STANDARD DATA PRODUCT
ARCHIVE VOLUME
SOFTWARE INTERFACE SPECIFICATION
( THEMIS Archive Volume SIS )

Version 3.1
January 1, 2018
Mars Space Flight Facility, Arizona State University
## DOCUMENT CHANGE LOG

<table>
<thead>
<tr>
<th>Change</th>
<th>Date</th>
<th>Affected Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Draft</td>
<td>5/31/2002</td>
<td>All</td>
</tr>
<tr>
<td>First revision</td>
<td>10/01/2002</td>
<td>Most</td>
</tr>
<tr>
<td>Archive design revision; added BTR &amp; ABR as standard products; defined virtual volume</td>
<td>01/01/03</td>
<td>Most</td>
</tr>
<tr>
<td>Browse image format change</td>
<td>07/01/03</td>
<td>Acronyms, Sections 2.2, 3.2.4, Appendices A &amp; B</td>
</tr>
<tr>
<td>VIS calibration files changed to subdirectories containing multiple files</td>
<td>04/01/04</td>
<td>Section 2.3, Appendix A</td>
</tr>
<tr>
<td>Update to INDEX directory contents</td>
<td>07/01/04</td>
<td>Section 2.7, Appendices A &amp; B</td>
</tr>
<tr>
<td>Update to DOCUMENT directory contents</td>
<td>10/01/04</td>
<td>Section 2.6, Appendices A &amp; B</td>
</tr>
<tr>
<td>Addition of Appendix C. GEOMETRY</td>
<td>01/01/06</td>
<td>Acronyms, Sections 1.2, Appendices B &amp; C</td>
</tr>
<tr>
<td>Update of references 6 &amp; 10</td>
<td></td>
<td>Section 1.3</td>
</tr>
<tr>
<td>Updates related to IR-GEO products</td>
<td>07/01/09</td>
<td>Acronyms, Sections 1.2, 5.0, Appendices B &amp; C</td>
</tr>
<tr>
<td>Addition of ODY_ORIENT_POINT text</td>
<td></td>
<td>Sections 2.6, Appendices A &amp; B</td>
</tr>
<tr>
<td>Version 3.0 Reflects split of archive into two volume sets: ODTSDP &amp; ODTGEO</td>
<td>01/01/15</td>
<td>All sections and Appendices</td>
</tr>
<tr>
<td>Update to publication schedule</td>
<td>01/01/18</td>
<td>Section 4.3</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS

DOCUMENT CHANGE LOG ........................................................................................................II
TABLE OF CONTENTS ..................................................................................................................III

1. Introduction ..........................................................................................................................1
   1.1 Purpose and Scope ..........................................................................................................1
   1.2 Content Overview ..........................................................................................................1
   1.3 Applicable Documents and Constraints .....................................................................1
   1.4 Relationships with Other Interfaces ............................................................................2

2. Archive Volume Contents ....................................................................................................2
   2.1 Root Directory Contents ..............................................................................................3
   2.2 Browse Directory Contents ..........................................................................................3
   2.3 Calib Directory Contents ...............................................................................................4
   2.4 Catalog Directory Contents ..........................................................................................5
   2.5 Data Directory Contents and Naming .........................................................................6
   2.6 Document Directory Contents ......................................................................................8
   2.7 Index Directory Contents .............................................................................................9
   2.8 Software Directory Contents .......................................................................................11

3. Archive Volume Format .....................................................................................................12
   3.1 Disk Format ...................................................................................................................12
   3.2 File Formats ..................................................................................................................12
      3.2.1 PDS Label Format ................................................................................................12
      3.2.2 Document File Format .......................................................................................13
      3.2.3 Catalog File Format ............................................................................................14
      3.2.4 PNG and JPG File Formats ...............................................................................14
      3.2.5 IMAGE File Format ............................................................................................14
      3.2.6 Tabular File Format ............................................................................................14
      3.2.7 QUBE File Format .............................................................................................14
      3.2.8 CUBE File Format .............................................................................................15

4. Archive Volume Generation ..............................................................................................15
   4.1 Interface Media Characteristics ...................................................................................15
   4.2 Labeling and Identification .........................................................................................15
   4.3 Data Product Sizes and Delivery Rates ......................................................................16
   4.4 Data Transfer and Validation Methods ......................................................................18

5. Support Staff and Cognizant Persons ............................................................................18
   5.1 THEMIS Archive Volume Staff ..................................................................................18
   5.2 PDS Personnel Responsible for Archive Support ......................................................18

Appendix A: ODTSDP Archive Volume Directory Structure ..............................................20
Appendix B: ODTGEO Archive Volume Directory Structure ............................................24
Appendix C: THEMIS Virtual Archive Volume .................................................................28
Appendix D: ODTGEO Version-1 Archive Volume .............................................................35
ACRONYMS AND ABBREVIATIONS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABR</td>
<td>Apparent Brightness Record</td>
</tr>
<tr>
<td>ALB</td>
<td>Projected Visible ALBedo record</td>
</tr>
<tr>
<td>ASCII</td>
<td>American Standard Code for Information Interchange</td>
</tr>
<tr>
<td>ASU</td>
<td>Arizona State University</td>
</tr>
<tr>
<td>BTR</td>
<td>Brightness Temperature Record</td>
</tr>
<tr>
<td>DCS</td>
<td>DeCorrelation Stretch record</td>
</tr>
<tr>
<td>DVD</td>
<td>Digital Versatile Disk</td>
</tr>
<tr>
<td>EDR</td>
<td>Experiment Data Record</td>
</tr>
<tr>
<td>GEO</td>
<td>Geometrically registered record</td>
</tr>
<tr>
<td>IR</td>
<td>Infrared</td>
</tr>
<tr>
<td>ISIS</td>
<td>Integrated Software for Imaging Spectrometers</td>
</tr>
<tr>
<td>ISO</td>
<td>International Standards Organization</td>
</tr>
<tr>
<td>JPEG</td>
<td>Joint Photographic Experts Group</td>
</tr>
<tr>
<td>JPL</td>
<td>Jet Propulsion Laboratory</td>
</tr>
<tr>
<td>Mbyte</td>
<td>Megabyte</td>
</tr>
<tr>
<td>NASA</td>
<td>National Aeronautics and Space Administration</td>
</tr>
<tr>
<td>NSSDC</td>
<td>National Space Science Data Center</td>
</tr>
<tr>
<td>ODY</td>
<td>2001 Mars Odyssey</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>Mars ODyssey Themis (GEOgraphically) Projected Data Products</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>Mars ODyssey Themis Standard Data Products</td>
</tr>
<tr>
<td>PBT</td>
<td>Projected Brightness Temperature record</td>
</tr>
<tr>
<td>PDS</td>
<td>Planetary Data System</td>
</tr>
<tr>
<td>PNG</td>
<td>Portable Network Graphics</td>
</tr>
<tr>
<td>RGB</td>
<td>Red, Green, Blue; Visible false color composite image</td>
</tr>
<tr>
<td>SDVT</td>
<td>Science Data Validation Team</td>
</tr>
<tr>
<td>SIS</td>
<td>Software Interface Specification</td>
</tr>
<tr>
<td>RDR</td>
<td>Reduced Data Record</td>
</tr>
<tr>
<td>TLM</td>
<td>Telemetry</td>
</tr>
<tr>
<td>THM</td>
<td>THERmal EMISSION Imaging System</td>
</tr>
<tr>
<td>VIS</td>
<td>Visible</td>
</tr>
</tbody>
</table>
GLOSSARY

Archive – An archive consists of one or more data sets along with all the documentation and ancillary information needed to understand and use the data. An archive is a logical construct independent of the medium on which it is stored.

Archive Volume – A volume is a unit of media on which data products are stored; for example, one CD-ROM or DVD-ROM. An archive volume is a volume containing all or part of an archive; that is, data products plus documentation and ancillary files.

Archive Volume Set – When an archive spans multiple volumes, they are called an archive volume set. Usually the documentation and some ancillary files are repeated on each volume of the set, so that a single volume can be used alone.

Virtual Archive Volume – When an archive is available online, it is not constrained by the size limitations of physical media and it is called a virtual archive volume. The virtual archive mimics the directory structure of a single archive volume, with an expanded data directory to contain all of the data available on the archive volume set.

Catalog Information – Descriptive information about a data set (e.g. mission description, spacecraft description, instrument description), expressed in Object Description Language (ODL) which is suitable for loading into a PDS catalog.

Data Product – A labeled grouping of data resulting from a scientific observation, usually stored in one file. A product label identifies, describes, and defines the structure of the data. An example of a data product is a planetary image, a spectrum table, or a time series table.

Data Set – An accumulation of data products. A data set together with supporting documentation and ancillary files is an archive.

Standard Data Product – A data product generated in a predefined way using well-understood procedures, processed in "pipeline" fashion. Data products that are generated in a non-standard way are sometimes called special data products.
1. Introduction

1.1 Purpose and Scope

This Software Interface Specification is intended to be used by those who wish to understand the format and content of the THEMIS Archive. Typically, these individuals would be software engineers, data analysts, or planetary scientists.

The specifications in this document apply to all THEMIS product archive volumes that are generated by the Mars Odyssey Project.

