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**European Space Agency**  
Research and Science Support Department  
Planetary Missions Division

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**Planetary Science Archive:  
Browse Product Handling in the  
Planetary Science Archive (PSA)  
SOP-RSSD-TN-044**

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Prepared by: D. Heather, M. Barthelemy, J. Zender







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## 1. Introduction

### 1.1 Scope

This document describes a proposal for a way to handle the ingestion and presentation of data 'postcards' or 'browse products' within the Planetary Science Archive (PSA).

### 1.2 Contents

This document contains a proposal for the production of a data set without a one-to-one mapping between data products and postcards or browse products. Also included is a description of how these data sets can be handled during processing and ingestion into the Planetary Science Archive, and how such browse and postcard images can finally be displayed to an end-user.

### 1.3 Readership

This document will be of use to the technical team working on the ingestion of data into the PSA, and the presentation of browse products to the end user via the PSA User Interface. The document will also be of use to an instrument team needing to deliver a data set that does not have a one-to-one mapping between data and browse products.

### 1.4 Acronyms

PSA	Planetary Science Archive
PVV	PSA Volume Verifier Tool
PDS	Planetary Data System

### 1.5 Applicable Documents

AD1 Planetary Data System Standards Reference, JPL D-7669, Part 2, Version 3.6, 1 Aug 2003.

AD2 Planetary Science Archive PVV User Manual, SOP-RSSD-UM-004, Issue 4.0, 02 Feb 2007.

## 2. Overview

We now have the first examples of data sets that do not have a one to one matching from data product to browse product. This can mean either that a single data product will have several associated browse products, or that several data products can point to a single browse product. These cases can also be combined. The possibilities are illustrated in Section 2.1. The browse index file and browse product labels shall contain the information required to clearly classify each type of browse product. This classification will indicate:

- 1) Priority of view in the interface: the browse products can be Primary or Secondary. In cases with one-to-one mapping between the browse and data product, the browse priority will be not applicable "N/A".
- 2) Linking of the browse product(s) to one or more data product: if the browse product is linked to several data products it is defined as an "overview" browse product.

These classifications will appear in a new column in the browse index called the BROWSE\_USAGE\_ID. This will also appear as a keyword in the browse product labels. Details of the usage and implementation are provided in Sections 2 and 3.

## 2.1 Browse Image Cases

Below we describe the various possibilities for browse product usage in a data set and the requirements of the new scheme to ingest and display them correctly within the PSA. For the purposes of identifying the different types of browse products we expect to receive in future data sets, the following terminology has been adopted:

*Primary Browse Product:* the main browse product associated with a single data product. These are the main browse products that will be displayed in the results panel by default, as is currently the case. N.B. There can only be one primary browse product for each data product.

*Secondary Browse Product:* any of a number of browse products associated with a single data product. These browse images will also be viewable through the PSA Classical User Interface in separate and individually designed interfaces, linked to from the main results panel.

*Overview Browse Product:* a single browse product that is linked to by several different data products. This browse product will be displayed in the normal results panel and will be duplicated for all data products that it is associated with.

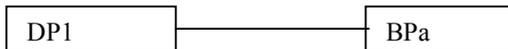
In the diagrams below, we use the following acronyms:

- DP stands for Data Product.
- BP stands for Browse Product.
- OP stands for Overview Browse Product

### 2.1.1 Case 1: Single Browse Product for Single Data Product

This is the default case in the PDS/PSA at the moment. In data sets where the BROWSE\_USAGE\_ID information is missing, it is assumed that there is a one-to-one mapping between data products and browse products.

#### 2.1.1.1 Diagram



*Figure 1 Case1: Single browse product for single data product*

#### 2.1.1.2 Label values

The browse product labels will have the following values

SOURCE\_PRODUCT\_ID = DP1

BROWSE\_USAGE\_ID = "N/A" [Note: this keyword can be excluded in this case]

