

Mars Reconnaissance Orbiter

**CRISM SCIENCE TEAM AND PDS
GEOSCIENCES NODE
INTERFACE CONTROL DOCUMENT
(ICD)**

**Version 1.1
January 25, 2005**

Prepared by:

Susan Slavney
PDS Geosciences Node

Approved by:

Scott Murchie **Date**
Principal Investigator, CRISM

Richard Zurek **Date**
Project Manager, Mars Reconnaissance Orbiter

Raymond E. Arvidson **Date**
Director, PDS Geosciences Node

Laverne Hall **Date**
Project Manager, Planetary Data System

DOCUMENT CHANGE LOG

Date	Description	Sections affected
Dec. 8, 2003	Initial Draft	All
Dec. 1, 2004	Added CRISM Data Product SIS and Archive Volume SIS to list of documents. Updated Archive Plan version.	1.3 Applicable Documents
Dec. 2, 2004	Some delivery dates supplied	5 Deliverables and Schedules
Dec. 2, 2004	DARWG explained	2 Management and Oversight
Dec. 7, 2004	Remaining delivery dates supplied	5 Deliverables and Schedules
Jan. 5, 2005	Added MRO and PDS Project Managers as signatories	Signature page
Jan. 25, 2005	Revised formatting requirement for documentation	3.1 Science Data Archives
Jan. 25, 2005	Clarified that CRISM Team provides sample data for peer review.	3.1 Science Data Archives

TBD ITEMS

Section	Description
None.	

CONTENTS

DOCUMENT CHANGE LOG	i
TBD ITEMS.....	i
CONTENTS.....	ii
ACRONYMS.....	iii
1. INTRODUCTION	1
1.1 Purpose and Scope	1
1.2 Contents	1
1.3 Applicable Documents and Constraints.....	1
1.4 Relationships with Other Interfaces.....	1
2. Management and Oversight	1
3. Responsibilities of CRISM Science Team.....	2
3.1 CRISM Science Data Archives.....	2
3.2 CRISM Spectral Library.....	2
4. Responsibilities of Geosciences Node	3
4.1 CRISM Science Data Archives.....	3
4.2 CRISM Spectral Library	4
5. Deliverables and Schedule.....	4

ACRONYMS

CRISM	Compact Reconnaissance Imager and Spectrometer for Mars
DARWG	Data and ARchives Working Group
ICD	Interface Control Document
MRO	Mars Reconnaissance Orbiter
NSSDC	National Space Science Data Center
PDS	Planetary Data System
SIS	Software Interface Specification
TBD	To Be Determined

1. INTRODUCTION

1.1 Purpose and Scope

This Interface Control Document (ICD) defines the relationship between the Compact Reconnaissance Imager and Spectrometer for Mars (CRISM) Science Team and the Planetary Data System (PDS) Geosciences Node for the purpose of archiving CRISM science data from the Mars Reconnaissance Orbiter (MRO) mission in the PDS and distributing it to the science community.

1.2 Contents

This ICD specifies the responsibilities of the CRISM Science Team and the PDS Geosciences Node in archiving CRISM science data. It lists the deliverables expected from both entities and specifies the schedule for their delivery in the context of MRO mission operations.

1.3 Applicable Documents and Constraints

1. Planetary Data System Standards Reference, JPL D-7669 part 2, version 3.6, August 1, 2003.
2. Mars Reconnaissance Orbiter Project Data Archive Generation, Validation, and Transfer Plan, Arvidson et al., January 20, 2004.
3. Mars Exploration Program Data Management Plan, Arvidson et al., Rev. 3.0, March 20, 2002.
4. Mars Reconnaissance Orbiter (MRO) Compact Reconnaissance Imager and Spectrometer for Mars (CRISM) Experiment Operations Plan, rev. 1.5, September 2003.
5. Mars Reconnaissance Orbiter (MRO) CRISM Data Product Software Interface Specification, v 1.0, November 22, 2004.
6. Mars Reconnaissance Orbiter (MRO) CRISM Archive Volume Software Interface Specification, to be written (see 4.1).