1.2 Content Overview

This Software Interface Specification (SIS) describes the content, generation, and format of the THEMIS data archive. THEMIS is a combination visible (VIS) and infrared (IR) multi-spectral imager onboard the 2001 Mars Odyssey Orbiter. The data products include a variety of raw, calibrated and derived products presented in both raw raster and geographically projected coordinates. The complete data archive is delivered as two related archive volume sets: Mars Odyssey THEMIS Standard Products and Mars Odyssey THEMIS Projected Products. The THEMIS Team at the ASU Mars Space Flight Facility is responsible for generating these products and assembling the archive.

All products presented in raw raster (as collected) order are archived in the Mars Odyssey THEMIS Standard Products (ODTSDP) volume set. The standard data products in the archive are the raw (EDR) and the calibrated (RDR) spectral image QUBE, and either a visible apparent brightness image (ABR) or an infrared brightness temperature image (BTR) derived from the RDR QUBE. All products are available at both visible and thermal infrared wavelengths: VISEDR or IREDR, VISRDR or IRRDR, and VISABR or IRBTR. In this text, the acronyms THM-EDR and THM-RDR may be used to collectively reference the raw and calibrated data products at both wavelengths.

All products presented in geographically projected coordinates are archived in the Mars Odyssey THEMIS Projected Products (ODTGE0) volume set. The special data products in this archive are the projected and calibrated (GEO) spectral image CUBE, available at both visible and thermal infrared wavelengths, and collectively referenced in the text as THM-GEO. The available derived infrared products include projected brightness temperature images (PBT) and decorrelation stretch browse images (DCS). The available derived visible products include projected albedo images (ALB) and false color composite browse images (RGB). All products in the ODTGE0 archive were generated from the corresponding RDR QUBE in the ODTSDP archive.

1.3 Applicable Documents and Constraints

This Archive Volume SIS is intended to be consistent with the following documents:


The user is referred to the following THEMIS documents for additional information:


### 1.4 Relationships with Other Interfaces

This Archive Volume SIS could be affected by changes to the design of the THEMIS data products or the THEMIS processing software, described in the THEMIS Software Interface Specification [8], in the THEMIS Processing User’s Guide [9], and in the THEMIS Geometric Processing User’s Guide [10].

### 2. Archive Volume Contents

This section describes the contents of the THEMIS archive volumes, including the file names, file contents, file types, and organization responsible for providing the files. The two archive volume sets are organized with a similar directory structure, as described below; details for each archive volume are shown in Appendices A & B. Each archive volume contains the data products from a single publication release period (typically, three months of data collection) and is named using the appropriate RELEASE_ID.

THEMIS archive volumes will be available on physical media only for permanent archive purposes and available online for public consumption (details in section 4). The online archive, also referred to as the “virtual volume”, is a logical volume based on the format of the physical archive, with minor differences due to the size limitations of the latter. The format of the virtual archive is described in Appendix C.

Pattern placeholder abbreviations are used repeatedly throughout the next few sections; for example, release subdirectories follow the pattern odtPPP_vxxxx, data subdirectories follow the pattern AoooXXPPP, and data product filenames follow the pattern AooooonnnPPP.EXT. Use this key to interpret their meanings:
A is a 1 letter description of the type of image collected;
   [ V = visible image; I = infrared image; ]

oooXX is the first three digits of a mission orbit number for one-hundred orbit
directory;
   [ 010XX includes all orbits between 01000 and 01099 ]

ooooo is a 5-digit mission orbit number when the image was collected;
   [ 01234 = mapping orbit number example ]
nnn is a 3-digit image sequence number indicating the order that images were
collected each orbit; [ 001 = first image collected in the ooooo orbit ]

PPP is a 3-letter suffix uniquely identifying the product type;
   [ example EDR ]

vxxxx version number and release number identifies this volume in the volume set;
OR  v_xxxx  [ 2_0001 = version 2, release_id=0001 ]

2.1 Root Directory Contents

Files in the Root directory include an overview of the archive, a description of the volume for the
PDS Catalog, and a list of errata or comments about the archive. All files in this directory are
provided by the THEMIS team. The following files are contained in the Root directories of both
the ODTSDP and ODTGEO archive volumes.

<table>
<thead>
<tr>
<th>Root File Name</th>
<th>File Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAREADME.TXT</td>
<td>Volume content and format information</td>
</tr>
<tr>
<td>AAREADME.HTM</td>
<td>Hypertext version of AAREADME.TXT</td>
</tr>
<tr>
<td>AAREADME.LBL</td>
<td>A PDS detached label that describes both AAREADME.TXT and AAREADME.HTM</td>
</tr>
<tr>
<td>ERRATA.TXT</td>
<td>A cumulative listing of comments and updates concerning all archive volumes published to date</td>
</tr>
<tr>
<td>VOLDESC.CAT</td>
<td>A description of the contents of this volume in a PDS format readable by both humans and computers; the filename maybe modified with an abbreviation of the volume id (example: voldesc_vxxxx.cat)</td>
</tr>
</tbody>
</table>

2.2 Browse Directory Contents

The Browse subdirectories contain reduced-size, easily viewed versions of data products to be
used to help identify products of interest available on the archive volume. The overview files in
this directory are provided by the THEMIS team. The following files are contained in the Browse directory of both the ODTSDP and ODTGEO archive volumes.

<table>
<thead>
<tr>
<th>Browse File Name</th>
<th>File Contents</th>
</tr>
</thead>
</table>

3
The Browse directory is organized into release volume subdirectories named for the browse product types included and the volume name. These, in turn, contain image subdirectories which follow the same organizational conventions of the Data image subdirectories (see pattern key above and Section 2.5). All products in the subdirectories are provided by the THEMIS team. The following subdirectories are contained in the Browse directory of the indicated archive volume set.

<table>
<thead>
<tr>
<th>Volume Set</th>
<th>Release Subdirectory</th>
<th>Image Subdirectories and Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODTSDP</td>
<td>ODTBWSv_xxxx</td>
<td>Includes one browse image for each IR and VIS image on this volume; image subdirectories follow pattern I0o0XX or V0o0XX</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>ODTBWSv_xxxx</td>
<td>Includes one browse image for each IR-GEO and VIS-GEO image on this volume; image subdirectories follow pattern I0o0XXBWS2 or V0o0XXBWS2</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>ODTDCSv_xxxx</td>
<td>Includes up to four DCS images for each qualified IR-RDR; image subdirectories follow pattern I0o0XXDCS</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>ODTRGBv_xxxx</td>
<td>Includes one RGB image for each qualified VIS-RDR; image subdirectories follow pattern V0o0XXRGB</td>
</tr>
</tbody>
</table>

Individual browse and thumbnail images are contained in the data subdirectories and have filenames based on the PRODUCT_ID of the data product that they represent. Each browse image has the same dimensions (samples by lines) as a single band of the source data product. Infrared browse images are usually derived from the data collected in band 9 (centered at 12.57 µm) of the source product; visible browse images are usually derived from the data in band 3 (centered at 0.654 µm) of the source product. If the named band is not available in the source product the first available band, in numerical order, is used to create the browse image. Note that there are no browse images for infrared reset (R-RDR) or infrared shutter (S-EDR) images.

Thumbnail images are browse images reduced to 10% of the original file size. Thumbnail image names follow the pattern of A0ooooonnn_small.jpg, as defined as above.

### 2.3 Calib Directory Contents

The Calib directory is available on both the ODTSDP and ODTGEO archive volumes; the files on each are identical. The Calib directory contains calibration documentation and files used to process the data products. Several subdirectories have been created within the Calib directory to store related calibration files. All files in this directory and its subdirectories are provided by the THEMIS team. The following files and subdirectories are contained in the Calib directory.
2.4 Catalog Directory Contents

The files in the Catalog directory provide a top-level understanding of the mission, spacecraft, and instruments are identical on both archive volumes (indicated with a *). The Catalog files related to specific data sets are only available on the archive volume that contains the relevant dataset. The files in this directory are coordinated with the PDS data engineer, who is responsible for loading them into the PDS catalog. The THEMIS team has provided all of the files in this directory except the INSTHOST.CAT, MARTGT.CAT, and MISSION.CAT. The following files are contained in the Catalog directory of the indicated archive volume set.
2.5 Data Directory Contents and Naming

The Data image subdirectories contain the data products as appropriate for the archive volume. The overview files in this directory are provided by the THEMIS team. The following files are contained in the Data directory of both the ODTSDP and ODTGEO archive volumes.

<table>
<thead>
<tr>
<th>Data File Name</th>
<th>File Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATAINFO.TXT</td>
<td>A description of the contents of this directory; the contents of this file varies on each of the archive volumes</td>
</tr>
</tbody>
</table>
The Data directory is organized into release volume subdirectories named for the dataset included and the volume name. These, in turn, contain image subdirectories that follow the pattern Ao00XXPPP (see pattern key above) and include 100 orbits of image data. The size of the image subdirectories will vary between each archive volume due to inconsistent data volume collected during any given block of orbits. All files and standard data products in the Data directory of the ODTSDP and ODTGEO archive volumes are provided by the THEMIS team.

The following subdirectories are contained in the Data directory of the ODTSDP archive volume. A detailed description of the data products is available in the THEMIS Software Interface Specification [8].