#### 2.1.1.3 BROWSE\_INDEX File

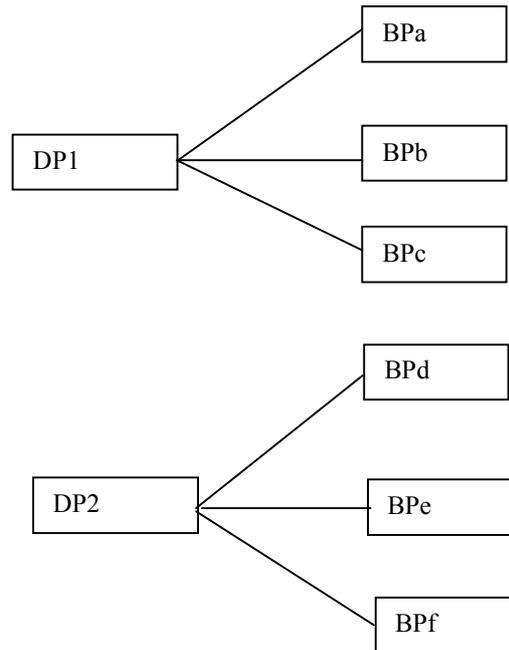
In the BROWSE\_INDEX file, we will have the following columns and values:

PRODUCT_ID	SOURCE_PRODUCT_ID	BROWSE_USAGE_ID [if present]
BP1	DP1	N/A

### 2.1.2 Case 2: Several Browse Products for Single Data Product

We now have teams intending to deliver data sets in which each data product has several corresponding browse products. In these cases, the team should add the BROWSE\_USAGE\_ID keyword to their browse product labels and their BROWSE\_INDEX file, indicating which browse products are Primary and which are Secondary. Primary browse products will be those displayed by default in the PSA UI Results screen (see Section 3).

#### 2.1.2.1 Diagram



*Figure 2 Case2 several browse products for a single data product.*

#### 2.1.2.2 Label values

The browse product labels will have the following values:

- SOURCE\_PRODUCT\_ID = DP1
- BROWSE\_USAGE\_ID = PRIMARY
- Or
- SOURCE\_PRODUCT\_ID = DP1
- BROWSE\_USAGE\_ID = SECONDARY

#### 2.1.2.3 BROWSE\_INDEX File

In the BROWSE\_INDEX file, we will have the following columns:

PRODUCT_ID	SOURCE_PRODUCT_ID	BROWSE_USAGE_ID
BPa	DP1	PRIMARY
BPb	DP1	SECONDARY
BPc	DP1	SECONDARY

### 2.1.3 Case 3: Single Browse Product for Several Data Products

There is the possibility that a team will wish to have several data products pointing to a single browse product. This may be the case if the browse is a high-level map or mosaic of several data products. In these cases the browse is referred to as an “overview” product. If these are the only type of browse product to be provided in a data set, the BROWSE\_USAGE\_ID in the labels and BROWSE\_INDEX should be set to “N/A”. If only some of the browse products are of “overview” type, you should use either Case 4 or Case 5 described in 2.1.4 and 2.1.5 respectively.

The SOURCE\_PRODUCT\_ID in the browse product label indicates the data products from which it originates, and the BROWSE\_INDEX table will have several lines for each “overview” product, one for each of the data products from which it is sourced.

#### 2.1.3.1 Diagram

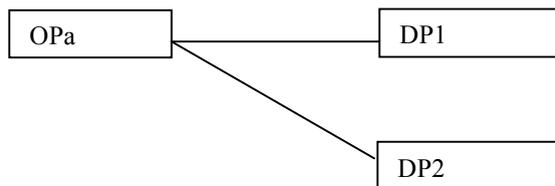


Figure 3 Case 3: single browse product for several data products.

#### 2.1.3.2 Label values

In the browse product labels, the following values should be used:

SOURCE\_PRODUCT\_ID = (DP1, DP2)  
 BROWSE\_USAGE\_ID = “N/A”

#### 2.1.3.3 BROWSE\_INDEX File

In the Index file, we will have the following columns:

PRODUCT_ID	SOURCE_PRODUCT_ID	BROWSE_USAGE_ID
OPa	DP1	N/A
OPa	DP2	N/A

### 2.1.4 Case 4: Combination of Case 1 and Case 3

In future, it is possible that a team will want to deliver a dataset with one-to-one mapping between the data and browse products, but in addition, include an “overview” browse product built up from

several data products, such as a mosaic or ionogram. In these cases, the labels and BROWSE\_INDEX files must use a combination of the SOURCE\_PRODUCT\_ID and BROWSE\_USAGE\_ID values illustrated in cases 1 and 3.

#### 2.1.4.1 Diagram

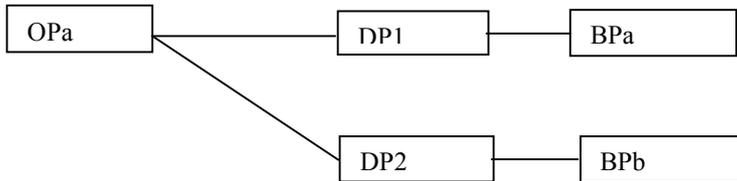


Figure 4 Case4: Overview browse product and single browse for each data product.