1.4 Relationships with Other Interfaces

This ICD could be affected by changes to the MRO Archive Plan or the CRISM Experiment Operations Plan. This ICD specifies responsibilities for writing the CRISM Data Product SIS and the Archive Volume SIS.

2. MANAGEMENT AND OVERSIGHT

The CRISM Principal Investigator will be responsible for managing the archiving activities of the CRISM Team, and the Geosciences Node Manager will be responsible for managing the archiving activities of the Geosciences Node. CRISM Team and Geosciences Node members will meet periodically to discuss archiving issues, usually by teleconference.

Oversight of the archiving process will be provided by the MRO Data and Archives Working Group (DARWG). A subgroup of the MRO Project Science Group, the DARWG coordinates the planning, generation, validation, and delivery of all MRO archives. The DARWG meets regularly by teleconference during the archive planning period and as needed during mission operations. Representatives of the CRISM Team and Geosciences Node will attend Data and Archives Working Group meetings and report progress.

3. RESPONSIBILITIES OF CRISM SCIENCE TEAM

3.1 CRISM Science Data Archives

The CRISM Team is responsible for writing the CRISM Standard Data Product SIS, with help from the Geosciences Node as needed.

The CRISM Team is responsible for writing instrument and data set descriptions for the PDS catalog in the format specified in the PDS Standards Reference, with help from the Geosciences Node as needed.

The CRISM Team is responsible for performing science validation on CRISM data products.

The CRISM Team will deliver science data products to the Geosciences Node according to the schedule in the MRO Archive Plan. Data will be transferred on hard media such as external hard disks, provided by the CRISM team.

The CRISM Team will deliver relevant calibration reports and files needed for data calibration to the Geosciences Node.

The CRISM Team will deliver to the Geosciences Node IDL software to ingest targeted RDR products and produce map-projected spectral reflectance products. Software should include source code and documentation and should be delivered as one or more Zip-compressed files.

The CRISM Team is responsible for delivering to the Geosciences Node any additional documentation they want to include in the archive. Documentation files should be in either plain text or HTML format to be PDS-compliant. Other versions such as Adobe PDF may also be included at the Team's discretion.

The CRISM Team is responsible for providing samples of all data products and product labels as described in the Standard Data Product SIS for the PDS-required peer review. The Team is also responsible for resolving any liens that may be placed against CRISM science data sets as a result of the peer review, with help from the Geosciences Node as needed.

3.2 CRISM Spectral Library

The CRISM Team is responsible for providing data sets for the Spectral Library along with the supporting information required by PDS, specifically PDS data labels and data set and instrument documentation files for the PDS catalog.

The CRISM Team members who provide Spectral Library data are responsible for participating in the CRISM Spectral Library Working Group, which determines the sample classification scheme, the set of PDS label keywords used to describe spectral data, and the requirements for a web-based user interface to the Spectral Library to allow selecting and downloading of spectral data files.

The data providers are also responsible for examining their data sets via the Spectral Library user interface, once they have been incorporated into the Spectral Library, to ensure that the data can be accessed as expected.

The CRISM Team is responsible for resolving any liens that may be placed against CRISM spectral data sets as a result of the PDS-required peer reviews, with help from the Geosciences Node as needed.

4. RESPONSIBILITIES OF GEOSCIENCES NODE

4.1 CRISM Science Data Archives

The Geosciences Node is responsible for writing the CRISM Science Data Archive Volume SIS, with input from the CRISM Team as needed.

The Geosciences Node will obtain mission and spacecraft descriptions for the PDS Catalog from the MRO Project or from whomever the Project has designated to maintain them.

The Geosciences Node will write reference and personnel descriptions for the PDS Catalog in the format specified in the PDS Standards Reference.