<table>
<thead>
<tr>
<th>Release Subdirectory</th>
<th>Image Subdirectories and Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODTIBv_xxxx</td>
<td>Image subdirectories follow pattern l000XXBTR and include the IR-BTR images</td>
</tr>
<tr>
<td>ODTIEv_xxxx</td>
<td>Image subdirectories follow pattern [IRS]oo0XXEDR and include the IR-EDR images. Each image subdirectory also includes one copy of the TLM.FMT file; The TLM format file contains the names of all fields stored in the TLM table header object in infrared raw data QUBEs.</td>
</tr>
<tr>
<td>ODTIRv_xxxx</td>
<td>Image subdirectories follow pattern l000XXRDR or R000XXRDR and include the IR-RDR images</td>
</tr>
<tr>
<td>ODTVBv_xxxx</td>
<td>Image subdirectories follow pattern V000XABR and include the VIS-ABR images</td>
</tr>
<tr>
<td>ODTVEv_xxxx</td>
<td>Image subdirectories follow pattern Voo0XXEDR and include the VIS-EDR images</td>
</tr>
<tr>
<td>ODTVRv_xxxx</td>
<td>Image subdirectories follow pattern Voo0XXRDR and include the VIS-RDR images</td>
</tr>
</tbody>
</table>

The following subdirectories are contained in the Data directory of the ODTGEO archive volume. A detailed description of the data products is available in the THEMIS Geometric Processing User’s Guide [10].

<table>
<thead>
<tr>
<th>Release Subdirectory</th>
<th>Image Subdirectories and Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODTIGv_xxxx</td>
<td>Image subdirectories follow pattern l000XXGEO and include the IR-GEO images</td>
</tr>
<tr>
<td>ODTIPv_xxxx</td>
<td>Image subdirectories follow pattern l000XXPBT and include the IR-PBT images</td>
</tr>
<tr>
<td>ODTVAv_xxxx</td>
<td>Image subdirectories follow pattern Voo0XXALB and include the VIS-ALB images</td>
</tr>
<tr>
<td>ODTVGv_xxxx</td>
<td>Image subdirectories follow pattern Voo0XXGEO and include the VIS-GEO images</td>
</tr>
</tbody>
</table>
2.6 Document Directory Contents

The Document directory contains documentation to help the user understand and manipulate the data. Some documents are provided on both archive volumes (indicated with a *); documents that are related to a specific data set are only available on the archive volume that contains the relevant dataset. All files in this directory and all subdirectories are provided by the THEMIS team. The following files are contained in the Document directory of the indicated archive volume set.

<table>
<thead>
<tr>
<th>Volume Set</th>
<th>Document File Name</th>
<th>File Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
<td>DOCINFO.TXT</td>
<td>A description of the contents of this directory; the contents of this file varies on each of the archive volumes</td>
</tr>
<tr>
<td>*</td>
<td>ARCHSIS.HTM</td>
<td>The Archive Volume SIS (this document) in HTML format</td>
</tr>
<tr>
<td>*</td>
<td>ARCHSIS.PDF</td>
<td>The Archive Volume SIS (this document) as a PDF file</td>
</tr>
<tr>
<td>*</td>
<td>ARCHSIS.LBL</td>
<td>A PDS detached label that describes both ARCHSIS.TXT and ARCHSIS.PDF</td>
</tr>
<tr>
<td>*</td>
<td>ODY.ORIENT_POINT.TXT</td>
<td>A text file describing the orientation and pointing of the Odyssey spacecraft</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>SDPSIS.HTM</td>
<td>A subdirectory containing the HTML files of the THEMIS Standard Data Product SIS; see next table</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>SDPSIS.PDF</td>
<td>The THEMIS Standard Data Product SIS as a PDF file</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>SDPSIS.LBL</td>
<td>A PDS detached label that describes both SDPSIS.TXT and SDPSIS.PDF</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>GEOMETRY.HTM</td>
<td>A subdirectory containing the HTML files of the THEMIS GEOMETRY Processing document; see next table</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>GEOMETRY.PDF</td>
<td>The THEMIS GEOMETRY Processing document as a PDF file</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>GEOMETRY.LBL</td>
<td>A PDS detached label that describes both GEOMETRY.TXT and GEOMETRY.PDF</td>
</tr>
</tbody>
</table>

The following files are contained in the *_HTM subdirectory indicated.

<table>
<thead>
<tr>
<th>Document Subdirectory</th>
<th>File Name</th>
<th>File Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDPSIS.HTM</td>
<td>SDPSIS.HTM</td>
<td>The THEMIS Standard Data Product SIS in HTML format</td>
</tr>
<tr>
<td>SDPSIS.HTM</td>
<td>SDPSIS_IMG00x.GIF</td>
<td>GIF formatted images sourced by the SDPSIS.HTM.</td>
</tr>
<tr>
<td>GEOMETRY.HTM</td>
<td>GEOMETRY.HTM</td>
<td>The THEMIS GEOMETRY Processing document in HTML format</td>
</tr>
<tr>
<td>GEOMETRY.HTM</td>
<td>GEOMETRY_IMG00x.GIF</td>
<td>GIF formatted images sourced by the GEOMETRY.HTM.</td>
</tr>
</tbody>
</table>
## 2.7 Index Directory Contents

Files in the Index directory are provided to help the user locate products on this archive volume and on previously released volumes in the archive. The general information indexes are available on both archive volumes (indicated with a *) as their contents are useful to all data sets. All files in this directory are provided by the THEMIS team. The following files are contained in the Index directory of the indicated archive volume set.