#### 2.1.4.2 Label values

In the browse product labels, the following values will apply:

For OPa:

SOURCE\_PRODUCT\_ID = (DP1, DP2)

BROWSE\_USAGE\_ID = SECONDARY

For BPa:

SOURCE\_PRODUCT\_ID = DP1

BROWSE\_USAGE\_ID = PRIMARY

#### 2.1.4.3 BROWSE\_INDEX File

In the Index file, we will have the following columns:

PRODUCT_ID	SOURCE_PRODUCT_ID	BROWSE_USAGE_ID
OPa	DP1	SECONDARY
OPa	DP2	SECONDARY
BPa	DP1	PRIMARY
BPb	DP2	PRIMARY

#### 2.1.5 Case5: Combination of Case 2 and Case 3

The final possibility noted here is that a team will want to deliver a combination of cases 2 and 3, described above. This would then include both an “overview” browse product built up from several data products, and also have a number of primary/secondary browse products related to each data product. In this case, the labels and BROWSE\_INDEX files must use a combination of the SOURCE\_PRODUCT\_ID and BROWSE\_USAGE\_ID values illustrated in cases 2 and 3.

### 2.1.5.1 Diagram

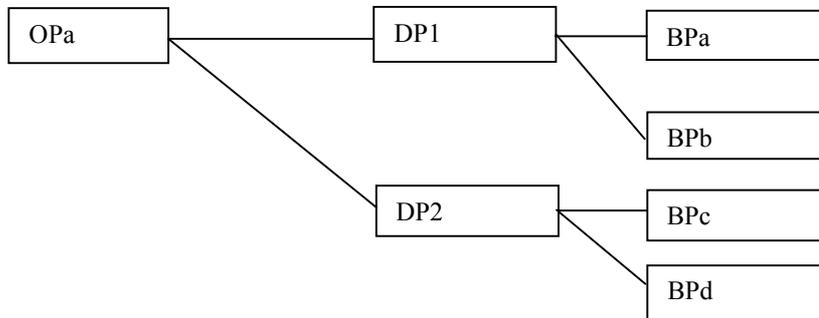


Figure 5 Case5: Overview browse product, and several browse products for each data product.

### 2.1.5.2 Label values

In the browse product labels, the following values will apply:

For OPa:

SOURCE\_PRODUCT\_ID = (DP1, DP2)

BROWSE\_USAGE\_ID = SECONDARY

For BPa:

SOURCE\_PRODUCT\_ID = DP1

BROWSE\_USAGE\_ID = PRIMARY

For BPb:

SOURCE\_PRODUCT\_ID = DP1

BROWSE\_USAGE\_ID = SECONDARY

### 2.1.5.3 BROWSE\_INDEX File

In the Index file, we will have the following columns:

PRODUCT_ID	SOURCE_PRODUCT_ID	BROWSE_USAGE_ID
OPa	DP1	SECONDARY
OPa	DP2	SECONDARY
BPa	DP1	PRIMARY
BPb	DP1	SECONDARY

## 3. Data Producer and PSA Implementation

In order to handle the examples of browse and data product mapping provided in Section 2.1, the data producer and the PSA will have to make use of the SOURCE\_PRODUCT\_ID and the new BROWSE\_USAGE\_ID keyword in the browse product labels and BROWSE\_INDEX. In addition, the PVV should be able to produce a BROWSE\_INDEX.TAB and BROWSE\_INDEX.LBL with the

new BROWSE\_USAGE\_ID column and values included as extracted from the browse product labels. The following sections describe the requirements in each case.

### **3.1 Case 1: One-to-one Mapping between browse and data products**

This is the default case in the PSA. A data set will have one-to-one mapping between data products and browse products if:

- The BROWSE\_USAGE\_ID keyword is not present in the browse product labels and the BROWSE\_INDEX table.
- The BROWSE\_USAGE\_ID is set to "N/A" in the browse product labels and the BROWSE\_INDEX table **AND** the SOURCE\_PRODUCT\_ID in the browse product label has a single value.

#### **3.1.1 BROWSE\_INDEX and Label Implications**

For all cases of one-to-one mapping between browse and data products, the BROWSE\_INDEX can either have the BROWSE\_USAGE\_ID column filled with "N/A" values, or (in existing data sets for example) the column can be left out completely.