The Geosciences Node will receive science data products, calibration files and reports, and instrument and data set catalog files from CRISM Team.

The Geosciences Node is responsible for assembling and validating PDS-compliant CRISM archives.

The Geosciences Node conducts validation of the CRISM science data sets as required by PDS, and assists the CRISM Team in resolving any liens that may be placed against the data sets.

The Geosciences Node is responsible for maintaining an online repository of CRISM science data archives. The repository will allow public access to data products that have been released to the PDS, and will allow access only by CRISM Team members to those data products that have not yet been released.

The Geosciences Node is responsible for developing and operating an interface for the science community that provides search and retrieval capabilities to access the online repository of CRISM science data archives.

The Geosciences Node is responsible for making copies of the CRISM archive on physical media for long term storage at PDS and the National Space Science Data Center (NSSDC).

4.2 CRISM Spectral Library

The Geosciences Node receives Spectral Library data products from CRISM team members.

The Geosciences Node assembles and validates the PDS-compliant archive of CRISM Spectral Library.

The Geosciences Node conducts validation of the CRISM Spectral Library data sets as required by PDS, and assists the CRISM Team in resolving any liens that may be placed against the data sets.

The Geosciences Node develops, maintains, and hosts the CRISM Spectral Library data base and interface for CRISM team and public use.

5. DELIVERABLES AND SCHEDULE

Table 5.1. Deliverables associated with CRISM archives.

Deliverable	From	To	Delivery Date
Science Data Archive Components			
CRISM science data products	CRISM Team	Geosciences	Once every 3 mo. after 6 mo. validation, beginning Jun. 2007. Team delivers data to Geosciences two weeks before scheduled release date to allow time to assemble archive volumes.
Data Product SIS	CRISM Team	Geosciences	Feb. 2005
Archive Volume SIS	Geosciences	Geosciences	Aug. 2005
Instrument and data set descriptions for PDS Catalog	CRISM Team	Geosciences	Oct. 2005
Mission and spacecraft descriptions for PDS Catalog	MRO Project	Geosciences	Oct. 2005
Personnel and reference descriptions for PDS Catalog	Geosciences	Geosciences	Oct. 2005
Other data set documentation, if any	CRISM Team	Geosciences	through Jun. 2009
Calibration reports and data	CRISM Team	Geosciences	Mar. 2006
Software	CRISM Team	Geosciences	Aug. 2006
Completely assembled and validated CRISM archive volumes	Geosciences	PDS Central Node	Once every 3 mo. after 6 mo. validation, beginning Jun. 2007. Actual date determined by start of

Deliverable	From	To	Delivery Date
			data acquisition.
Release objects describing each release of CRISM science data	Geosciences	PDS Central Node	Once every 3 mo. after 6 mo. validation, beginning Jun. 2007
Spectral Library Components			
Spectral Library data sets with PDS labels	CRISM Team	Geosciences	December 31, 2004; June 1, 2005.
Spectral Library SIS	Geosciences	Geosciences	(Complete)
Instrument and data set descriptions of Spectral Library data sets for PDS Catalog	CRISM Team	Geosciences	Oct. 2005
Spectral Library relational data base	Geosciences	Geosciences	December 31, 2005
Completely assembled and validated Spectral Library archives	Geosciences	PDS Central Node	MOI (March 2006)
Release object announcing release of CRISM Spectral Library	Geosciences	PDS Central Node	MOI (March 2006)
Validation			
CRISM science data validation reports including liens and resolutions	Geosciences	PDS Central Node	Peer review report due in March 2005. Validation reports of released data due with each release.
CRISM Spectral Library validation reports including liens and resolutions	Geosciences	PDS Central Node	MOI (March 2006)
Online Services			
CRISM science data archives online repository	Geosciences	Public	June 2007
Web-accessible user interface to Spectral Library relational data base and data sets	Geosciences	CRISM Team, public	MOI (March 2006)