<table>
<thead>
<tr>
<th>Volume Set</th>
<th>Index File Name</th>
<th>File Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
<td>INDXINFO.TXT</td>
<td>A description of the contents of this directory; the contents of this file varies on each of the archive volumes</td>
</tr>
<tr>
<td>*</td>
<td>THMIDX_IR.LBL</td>
<td>A PDS detached label that describes THMIDX_IR.TAB</td>
</tr>
<tr>
<td>*</td>
<td>THMIDX_IR.TAB</td>
<td>Cumulative index table listing general observation information and geometric parameters for all available IR observations</td>
</tr>
<tr>
<td>*</td>
<td>THMIDX_IRxxxx.LBL</td>
<td>A PDS detached label that describes THMIDX_IRxxxx.TAB</td>
</tr>
<tr>
<td>*</td>
<td>THMIDX_IRxxxx.TAB</td>
<td>Index table listing general observation information and geometric parameters for all IR observations on this release volume</td>
</tr>
<tr>
<td>*</td>
<td>THMIDX_VIS.LBL</td>
<td>A PDS detached label that describes THMIDX_VIS.TAB</td>
</tr>
<tr>
<td>*</td>
<td>THMIDX_VIS.TAB</td>
<td>Cumulative index table listing general observation information and geometric parameters for all available VIS observations</td>
</tr>
<tr>
<td>*</td>
<td>THMIDX_VISxxxx.LBL</td>
<td>A PDS detached label that describes THMIDX_VISxxxx.TAB</td>
</tr>
<tr>
<td>*</td>
<td>THMIDX_VISxxxx.TAB</td>
<td>Index table listing general observation information and geometric parameters for all VIS observations on this release volume</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>CMIDX_ODTIB.TAB</td>
<td>Cumulative index table listing release information for all IR-BTR data products released to date</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>CMIDX_ODTIB.LBL</td>
<td>A PDS detached label that describes the CMIDX_ODTIB.TAB</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>CMIDX_ODTIIE.TAB</td>
<td>Cumulative index table listing release information for all IR-EDR data products released to date</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>CMIDX_ODTIIE.LBL</td>
<td>A PDS detached label that describes the CMIDX_ODTIIE.TAB</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>CMIDX_ODTIR.TAB</td>
<td>Cumulative index table listing release information for all IR-RDR data products released to date</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>CMIDX_ODTIR.LBL</td>
<td>A PDS detached label that describes the CMIDX_ODTIR.TAB</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>CMIDX_ODTVB.TAB</td>
<td>Cumulative index table listing release information for all VIS-ABR data products released to date</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>CMIDX_ODTVB.LBL</td>
<td>A PDS detached label that describes the CMIDX_ODTVB.TAB</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>CMIDX_ODTVE.TAB</td>
<td>Cumulative index table listing release information for all VIS-EDR data products released to date</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>CMIDX_ODTVE.LBL</td>
<td>A PDS detached label that describes the CMIDX_ODTVE.TAB</td>
</tr>
<tr>
<td>Volume Set</td>
<td>Index File Name</td>
<td>File Contents</td>
</tr>
<tr>
<td>------------</td>
<td>------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>CMIDX_ODTVR.TAB</td>
<td>Cumulative index table listing release information for all VIS-RDR data products released to date</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>CMIDX_ODTVR.LBL</td>
<td>A PDS detached label that describes the CMIDX_ODTVR.TAB</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>INDEX_ODTIBxxxx.TAB</td>
<td>Index table listing release information for all IR-BTR data products on this release volume</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>INDEX_ODTIBxxxx.LBL</td>
<td>A PDS detached label that describes INDEX_ODTIBxxxx.TAB</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>INDEX_ODTIExxxx.TAB</td>
<td>Index table listing release information for all IR-EDR data products on this release volume</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>INDEX_ODTIExxxx.LBL</td>
<td>A PDS detached label that describes INDEX_ODTIExxxx.TAB</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>INDEX_ODTIRxxxx.TAB</td>
<td>Index table listing release information for all IR-RDR data products on this release volume</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>INDEX_ODTIRxxxx.LBL</td>
<td>A PDS detached label that describes INDEX_ODTIRxxxx.TAB</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>INDEX_ODTVBxxxx.TAB</td>
<td>Index table listing release information for all VIS-ABR data products on this release volume</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>INDEX_ODTVBxxxx.LBL</td>
<td>A PDS detached label that describes INDEX_ODTVBxxxx.TAB</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>INDEX_ODTVExxxx.TAB</td>
<td>Index table listing release information for all VIS-EDR data products on this release volume</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>INDEX_ODTVExxxx.LBL</td>
<td>A PDS detached label that describes INDEX_ODTVExxxx.TAB</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>INDEX_ODTVRxxxx.TAB</td>
<td>Index table listing release information for all VIS-RDR data products on this release volume</td>
</tr>
<tr>
<td>ODTSDP</td>
<td>INDEX_ODTVRxxxx.LBL</td>
<td>A PDS detached label that describes INDEX_ODTVRxxxx.TAB</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>CMIDX_IRDCS.TAB</td>
<td>Cumulative index table listing release information for all IR-DCS browse products released to date</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>CMIDX_IRDCS.LBL</td>
<td>A PDS detached label that describes the CMIDX_IRDCS.TAB</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>CMIDX_ODTIG.TAB</td>
<td>Cumulative index table listing release information for all IR-GEO data products released to date</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>CMIDX_ODTIG.LBL</td>
<td>A PDS detached label that describes the CMIDX_ODTIG.TAB</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>CMIDX_ODTIP.TAB</td>
<td>Cumulative index table listing release information for all IR-PBT data products released to date</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>CMIDX_ODTIP.LBL</td>
<td>A PDS detached label that describes the CMIDX_ODTIP.TAB</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>CMIDX_ODTVA.TAB</td>
<td>Cumulative index table listing release information for all VIS-ALB data products released to date</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>CMIDX_ODTVA.LBL</td>
<td>A PDS detached label that describes the CMIDX_ODTVA.LBL</td>
</tr>
<tr>
<td>Volume Set</td>
<td>Index File Name</td>
<td>File Contents</td>
</tr>
<tr>
<td>------------</td>
<td>----------------</td>
<td>---------------</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>CMIDX_ODTVG.TAB</td>
<td>Cumulative index table listing release information for all VIS-GEO data products released to date</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>CMIDX_ODTVG.LBL</td>
<td>A PDS detached label that describes the CMIDX_ODTVG.TAB</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>CMIDX_VISRGB.TAB</td>
<td>Cumulative index table listing release information for all VIS-RGB browse products released to date</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>CMIDX_ODVISRGB.LBL</td>
<td>A PDS detached label that describes the CMIDX_VISRGB.TAB</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>INDEX_IRDCSxxxx.TAB</td>
<td>Index table listing release information for all IR-DCS browse products on this release volume</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>INDEX_IRDCSxxxx.LBL</td>
<td>A PDS detached label that describes INDEX_IRDCSxxxx.TAB</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>INDEX_ODTIGxxxx.TAB</td>
<td>Index table listing release information for all IR-GEO data products on this release volume</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>INDEX_ODTIGxxxx.LBL</td>
<td>A PDS detached label that describes INDEX_ODTIGxxxx.TAB</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>INDEX_ODTIPxxxx.TAB</td>
<td>Index table listing release information for all IR-PBT data products on this release volume</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>INDEX_ODTIPxxxx.LBL</td>
<td>A PDS detached label that describes INDEX_ODTIPxxxx.TAB</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>INDEX_ODTVAxxxx.TAB</td>
<td>Index table listing release information for all VIS-ALB data products on this release volume</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>INDEX_ODTVAxxxx.LBL</td>
<td>A PDS detached label that describes INDEX_ODTVAxxxx.TAB</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>INDEX_ODTVGxxxx.TAB</td>
<td>Index table listing release information for all VIS-GEO data products on this release volume</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>INDEX_ODTVGxxxx.LBL</td>
<td>A PDS detached label that describes INDEX_ODTVGxxxx.TAB</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>INDEX_VISRGBxxxx.TAB</td>
<td>Index table listing release information for all VIS-RGB browse products on this release volume</td>
</tr>
<tr>
<td>ODTGEO</td>
<td>INDEX_VISRGBxxxx.LBL</td>
<td>A PDS detached label that describes INDEX_VISRGBxxxx.TAB</td>
</tr>
</tbody>
</table>

### 2.8 Software Directory Contents

The Software directory contains software documentation and source code that may be useful when manipulating the THEMIS data products; the files on both the ODTSDP and ODTGEO archive volumes are identical. All files in this directory and software subdirectories are provided by the THEMIS team. These files are subject to change throughout the mission and only the
most recent version will be available on the archive. The following files are contained in the Software directory or the indicated subdirectory.

<table>
<thead>
<tr>
<th>Software File Name</th>
<th>File Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOFTINFO.TXT</td>
<td>A description of the contents of this directory</td>
</tr>
<tr>
<td>SRCINFO.TXT</td>
<td>A description of the contents of SRC subdirectory; available in the SRC subdirectory</td>
</tr>
<tr>
<td>MD5_QUBE.PL</td>
<td>Pearl source code to calculate the MD5 value of a THM-EDR or THM-RDR; available in the SRC subdirectory</td>
</tr>
<tr>
<td>NASAVIEW.TXT</td>
<td>Hints for opening THEMIS data products using the NASA View software</td>
</tr>
</tbody>
</table>

3. Archive Volume Format

This section describes the format of THEMIS Archive Volumes. Data that comprise the archive will be formatted in accordance with Planetary Data System specifications (PDS Data Preparation Workbook, [4] and PDS Standards Reference, [5]).

3.1 Disk Format

Archive Volumes have a digital versatile disk (DVD) format that is compatible with the computer operating systems MS-DOS, Macintosh, and SunOS. The volume format is in accordance with ISO 9660 level 2 Interchange Standard [6].

3.2 File Formats

This section describes file formats for the kinds of files contained on Archive Volumes.

3.2.1 PDS Label Format

All text and data files in the archive have PDS labels associated with them, either embedded at the beginning of the file or detached in a separate file; the label location is described in each of the following individual “file format” sections. For examples of PDS labels for each type of data product, see the THEMIS Standard Data Product SIS [8].

A PDS label, whether embedded or detached from its associated file, provides descriptive information about the associated file. The PDS label is an object-oriented structure consisting of sets of 'keyword=value' declarations. The object to which the label refers (e.g. IMAGE, TABLE, etc.) is denoted by a statement of the form:

^object = location

in which the carat character (^, also called a pointer in this context) indicates where to find the object. In an embedded label, the location is an integer representing the starting record number of the object (the first record in the file is record 1). In a detached label, the location denotes the name of the file containing the object, along with the starting record or byte number, if there is more than one object in the file. For example:

^HEADER = ("F01.IMG",1)
\[^{IMAGE} = ("F01.IMG",1025 <BYTES>)\]

indicates that the IMAGE object begins at byte 1025 of the file F01.IMG, in the same directory as the detached label file. Below is a list of the possible formats for the \(^{object}\) definition.

\[^{object} = n\]
\[^{object} = n<BYTES>\]
\[^{object} = "filename.ext"\]
\[^{object} = ("filename.ext",n)\]
\[^{object} = ([dirlist]filename.ext",n)\]
\[^{object} = ("filename.ext",n<BYTES>)\]
\[^{object} = ([dirlist]filename.ext",n<BYTES>)\]

where

- \(n\) is the starting record or byte number of the object, counting from the beginning of the file (record 1, byte 1),
- \(<BYTES>\) indicates that the number given is in units of bytes,
- \(filename\) is the up to 8 character, alphanumeric upper-case file name,
- \(ext\) is the 3 character upper-case file extension,
- \(dirlist\) is a period-delimited path-list of parent directories, in upper case, that specifies the object file directory (used only when the object is not in the same directory as the label file). The list begins at the directory level below the root directory of the DVD. '[dirlist]' may be omitted when the object being described is located either in the same directory as the detached label, or in a subdirectory named LABEL that is located in a higher level of the directory tree, typically the DVD root itself.

Lines of text in detached labels end with a carriage return character (ASCII 13) and a line feed character (ASCII 10). This allows the files to be readable under various operating systems.

### 3.2.2 Document File Format

Document files with the `.TXT` suffix exist in the Root, Browse, Catalog, Data, Document, and Index directories. They are ASCII files which have embedded PDS labels. Lines in a `.TXT` file end with a carriage return character (ASCII 13) and a line feed character (ASCII 10). This allows the files to be readable under various operating systems.