The BROWSE\_USAGE\_ID keyword in the browse product labels can either be set to "N/A" or can be left out completely.

The SOURCE\_PRODUCT\_ID value in the browse product labels should indicate the single data product from which the browse product originates.

#### **3.1.2 PVV Implications**

The PVV will have to accept browse index files with and without the BROWSE\_USAGE\_ID column during verification. It may also be necessary to extract the values for the BROWSE\_USAGE\_ID and SOURCE\_PRODUCT\_ID into the database during ingestion to understand how we should handle the display of the browse products in the UI, although this may not be a PVV task.

If the '*pvv indexes*' command is run on a data set where the BROWSE\_USAGE\_ID in the browse product labels is set to "N/A" or is not present **AND** the SOURCE\_PRODUCT\_ID has a single value, then it should produce a BROWSE\_INDEX with "N/A" values in the BROWSE\_USAGE\_ID column, and place the SOURCE\_PRODUCT\_ID value in the relevant column. In this case, there will be one line per browse product in the BROWSE\_INDEX table, and each line will have a discrete SOURCE\_PRODUCT\_ID (Section 2.1.1.3). This is the standard situation at the moment.

#### **3.1.3 User Interface Implications**

This is the default situation and no change is required to the PSA UI to handle these examples.

### **3.2 Case 2: Multiple browse products for a single data product**

#### **3.2.1 BROWSE\_INDEX and Label Implications**

For cases where there are multiple browse products for a single data product, the team should implement the BROWSE\_USAGE\_ID keyword in the browse product labels and the BROWSE\_USAGE\_ID column in the BROWSE\_INDEX, indicating whether a browse product is a PRIMARY or SECONDARY (Section 2.1.2).

The SOURCE\_PRODUCT\_ID in the each of the browse product labels should indicate the single data product from which they are derived. The BROWSE\_INDEX.TAB will now be of the form:

FILE\_SPECIFICATION\_NAME, PRODUCT\_ID, SOURCE\_PRODUCT\_ID,  
PRODUCT\_CREATION\_TIME, DATA\_SET\_ID, RELEASE\_ID, REVISION\_ID,  
BROWSE\_USAGE\_ID

In this case, several browse products will refer to the same data product, so that the SOURCE\_PRODUCT\_ID values in the index table will be duplicated.

The BROWSE\_USAGE\_ID and SOURCE\_PRODUCT\_ID values should be used during data set validation and ingestion. An example of the browse product labels and BROWSE\_INDEX files with these changes is provided in Appendix A.

### **3.2.2 PVV Implications**

The PVV will have to accept browse index files with the BROWSE\_USAGE\_ID column during verification. It may also be necessary to extract the values for the BROWSE\_USAGE\_ID and SOURCE\_PRODUCT\_ID into the database during ingestion to understand how we should handle the display of the browse product in the UI, although this may not be a PVV task.

If the *'pvv indexes'* command is run on a data set with multiple browse products, the BROWSE\_USAGE\_ID values should be extracted from the browse products to understand whether a product is PRIMARY or SECONDARY. These values should then be placed in the BROWSE\_USAGE\_ID column in the BROWSE\_INDEX table.

The SOURCE\_PRODUCT\_ID should also be extracted from the browse product labels and placed in the relevant column. In this case, there will be one line in the BROWSE\_INDEX table per browse product, but several of the SOURCE\_PRODUCT\_ID values will be identical (Section 2.1.2.3).

### **3.2.3 User Interface Implications**

For cases where there are multiple browse products for a single data product, the default postcard in the 'Latest Results' screen should be the *'PRIMARY'* browse product, as indicated in the modified version of the BROWSE\_INDEX.TAB and the browse product label.

Because *'SECONDARY'* browse products are also available, a text should appear beneath the default postcard saying 'click to view secondary browse products'. When the default postcard is clicked on, a new window should open with a scrollbar and a presentation of the SECONDARY postcards, which can be enlarged by clicking on them. The figure below illustrates the proposal.

