

Chapter 1. Introduction

In order for planetary science data to be useful to those not directly involved in its creation, supporting information must be made available with the data to allow effective use and interpretation. The exchange of data is increasingly important in planetary science; thus there is a need for establishment and enforcement of standards regarding the quality and completeness of data. Electronic communication has become more sophisticated, and the use of new media (such as CD-ROMs and DVD) for data storage and transfer requires additional formatting standards to ensure long-term readability and usability. To these ends, the Planetary Data System (PDS) has developed a data set nomenclature consistent across discipline boundaries, as well as standards for labeling data files.

1.1 PDS Data Policy

Only data that comply with PDS standards will be published in volumes labeled “Conforms to PDS Standards”. When the PDS assists in the preparation of data published in a non-compliant format, PDS participation should be acknowledged with the statement such as “funded by PDS”. The PDS Management Council makes decisions on compliance waivers. Non-compliant data sets will be incorporated into the PDS archives only under unusual circumstances.

1.2 Purpose

This document is intended as a reference manual for use in conjunction with the *PDS Data Preparation Workbook* and the *Planetary Science Data Dictionary*. The *PDS Data Preparation Workbook* describes the end-to-end process for submitting data to the PDS and gives instructions for preparing data sets. In addition, a glossary of terms used throughout the documentation is included as an appendix to the Workbook. The Planetary Science Data Dictionary (PSDD) contains definitions of the standard data element names and objects. This Standards Reference defines all PDS standards for data preparation.

1.3 Scope

The information included here constitutes Version 3.8 of the Planetary Data System data preparation standards for producing archive quality data sets.

1.4 Audience

This document is intended primarily to serve the community of scientists and engineers responsible for preparing planetary science data sets for submission to the PDS. These include restored data from the era prior to PDS, mission data from active and future planetary missions, and data from earth-based sites. The audience includes personnel at PDS discipline and data nodes, mission principal investigators, and ground data system engineers.

1.5 Document Organization

The first chapter of this document, “Chapter 1 – Introduction”, provides introductory material and citations of other reference documents. The remaining chapters provide an encyclopedia of data preparation standards, organized alphabetically by standard title.

1.6 Other Reference Documents

The following references are cited in this document:

- Batson, R. M., (1987) “Digital Cartography of the Planets: its Status and Future”, *Photogrammetric Engineering & Remote Sensing* 53, 1211-1218.
- Davies, M.E., *et al.* (1991) “Report of the IAU/IAG/COSPAR Working Group on Cartographic Coordinates and Rotational Elements of the Planets and Satellites: 1991”, *Celestial Mechanics*, 53,377-397.
- Greeley, R. and Batson, R.M. (1990) *Planetary Mapping*, Cambridge University Press, Cambridge, 296p.
- *Guide on Data Entity Naming Conventions*, NBS Special Publication 500-149.
- *Planetary Science Data Dictionary*, JPL D-7116 Rev D, July 15, 1996, (Available from the PDS).
- *Planetary Data System Data Preparation Workbook Version 3.1*, JPL D-7669 Part 1, February 17, 1995, (Available from the PDS)
- *Issues and Recommendations Associated with Distributed Computation and Data Management Systems for the Space Sciences*, National Academy Press, Washington, DC, 111p.

International Standards Organization (ISO) References:

- ISO 9660:1988 “Information Processing - Volume and File Structure of CD-ROM for Information Exchange”, April 15, 1988.
- ISO 646:1991 ASCII character set.
- ISO 8601:1988 “Data Element and Interchange Formats – Representations of Dates and Times”

SFDU and PVL References:

- *Standard Formatted Data Units - Structure and Construction Rules*, CCSDS 620.0-R-1.1c, May 1992.

- *Standard Formatted Data Units - A Tutorial*; CCSDS 620.0-G-1, May 1992.
- *Parameter Value Language Specification (ccsd0006)*; CCSD 641.0-R-0.2, June 1991.
- *Parameter Value Language -- A Tutorial*; CCSDS 641.0-G-1.0, May 1992.

1.7 Online Document Availability

The *Planetary Science Data Dictionary*, *Planetary Data System Data Preparation Workbook*, and this document, the *Planetary Data System Standards Reference*, are available online. Information on accessing these references may be found on the PDS website at the following URL:

<http://pds.jpl.nasa.gov>

To obtain a copy of these documents or for questions concerning these documents, contact the PDS Operator (at PDS_OPERATOR@jpl.nasa.gov, 626-744-5579) or a PDS data engineer.

The examples provided throughout the chapters and appendices are based on both existing and planned PDS archive products, modified to reflect the current version of the PDS Standards. Data object definitions are refined and augmented from time to time, as user community needs arise, so object definitions from products designed under older versions of the Standards may differ significantly. To check the current state of any object definition, consult a PDS data engineer or this URL:

<http://pdsproto.jpl.nasa.gov/ddcolstdval/newdd/top.cfm>

Additional examples may be obtained by contacting a Data Engineer.

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