Documents in the Document directory may contain formatting and figures that cannot be rendered as ASCII text. Therefore, each document is given in two formats, hypertext and PDF, and is accompanied by a detached PDS label. The hypertext file contains ASCII text plus hypertext markup language (HTML) commands that enable it to be viewed in a Web browser such as Netscape Navigator or Microsoft Internet Explorer. The hypertext file may be accompanied by ancillary files such as images and style sheets that are incorporated into the document by the Web browser. The second format, PDF (Portable Document Format) is a proprietary format of Adobe Systems Incorporated that is frequently used for distributing documents. Adobe offers free software, Acrobat Reader, for viewing PDF files.
3.2.3 Catalog File Format

Catalog files (suffix .CAT) exist in the Root and Catalog directories. They are ASCII text files with an embedded PDS label. The text contents are formatted in an object-oriented structure consisting of sets of 'keyword=value' declarations. Lines in a .CAT file end with a carriage return character (ASCII 13) and a line feed character (ASCII 10). This allows the files to be readable under various operating systems.

3.2.4 PNG and JPG File Formats

THEMIS browse images are stored as PNG and JPEG files (.jpg suffix) in the Browse subdirectories. PNG and JPG images are 24-bit per pixel, color images in binary format. The THEMIS team uses the standardized image compression algorithms to create the browse files. For more information see http://www.libpng.org/pub/png and http://www.jpg.org.

3.2.5 IMAGE File Format

THEMIS brightness records are single band images stored as IMAGE files (.IMG suffix) in the Data subdirectories. All THEMIS IMAGEs adhere to the PDS standards for IMAGE objects as defined in the PDS Standards Reference [4]. Each IMAGE is composed of a header and a binary array of data derived from radiometric calibration of one observation. Each IMAGE header includes the embedded, ASCII PDS label, with information stored as ASCII text in a “keyword = value” format compliant with PDS standards.

For more information about the format and content of these data products, see the THEMIS Data Product SIS [8].

3.2.6 Tabular File Format

Tabular files (.TAB suffix) exist in the Index directory. Tabular files are ASCII files formatted for direct reading into many database management systems on various computers. All fields are separated by commas, and character fields are enclosed in double quotation marks ("). (Character fields are padded with spaces to keep quotation marks in the same columns of successive records.) Character fields are left justified, and numeric fields are right justified. The "start byte" and "bytes" values listed in the labels do not include the commas between fields or the quotation marks surrounding character fields. The records are of fixed length, and the last two bytes of each record contain the ASCII carriage return and line feed characters. This allows a table to be treated as a fixed length record file on computers that support this file type and as a text file with embedded line delimiters on those that don't.

All tabular files are described by PDS labels, either embedded at the beginning of the file or detached. If detached, the PDS label file has the same name as the data file it describes, with the extension .LBL; for example, the file INDEX.TAB is accompanied by the detached label file INDEX.LBL in the same directory.

3.2.7 QUBE File Format

THEMIS raw and calibrated data are multispectral images stored as QUBE files (.QUB suffix) in the Data subdirectories. All THEMIS QUBEs adhere to the PDS standards for
SPECTRAL_QUBE objects as defined in the PDS Standards Reference [4]. Each QUBE is composed of a header and a binary array of data collected during one observation.

Each QUBE header includes the embedded, ASCII PDS label and a HISTORY data object; raw infrared (IR-EDR) data products also contain a telemetry (TLM) data table. The HISTORY object is a cumulative record of all the computer manipulations of the data file. The information is stored as ASCII text in a “keyword = value” format similar to, but not intended to be compliant with, PDS standards. The TLM table follows the PDS standards for a binary table of fixed-length records, and is accompanied by a detached PDS label (TLM.FMT) that defines the table structure.

For more information about the format and content of these standard data products, see the THEMIS Data Product SIS [8].

3.2.8 CUBE File Format

THEMIS projected products are multispectral images stored as ISIS CUBE files (.CUB suffix) in the Data subdirectories. The THEMIS CUBE files themselves are not PDS compliant, however each image CUBE is associated with a PDS detached label following the standards defined in the PDS Standards Reference [4]. Each CUBE is composed of a header, a binary array of data collected during one observation, and a history object. For more information about the format and content of these projected data products, see the THEMIS Geometry Processing User’s Guide [10].

4. Archive Volume Generation

4.1 Interface Media Characteristics

All archive volumes in the THEMIS Standard Product Archive conform to the ISO 9660 standards (ISO 9660-1988, [6]).

4.2 Labeling and Identification

The THEMIS data archive is compliant with the PDS Standards Reference [4] for the VOLUME_SET, VOLUME_ID, and DATASET_ID values used to identify the archive. All THEMIS archive volumes are part of the “Odyssey Mission to Mars” VOLUME_SERIES.

The THEMIS data products are delivered in one of two related archive volume sets, commonly referred to throughout this document as ODTSDP and ODTGEO. Each volume set will be divided into smaller volumes which include only the data collected during a specific time range (typically three months) and delivered as part of a single release; the RELEASE_ID (xxxx) is used in name of the VOLUME_ID.
Each of the archive volume sets includes multiple THEMIS data products. The following THEMIS data sets are available on the archive volume set indicated.

<table>
<thead>
<tr>
<th>VOLUME_SET_NAME</th>
<th>VOLUME_SET_ID</th>
<th>VOLUME_ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mars Odyssey THEMIS Standard Data Products</td>
<td>USA_NASA_PDS_ODTSDP_100XX</td>
<td>USA_NASA_PDS_ODTSDP_1xxxx</td>
</tr>
<tr>
<td>Mars Odyssey THEMIS Projected Products</td>
<td>USA_NASA_PDS_ODT GEO_200XX</td>
<td>USA_NASA_PDS_ODT GEO_2xxxx</td>
</tr>
</tbody>
</table>

4.3 Data Product Sizes and Delivery Rates

The size of individual raw data products (VISED R & IRED R) depends on several factors: image type (VIS vs. IR), length of an image (# frames), and the number of bands in the image. Within these parameters, a raw VIS image (VISED R) can vary in size from 0.38 to 3.7 Mbytes; a raw IR image (IRED R) can vary in size from 0.07 to 199 Mbytes. Calibration (VISRDR & IRRDR) increases the file size approximately by a factor of two, as compared to the corresponding raw image; projection (VISGEO & IRGEO) increases the file size approximately by a factor of four, as compared to the corresponding raw image.

The estimated total volume of data to be collected over the course of the mission is limited by the available downlink allocated to THEMIS. Many factors affect the actual downlink available on any given day, which can vary from 0 to 375 Mbytes per day. THEMIS mission planners will maximize data collection by balancing the day’s available allocated downlink against the size-defining parameters of the daily planned observations (VIS/IR, image length, number of bands).

For example, the following shows the expected content range of the 100 orbit data subdirectories over the course of the mission, taking into account the primary variables affecting file size and data volume.
<table>
<thead>
<tr>
<th>Subdirectory Name</th>
<th>No. of Files</th>
<th>Subdirectory Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>IoooXXEDR</td>
<td>1 - 400</td>
<td>5 - 2800 Mbytes</td>
</tr>
<tr>
<td>VoooXXEDR</td>
<td>1 - 400</td>
<td>4 – 1500 Mbytes</td>
</tr>
<tr>
<td>IoooXXRDR</td>
<td>1 - 400</td>
<td>10 – 5800 Mbytes</td>
</tr>
<tr>
<td>VoooXXRDR</td>
<td>1 - 400</td>
<td>8 – 3000 Mbytes</td>
</tr>
<tr>
<td>IoooXXBTR</td>
<td>1 - 400</td>
<td>5 – 700 Mbytes</td>
</tr>
<tr>
<td>VoooXXABR</td>
<td>1 - 400</td>
<td>4 – 1500 Mbytes</td>
</tr>
<tr>
<td>IoooXXGEO</td>
<td>1 - 400</td>
<td>5 - 11200 Mbytes</td>
</tr>
<tr>
<td>VoooXXGEO</td>
<td>1 - 400</td>
<td>4 – 8000 Mbytes</td>
</tr>
<tr>
<td>IoooXXPBT</td>
<td>1 - 400</td>
<td>5 - 700 Mbytes</td>
</tr>
<tr>
<td>VoooXXALB</td>
<td>1 - 400</td>
<td>4 – 1500 Mbytes</td>
</tr>
<tr>
<td>IoooXXDCS</td>
<td>1 - 400</td>
<td>5 - 1400 Mbytes</td>
</tr>
<tr>
<td>VoooXXRGB</td>
<td>1 - 400</td>
<td>4 – 150 Mbytes</td>
</tr>
</tbody>
</table>

In compliance with the Odyssey Archive Plan [2], THEMIS standard data products will become available through PDS six months after ground receipt of the last raw data within the three month acquisition period. An approximate THEMIS archive volume delivery schedule, based on the nominal science mission timeline and THEMIS primary data acquisition periods, is shown below.

<table>
<thead>
<tr>
<th>Data Collection Period</th>
<th>Delivery Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 2002</td>
<td>Oct 2002*</td>
</tr>
<tr>
<td>Apr – Jun 2002</td>
<td>Jan 2003</td>
</tr>
<tr>
<td>Jul – Sept 2002</td>
<td>April 2003</td>
</tr>
<tr>
<td>Apr – Jun 2003</td>
<td>Jan 2004</td>
</tr>
<tr>
<td>Jul – Sept 2003</td>
<td>April 2004</td>
</tr>
<tr>
<td>Oct – Dec 2003</td>
<td>July 2004</td>
</tr>
<tr>
<td>Jan – Mar 2004</td>
<td>Oct 2004</td>
</tr>
<tr>
<td>Apr - Jun 2004</td>
<td>Jan 2005</td>
</tr>
</tbody>
</table>

*Delivery includes only ABR, BTR, and EDR standard data products.