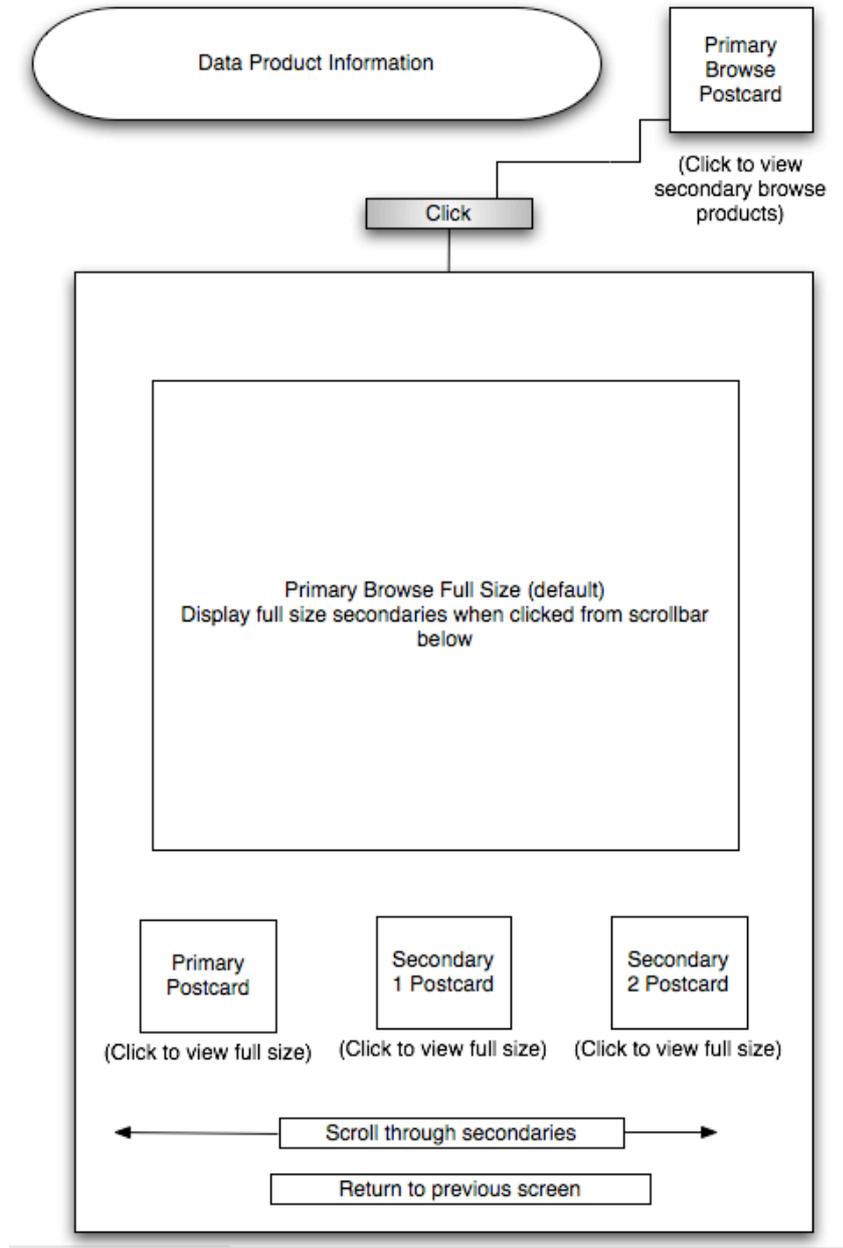


Figure 6: Example of proposed User Interface for examples with multiple browse products associated with a single data product.

### 3.3 Case 3: Single browse products for multiple data products

#### 3.3.1 BROWSE\_INDEX and Label Implications

For cases where there is a single browse product linked to from several data products (expected from the SPICAV SOIR calibrated data), the team should implement the BROWSE\_USAGE\_ID

keyword in the browse product labels and the BROWSE\_USAGE\_ID column in the BROWSE\_INDEX.TAB, using "N/A" values. The BROWSE\_INDEX will now be of the form:

FILE\_SPECIFICATION\_NAME, PRODUCT\_ID, SOURCE\_PRODUCT\_ID,  
PRODUCT\_CREATION\_TIME, DATA\_SET\_ID, RELEASE\_ID, REVISION\_ID,  
BROWSE\_USAGE\_ID

In order to indicate that the browse product is applicable to several data products, the SOURCE\_PRODUCT\_ID in the browse product label is used as a SET, listing all data products to which an "overview" browse product refers (see Section 2.1.3).

The BROWSE\_INDEX will now have several lines for each browse product, one line for each SOURCE\_PRODUCT\_ID to which the browse product refers (Section 2.1.3.3).

