheme used, if applicable – R3	-	-	-	-	-
	Define geographic reference frame and ellipsoid – R4	-	y	-	-	-
	Specify coordinate reference system, and datum if applicable – R4	-	-	-	-	-
	Document type of location information used – R4	y	y	y	y	y
	Document location of GPS antenna on aircraft, if applicable – R4	-	y	-	-	-
	Provide geographic coordinates for place name associated with data – R4	y	-	-	-	-
	Define time base information, including source of time stamps – R5	-	y	-	-	y
	Identify time zone from IANA Time Zone Database if using local time – R5	-	-	-	-	-
	Specify whether time stamps identify start, stop, midpoint or average of measurement period – R5	-	-	y	y	y
	For averaged or derived products, indicate data collection window – R5	-	y	-	-	-
	Indicate whether internal computer clocks are synchronized to GPS time or other – R5	-	y	-	-	-
	Provide principal investigator name and contact information – R2	y	-	y	y	y
	Provide uncertainty information – R2	-	-	y	y	y
	Indicate dates of data collection and processing – R2	y	-	-	-	y
	Provide a record of data revision – R2	y	-	y	y	y
	Provide data DOI if available – R2	-	-	-	-	y
Data Section Required	Organize data as matrix of rows and columns – R1	y	y	y	y	y
	Provide geographic location and/or time tag (as applicable) for each data row or value – R3, R4, R5	y	y	y	y	y

	Use a designated flag value to indicate missing data when using space or tab delimiters – R1, R6	y	y	y	y	y
	Do not use daylight savings time if using local time instead of UTC or GMT – R5	-	-	-	-	-
Data Section Recommended	Provide lat/lon in format applicable to coordinate reference system used – R4	y	y	y	y	y
	Provide elevation for each data row or value if applicable – R4	y	y	y	y	y
	Specify elevation in meters – R4	y	y	-	-	-
	Provide data in SI units, derived units (such as degree Celsius), or non-SI units accepted for use with SI (such as minute, hour, day, mixing ratio data) – R3	y	y	-	-	y
	Provide date/time in UTC or GMT, following ISO 8601 standard – R5	y	y	y	y	y
	If time is specified in seconds past some starting point (e.g., midnight) and measurements in the file span date boundaries, assure that time increases monotonically (>86400) and date does not change – R5	-	y	y	y	y
	Structure data so that consecutive rows have monotonically increasing or unique time tag where applicable – R5	-	y	y	y	y
	Represent years with four digits – R5	y	y	y	y	y
	Provide start and stop timestamps for measurements in irregular intervals – R5	-	-	y	y	y
	Indicate data above or below a limit of detection using a flag value – R6	-	y	y	y	y
	Represent flags (missing data, etc.) so as not to be construed as data – R6	y	y	y	y	y
	Provide a separate column for flag values that vary from point to point – R6	-	-	-	-	y