Due to extenuating circumstances, THEMIS data collected in or after the Extended Mission 7 phase (2017) will become available through PDS seven months after ground receipt of the last raw data within the three month acquisition period.
4.4 Data Transfer and Validation Methods

In compliance with the Odyssey Archive Plan [2], the THEMIS Team will produce complete ODTSDP and ODTGEO Archive Volumes at the ASU Mars Space Flight Facility. Archive volumes will be written as necessary to write-once DVDs (DVD-Rs) for distribution to co-investigators and the Science Data Validation Team (SDVT). The PDS Imaging Node will receive a copy of each archive volume to verify that it conforms to the THM Standard Data Product SIS [3] and to PDS standards for archive volumes.

Upon approval of a volume by the SDVT, the THEMIS Team will make the volume available online for public consumption (see Appendix B). For archive purposes, the THEMIS Team will deliver copies to the permanent archive sites: PDS Imaging Node, PDS Central Node, and the National Space Science Data Center (NSSDC).

5. Support Staff and Cognizant Persons

5.1 THEMIS Archive Volume Staff

Mars Space Flight Facility
Arizona State University
Box 876305
Tempe, Arizona 85287-6305

Kelly C. Bender  
*Mission Planning & Operations* 480-965-1790  archive@mars.asu.edu

Philip R. Christensen  
*THEMIS Principal Investigator* 480-965-1790  archive@mars.asu.edu

Noel S. Gorelick  
*Software Engineer* 480-965-1790  archive@mars.asu.edu

Greg L. Mehall  
*THEMIS Instrument Manager* 480-965-1790  archive@mars.asu.edu

Kimberly C. Murray  
*Data Validation & Archiving* 480-965-1790  archive@mars.asu.edu

5.2 PDS Personnel Responsible for Archive Support

Raymond E. Arvidson  
*Interdisciplinary Scientist for Data & Archives*  
Washington University  
Campus Box 1169  
One Brookings Drive  
St. Louis, Missouri 63130  314-935-5679  geosci@wunder.wustl.edu
Eric M. Eliason  
*PDS-Flagstaff Imaging Node, THEMIS Archive Manager*

Patricia A. Garcia  
*PDS-Flagstaff Imaging Node, THEMIS Archiving*  
United States Geological Survey  
2255 North Gemini Drive  
Flagstaff, Arizona 86001  
928-556-7090  
pdsmgr@usgs.gov

Susan K. LaVoie  
*PDS-JPL Imaging Node*  
Jet Propulsion Laboratory  
4800 Oak Grove Drive  
Pasadena, California 91199-8099  
818-354-5677  
pdsmgr@jpl.nasa.gov
Appendix A: ODTSDP Archive Volume Directory Structure

Below are the directory structures of the THEMIS ODTSDP archive volumes. There are six datasets included on each archive volume: IREDR, VISED, IRRDR, VISDR, IRBTR, and VISABR. Each archive volume contains the data products published during a single release (usually three months of data collection); the RELEASE_ID is used as the “xxxx” part of the VOLUME_ID. In the structure below, names without extensions are directory names (e.g. CATALOG), while names with extensions are file names (e.g. CATINFO.TXT). Lowercase letters in names are placeholders for numbers described in Section 2.0 of the main text.

**ODTSDP_1xxxx**

ROOT
|------ AAREADME.HTM
|------ AAREADME.LBL
|------ AAREADME.TXT
|------ ERRATA.TXT
|------ VOLDESC_1xxxx.CAT
|------ BROWSE
|  |------ BROWINFO.TXT
|  |------ ODTBWSv_xxxx
|  |  |------ IoooXX
|  |  |  |------ Ioooonnn.png
|  |  |  |------ Iooooonnn_small.jpg
|  |  |------ VoooXX
|  |  |  |------ Vooooonnn.png
|  |  |  |------ Vooooonnn_small.jpg
|------ CALIB
|  |------ BIAS_FILES
|  |  |------ ZEROFRAME*_BIAS.FITS
|  |------ CALIBINFO.TXT
|  |------ CALIB.LBL
|  |------ CALIB.PDF
|  |------ CALIB_APXB.PDF
|  |------ CALIB_FIGS.PDF
|  |------ DESMEAR_FILES
|  |  |------ DEZERO*_COEEFS.TXT
|  |  |------ ZEROFRAME*_ZERO.FITS
|  |------ IRF_FILE
|  |------ PROCESS_HTM
|  |  |------ PROCESS_IR.HTM
|  |  |------ PROCESS_VIS.HTM
|  |  |------ VISIMAGE00x.GIF
|  |  |------ VISIMAGE00x.JPG
|  |------ PROCESS.LBL
|  |------ PROCESS_IR.PDF
|  |------ PROCESS_VIS.PDF
| | ----- SENSITIVITY_FILES
| | | ----- FLAT_FRAMES*.PROF*.FITS
| | ----- STRAYLIGHT_FILES
| | | ----- DESTROY*_FRAME*_*.FITS
| | ----- TEMP2RAD_FILE
| ----- CATALOG
| | ----- CATINFO.TXT
| | ----- INST.CAT
| | ----- INSTHOST.CAT
| | ----- MARTGT.CAT
| | ----- MISSION.CAT
| | ----- ODTIBDS.CAT
| | ----- ODTIBREL.CAT
| | ----- ODTIEDS.CAT
| | ----- ODTIEREL.CAT
| | ----- ODTIRDS.CAT
| | ----- ODTIRREL.CAT
| | ----- ODTVBDS.CAT
| | ----- ODTVBREL.CAT
| | ----- ODTVEDS.CAT
| | ----- ODTVEREL.CAT
| | ----- ODTVIRDS.CAT
| | ----- ODTVIRREL.CAT
| | ----- PERSON.CAT
| | ----- REF.CAT
| ----- DATA
| | ----- DATAINFO.TXT
| | ----- ODTIBv_xxxx
| | | | ----- I000XXBTR
| | | | | ----- I00000nnBTR.IMG
| | ----- ODTIEv_xxxx
| | | | ----- I000XXEDR
| | | | | ----- I00000nnEDR.QUB
| | | | | ----- TLM.FMT
| | | | ----- R000XXEDR
| | | | | ----- R00000nnEDR.QUB
| | | | | ----- TLM.FMT
| | | | ----- S000XXEDR
| | | | | ----- S00000nnEDR.QUB
| | | | | ----- TLM.FMT
| | ----- ODTIRv_xxxx
| | | | ----- I000XXRDR
| | | | | ----- I00000nnRDR.QUB
| | | | | ----- R000XXRDR
| | | | | ----- R00000nnRDR.QUB
| | ----- ODTVBv_xxxx
1 | ----- THMIDX_IRxxxx.LBL
1 | ----- THMIDX_IRxxxx.TAB
1 | ----- THMIDX_VIS.LBL
1 | ----- THMIDX_VIS.TAB
1 | ----- THMIDX_VISxxxx.LBL
1 | ----- THMIDX_VISxxxx.TAB
1 | ----- INDXINFO.TXT
1 | ------ SOFTWARE
1 | | ----- DOC
1 | | | ----- NASAVIEW.TXT
1 | | ----- SOFTINFO.TXT
1 | | ----- SRC
1 | | | ----- SRCINFO.TXT
1 | | | ----- MD5_QUBE.PL
Appendix B: ODTGEO Archive Volume Directory Structure

Below are the directory structures of the THEMIS ODTGEO archive volumes. There are four datasets and two browse data collections included on each archive volume: IRGEO, VISGEO, IRPBT, VISALB, IRDCS, and VISRGB. Each archive volume contains the data products published during a single release (usually three months of data collection); the RELEASE_ID is used as the “xxxx” part of the VOLUME_ID. In the structure below, names without extensions are directory names (e.g. CATALOG), while names with extensions are file names (e.g. CATINFO.TXT). Lowercase letters in names are placeholders for numbers described in Section 2.0 of the main text.

ODTGEO_2xxxx
ROOT
| ----- AAREADME.HTM
| ----- AAREADME.LBL
| ----- AAREADME.TXT
| ----- ERRATA.TXT
| ----- VOLDESC_1xxxx.CAT
| ----- BROWSE
| | ----- BROWINFO.TXT
| | ----- ODTBWSv_xxxx
| | | ----- I000XXBWS2
| | | | ----- I0000onnnnngg.png
| | | ----- V000XXBWS2
| | | | ----- V0000onnnnngg.png
| | ----- ODTDCSv_xxxx
| | | ----- I000XXDCS
| | | | ----- I0000onnnnDCS.png
| | ----- ODTRGBv_xxxx
| | | ----- V000XXRGB
| | | | ----- V0000onnnnRGB.png
| ----- CALIB
| | ----- BIAS_FILES
| | | ----- ZEROFRAME*_BIAS.FITS
| | ----- CALIBINFO.TXT
| | ----- CALIB.LBL
| | ----- CALIB.PDF
| | ----- CALIB_APXB.PDF
| | ----- CALIB_FIGS.PDF
| | ----- DESMEAR_FILES
| | | ----- DEZERO*_COEFS.TXT
| | | ----- ZEROFRAME*_ZERO.FITS
| | ----- IRF_FILE
| | ----- PROCESS_HTM
| | | ----- PROCESS_IR.HTM
| | | ----- PROCESS_VIS.HTM
| | | | | | ----- VISIMAGE00x.GIF
| | | | | | ----- VISIMAGE00x.JPG
| | | | | | ----- PROCESS.LBL
| | | | | | ----- PROCESS_IR.PDF
| | | | | | ----- PROCESS_VIS.PDF
| | | | | | ----- SENSITIVITY_FILES
| | | | | | | | ----- FLAT_FRAMES*.PROF*.FITS
| | | | | | ----- STRAYLIGHT_FILES
| | | | | | | | ----- DESTRAY*_FRAME*_*.FITS
| | | | | | ----- TEMP2RAD_FILE
| | | | | | ----- CATALOG
| | | | | | | | ----- CATINFO.TXT
| | | | | | | | ----- DSMAP_EQR.CAT
| | | | | | | | ----- DSMAP_POL.CAT
| | | | | | | | ----- DSMAP_SNU.CAT
| | | | | | | | ----- INST.CAT
| | | | | | | | ----- INSTHOST.CAT
| | | | | | | | ----- MARTGT.CAT
| | | | | | | | ----- MISSION.CAT
| | | | | | | | ----- ODTIGDS.CAT
| | | | | | | | ----- ODTIGREL.CAT
| | | | | | | | ----- ODTIPDS.CAT
| | | | | | | | ----- ODTIPREL.CAT
| | | | | | | | ----- ODTVADS.CAT
| | | | | | | | ----- ODTVAREL.CAT
| | | | | | | | ----- ODTVGDS.CAT
| | | | | | | | ----- ODTVGREL.CAT
| | | | | | | | ----- PERSON.CAT
| | | | | | | | ----- REF.CAT
| | | | | | ----- DATA
| | | | | | | | ----- DATAINFO.TXT
| | | | | | | | ----- ODTIGv_xxxx
| | | | | | | | | | ----- IoooXXGEO
| | | | | | | | | | | | ----- Ioooooonnnggg.CUB.gz
| | | | | | | | | | | | ----- Ioooooonnnggg.LBL
| | | | | | | | ----- ODTIPv_xxxx
| | | | | | | | | | ----- IoooXXPBT
| | | | | | | | | | | | ----- IoooooonnnPBT.IMG
| | | | | | | | ----- ODTVAv_xxxx
| | | | | | | | | | ----- VoooXXALB
| | | | | | | | | | | | ----- VoooooonnnALB.IMG
| | | | | | | | ----- ODTVGv_xxxx
| | | | | | | | | | ----- VoooXXGEO
| | | | | | | | | | | | ----- Voooooonnnnggg.CUB
| | | | | | | | | | | | ----- Voooooonnnnggg.LBL
| | | | | | ----- DOCUMENT

01/01/18

25
01/01/18

| | ----- DOC
| |   | ----- NASAVIEW.TXT
| |   | ----- SOFTINFO.TXT
| | ----- SRC
| |   | ----- SRCINFO.TXT
| |   | ----- MD5_QUBE.PL
Appendix C: THEMIS Virtual Archive Volume

In compliance with the Odyssey Archive Plan [2] and in Section 4.0 above, THEMIS standard data products will be made available online from the PDS THEMIS Sub Node (http://themis-data.asu.edu). The THEMIS Virtual Archive is composed of two very large PDS logical volumes, containing all of the THEMIS datasets. Although the overall structure of the Virtual Archive mimics the directory structure of the individual archive volumes described in the body of this text, there are a few significant differences to be noted.

1. The DATA directory in each logical volume includes the release subdirectories from all of the archive volumes. The same release subdirectory naming convention established on the archive volumes (see Section 2.5) is maintained in the virtual volume.

2. The BROWSE directory in each logical volume includes the release subdirectories from all of the archive volumes. The same release subdirectory naming convention established on the archive volumes (see Section 2.2) is maintained in the virtual volume.

3. A logical volume VOLDESC.CAT files will be available at the root level describing all the data in the virtual volume. The volume catalogs from the individual archive volumes (VOLDESC_vxxxx.CAT) are available in special subdirectory (VOLDESC/) within the DATA directory.

4. Only the cumulative indexes are available in the top level of the INDEX directory; a VOL_INDEX/ subdirectory has been added to contain a copy of the individual archive volume index files.

Below is the directory structure of the THEMIS Virtual Archive Volume. All directory and file names listed below are case insensitive. Lowercase letters in names are placeholders for numbers described in Section 2.0 of the main text.

ROOT
| ------ ODTGEO_v2
|   | ------ AAREADME.HTM
|   | ------ AAREADME.LBL
|   | ------ AAREADME.TXT
|   | ------ ERRATA.TXT
|   | ------ VOLDESC.CAT
|   | ------ BROWSE
|   |   | ------ BROWINFO.TXT
|   |   | ------ ODTBWSv_xxxx
|   |   |   | ------ I000xxBWS2
|   |   |   | ------ I000xonnngg.png
|   |   |   | ------ V000xxBWS2
|   |   |   | ------ V00000nnngg.png
|   |   | ------ ODTDCSv_xxxx
|   |   |   | ------ I0000xxDCS
|   |   |   | ------ I00000nnnDCS.png
| | | ----- ODTRGBv_****
| | | | ----- VoooxRGB
| | | | | ----- VoooonnRGB.PNG
| | ----- CALIB
| | | ----- BIAS_FILES
| | | | ----- ZEROFRAME*_BIAS.FITS
| | | | ----- CALIBINFO.TXT
| | | | ----- CALIB.LBL
| | | | ----- CALIB.PDF
| | | | ----- CALIB_APBX.PDF
| | | | ----- CALIB_FIGS.PDF
| | | | ----- DESMEAR_FILES
| | | | | ----- DEZERO*_COEFF.TXT
| | | | | ----- ZEROFRAME*_ZERO.FITS
| | | | ----- IRF_FILE
| | | ----- PROCESS_HTM
| | | | ----- PROCESS_IR.HTM
| | | | ----- PROCESS_VIS.HTM
| | | | | ----- VISIMAGE00x.GIF
| | | | | ----- VISIMAGE00x.JPG
| | | | | ----- PROCESS.Lbl
| | | | ----- PROCESS_IR.PDF
| | | | ----- PROCESS_VIS.PDF
| | | | ----- SENSITIVITY_FILES
| | | | | ----- FLAT_FRAMES*.PROF*.FITS
| | | | ----- STRAYLIGHT_FILES
| | | | | ----- DESTRAY*_FRAME*_*.FITS
| | | | ----- TEMP2RAD_FILE
| | ----- CATALOG
| | | ----- CATINFO.TXT
| | | | ----- DSMAP_EQR.CAT
| | | | ----- DSMAP_POL.CAT
| | | | ----- DSMAP_SNU.CAT
| | | | ----- INST.CAT
| | | | ----- INSTHOST.CAT
| | | | ----- MARTGT.CAT
| | | | ----- MISSION.CAT
| | | | ----- ODTIGDS.CAT
| | | | ----- ODTIGREL.CAT
| | | | ----- ODTPDS.CAT
| | | | ----- ODTPREL.CAT
| | | | ----- ODTVADS.CAT
| | | | ----- ODTVAREL.CAT
| | | | ----- ODTVGDS.CAT
| | | | ----- ODTVGREL.CAT
| | | | ----- PERSON.CAT
----- THMIDX_VIS.TAB
     | | ----- VOL_INDEX
     | | | | ----- INDEX_IRDCSxxxx.LBL
     | | | | ----- INDEX_IRDCSxxxx.TAB
     | | | | ----- INDEX_ODTIGxxxx.LBL
     | | | | ----- INDEX_ODTIGxxxx.TAB
     | | | | ----- INDEX_ODTIPxxxx.LBL
     | | | | ----- INDEX_ODTIPxxxx.TAB
     | | | | ----- INDEX_ODTVAxxxx.LBL
     | | | | ----- INDEX_ODTVAxxxx.TAB
     | | | | ----- INDEX_ODTVGxxxx.LBL
     | | | | ----- INDEX_ODTVGxxxx.TAB
     | | | | ----- INDEX_VISRGBxxxx.LBL
     | | | | ----- INDEX_VISRGBxxxx.TAB
     | | | | | | ----- THMIDX_IRxxxx.LBL
     | | | | | | ----- THMIDX_IRxxxx.TAB
     | | | | | | ----- THMIDX_VISxxxx.LBL
     | | | | | | ----- THMIDX_VISxxxx.TAB
     | | | | ----- SOFTWARE
     | | | | | | ----- DOC
     | | | | | | | | ----- NASAVIEW.TXT
     | | | | | | | | ----- SOFTINFO.TXT
     | | | | | | | | ----- SRC
     | | | | | | | | | | ----- SRCINFO.TXT
     | | | | | | | | | | ----- MD5_QUBE.PL

----- ODTSDP_v1
     | | ----- AAREADME.HTM
     | | ----- AAREADME.LBL
     | | ----- AAREADME.TXT
     | | ----- ERRATA.TXT
     | | ----- VOLDESC.CAT
     | | ----- BROWSE
     | | | | ----- BROWINFO.TXT
     | | | | ----- ODTBWSv_xxxx
     | | | | | | ----- Io0oXX
     | | | | | | | | ----- Io0o0onnn.png
     | | | | | | | | ----- Io0ooonnn_small.jpg
     | | | | | | | | ----- Vo0ooXX
     | | | | | | | | | | ----- Vo0ooonnn.png
     | | | | | | | | | | ----- Vo0ooonnn_small.jpg
     | | ----- CALIB
     | | | | ----- BIAS_FILES
     | | | | | | ----- ZEROFRAME*_BIAS.FITS
     | | | | | | ----- CALIBINFO.TXT
     | | | | | | ----- CALIB.LBL
01/01/18

  | | ---- CALIB.PDF
  | | ---- CALIB_APXB.PDF
  | | ---- CALIB_FIGS.PDF
  | | ---- DESMEAR_FILES
  | | | ---- DEZERO*.COEFF.TXT
  | | | ---- ZEROFRAME*.ZERO.FITS
  | | ---- IRF_FILE
  | | ---- PROCESS_HTM
  | | | ---- PROCESS_IR.HTM
  | | | ---- PROCESS_VIS.HTM
  | | | ---- VISIMAGE00x.GIF
  | | | ---- VISIMAGE00x.JPG
  | | ---- PROCESS.lbl
  | | ---- PROCESS_IR.PDF
  | | ---- PROCESS_VIS.PDF
  | | ---- SENSITIVITY_FILES
  | | | ---- FLAT_FRAMES*.PROF*.FITS
  | | ---- STRAYLIGHT_FILES
  | | | ---- DESTRAY*_FRAME*_*.FITS
  | | ---- TEMP2RAD_FILE
  | | ---- CATALOG
  | | | ---- CATINFO.TXT
  | | | ---- INST.CAT
  | | | ---- INSTHOST.CAT
  | | | ---- MARTGT.CAT
  | | | ---- MISSION.CAT
  | | | ---- ODTIBDS.CAT
  | | | ---- ODTIBREL.CAT
  | | | ---- ODTIEDS.CAT
  | | | ---- ODTIEREL.CAT
  | | | ---- ODTIRDS.CAT
  | | | ---- ODTIRREL.CAT
  | | | ---- ODTSBDS.CAT
  | | | ---- ODTVBREL.CAT
  | | | ---- ODTVEM.CAT
  | | | ---- ODTVEREL.CAT
  | | | ---- ODTRDS.CAT
  | | | ---- ODTRREL.CAT
  | | | ---- PERSON.CAT
  | | | ---- REF.CAT
  | | ---- DATA
  | | | ---- DATAINFO.TXT
  | | | | ---- ODTIBv_xxxx
  | | | | | ---- 1000xxBTR
  | | | | | | ---- 100000nnBTR.IMG
  | | | | ---- ODTIEv_xxxx
| | | | | | CMIDX_ODTVR.TAB
| | | | | | INDXINFO.TXT
| | | | | | THMIDX_IR.LBL
| | | | | | THMIDX_IR.TAB
| | | | | | THMIDX_VIS.LBL
| | | | | | THMIDX_VIS.TAB
| | | | | | VOL_INDEX
| | | | | | | INDEX_ODTIBxxxx.LBL
| | | | | | | INDEX_ODTIBxxxx.TAB
| | | | | | | INDEX_ODTIExxxx.LBL
| | | | | | | INDEX_ODTIExxxx.TAB
| | | | | | | INDEX_ODTIRxxxx.LBL
| | | | | | | INDEX_ODTIRxxxx.TAB
| | | | | | | INDEX_ODTVxxxx.LBL
| | | | | | | INDEX_ODTVxxxx.TAB
| | | | | | | INDEX_ODTVxxxx.LBL
| | | | | | | INDEX_ODTVxxxx.TAB
| | | | | | | INDEX_ODTVxxxx.LBL
| | | | | | | INDEX_ODTVxxxx.TAB
| | | | | | | THMIDX_IRxxxx.LBL
| | | | | | | THMIDX_IRxxxx.TAB
| | | | | | | THMIDX_VISxxxx.LBL
| | | | | | | THMIDX_VISxxxx.TAB
| | | | | | SOFTWARE
| | | | | | | DOC
| | | | | | | | NASAVIEW.TXT
| | | | | | | | SOFTINFO.TXT
| | | | | | SRC
| | | | | | | | SRCINFO.TXT
| | | | | | | | MD5_QUBE.PL
Appendix D: ODTGEO Version-1 Archive Volume

At the time of the original release of the THEMIS GEO products, all data was included in a single archive volume with the projected products under the GEOMETRY subdirectory. The upgrade to Version-2 of the THEMIS GEO products was initially released concurrent with the split of the two archive volumes (ODTSDP and ODTGEO), and the two volumes were reorganized to mirror each other. Available ODTGEO Version-1 volumes still maintain the directory structure of the original volumes, and include the original documentation that described that structure. Below is an outline of the directory structure of the ODTGEO_1xxxx archive volumes; lowercase letters in names are placeholders for numbers described in Section 2.0 of the main text.

ODTGEO_1xxxx
ROOT
| ----- AAREADME.HTM
| ----- AAREADME.LBL
| ----- AAREADME.TXT
| ----- ERRATA.TXT
| ----- VOLDESC_.CAT
| ----- CALIB
| | ----- BIAS_FILES
| | | ----- ZEROFRAME*_BIAS.FITS
| | ----- CALIBINFO.TXT
| | ----- CALIB.LBL
| | ----- CALIB.PDF
| | ----- CALIB_APXB.PDF
| | ----- CALIB_FIGS.PDF
| | ----- DESMEAR_FILES
| | | ----- DEZERO*_COEFS.TXT
| | | ----- ZEROFRAME*_ZERO.FITS
| | ----- IRF_FILE
| | ----- PROCESS HTM
| | | ----- PROCESS_IR.HTM
| | | ----- PROCESS_VIS.HTM
| | | ----- VISIMAGE00x.GIF
| | | ----- VISIMAGE00x.JPG
| | ----- PROCESS.LBL
| | ----- PROCESS_IR.PDF
| | ----- PROCESS_VIS.PDF
| | ----- SENSITIVITY_FILES
| | | ----- FLAT_FRAMES*.PROF*.FITS
| | ----- STRAYLIGHT_FILES
| | | ----- DESTRAY*_FRAME*_*.FITS
| | ----- TEMP2RAD_FILE
| ----- CATALOG
| | ----- CATINFO.TXT
| ----- INST.CAT |
| ----- INSTHOST.CAT |
| ----- MARTGT.CAT |
| ----- MISSION.CAT |
| ----- ODTIGDS.CAT |
| ----- ODTIGREL.CAT |
| ----- ODTIPDS.CAT |
| ----- ODTIPREL.CAT |
| ----- ODTVGDS.CAT |
| ----- ODTVGREL.CAT |
| ----- PERSON.CAT |
| ----- REF.CAT |
| ----- GEOMETRY |
| ----- BROWSE |
| | ----- BWS2INFO.TXT |
| | ----- I000XXBWS2 |
| | | ----- I000000nnggg.png |
| | ----- BROWSE_DCS |
| | ----- DCSINFO.TXT |
| | ----- I000XXDCS |
| | | ----- I00000nnnDCS.png |
| | ----- GEOINFO.TXT |
| | ----- ODTI00_xxxx |
| | | ----- I000XXGEO |
| | | | ----- I00000nnGEO.CUB.gz |
| | | | ----- I00000nnGEO.LBL |
| | ----- ODTIP0_xxxx |
| | | ----- I000XXPBT |
| | | | ----- I00000nnPBT.IMG |
| | ----- ODTVG0_xxxx |
| | | ----- V000XXGEO |
| | | | ----- V00000nnGEO.CUB |
| | | | ----- V00000nnGEO.LBL |
| | ----- GEOMETRY_HTM |
| | | ----- GEOMETRY_HTM |
| | | | ----- GEOMETRY_IMG00x.GIF |
| | | ----- GEOMETRY.LBL |
| | | ----- GEOMETRY.PDF |
| ----- DOCUMENT |
| | ----- ARCHSIS.HTM |
| | ----- ARCHSIS.LBL |
| | ----- ARCHSIS.PDF |
| | ----- DOCINFO.TXT |
| | ----- ODY_ORIENTATION_POINT.TXT |
| ----- INDEX |
| | ----- INDEX_IRDCS.LBL |
| | ----- INDEX_ODTIB.TAB
| | ----- INDEX_ODTIG.LBL
| | ----- INDEX_ODTIG.TAB
| | ----- INDEX_ODTIP.LBL
| | ----- INDEX_ODTIP.TAB
| | ----- INDEX_ODTVG.LBL
| | ----- INDEX_ODTVG.TAB
| | ----- THMIDX_IR.LBL
| | ----- THMIDX_IR.TAB
| | ----- THMIDX_VIS.LBL
| | ----- THMIDX_VIS.TAB
| | ----- INDXINFO.TXT
| ----- SOFTWARE
| | ----- DOC
| | | ----- NASAVIEW.TXT
| | ----- SOFTINFO.TXT
| | ----- SRC
| | | ----- SRCINFO.TXT
| | | ----- MD5_QUBE.PL