The BROWSE\_USAGE\_ID and SOURCE\_PRODUCT\_ID values should be used during data set validation and ingestion. An example of the browse product labels and BROWSE\_INDEX files with these changes is provided in Appendix B.

### 3.3.2 PVV Implications

The PVV will have to accept browse index files with the BROWSE\_USAGE\_ID column during verification. It may also be necessary to extract the values for the BROWSE\_USAGE\_ID and SOURCE\_PRODUCT\_ID into the database during ingestion to understand how we should handle the display of the browse product in the UI, although this may not be a PVV task.

If the 'pvv indexes' command is run on a data set with multiple values in the SOURCE\_PRODUCT\_ID of the browse product labels, each value should be extracted and placed in a new row of the BROWSE\_INDEX table. Each "overview" product will therefore have several lines in the BROWSE\_INDEX table, one for each SOURCE\_PRODUCT\_ID (Section 2.1.3.3.). The BROWSE\_USAGE\_ID values for these "overview" browse products should be read as "N/A" from the labels.

### 3.3.3 User Interface Implications

In cases where there multiple data products point to a single browse product, the Latest Results page on the user interface will not need to change. The browse product should simply be displayed next to all of the data products for which it is applicable, as indicated by the SOURCE\_PRODUCT\_ID values in the BROWSE\_INDEX.TAB.

## 3.4 Case 4: Combination of cases 1 and 3

### 3.4.1 BROWSE\_INDEX and Label Implications

In this case a team may have both standard browse products for each data product and some "overview" browse products relevant to several data products (Section 2.1.4). The BROWSE\_USAGE\_ID should be included in the browse product labels and in the BROWSE\_INDEX. The SOURCE\_PRODUCT\_ID should be used as a SET in the case of the "overview" browse products.

For the standard one-to-one mapping browse product labels:

- The SOURCE\_PRODUCT\_ID should indicate the single data product from which it is derived
- The BROWSE\_USAGE\_ID should be set to PRIMARY to indicate that this is the default browse product to display in the Latest Results screen

For the “overview” browse product labels:

- The SOURCE\_PRODUCT\_ID should be a SET of values, listing all of the data products from which it is derived
- The BROWSE\_USAGE\_ID should be set to SECONDARY.

The BROWSE\_INDEX will now be of the form:

FILE\_SPECIFICATION\_NAME, PRODUCT\_ID, SOURCE\_PRODUCT\_ID,  
PRODUCT\_CREATION\_TIME, DATA\_SET\_ID, RELEASE\_ID, REVISION\_ID,  
BROWSE\_USAGE\_ID

In the BROWSE\_INDEX:

- Each PRIMARY browse product will have a single line using the SOURCE\_PRODUCT\_ID to refer back to its corresponding data product.
- Each “overview” browse product will have several lines, one for each of the products to which it is referenced. All of these lines will have a BROWSE\_USAGE\_ID of SECONDARY.

Details of this are shown in Section 2.1.4.3. An example of the browse product labels and BROWSE\_INDEX files with these changes is provided in Appendix C.

### 3.4.2 PVV Implications

The PVV will have to accept browse index files with the BROWSE\_USAGE\_ID column during verification. It may also be necessary to extract the values for the BROWSE\_USAGE\_ID and SOURCE\_PRODUCT\_ID into the database during ingestion to understand how we should handle the display of the browse product in the UI, although this may not be a PVV task.

If the *'pvv indexes'* command is run on this data set, it should extract the BROWSE\_USAGE\_ID and SOURCE\_PRODUCT\_ID values from the browse product labels.

- For the one-to-one mapping browse products with single values for SOURCE\_PRODUCT\_ID, the BROWSE\_INDEX can be generated with one line for each browse product, simply plugging in the relevant values extracted from the labels. The BROWSE\_USAGE\_ID here would be PRIMARY, as read from the labels.
- For the 'overview' browse products, each value listed for the SOURCE\_PRODUCT\_ID should be extracted and placed in a new row of the BROWSE\_INDEX table. Each “overview” product will therefore have several lines in the BROWSE\_INDEX table, one for each SOURCE\_PRODUCT\_ID. The BROWSE\_USAGE\_ID for these products would be SECONDARY, as read from the labels.

Section 2.1.4.3 gives an example of the index structure and a more complete example is provided in Appendix C.

### 3.4.3 User Interface Implications

For cases where there are both 'primary' and 'overview' browse products in a data set, the default postcard in the 'Latest Results' screen should be the 'PRIMARY' browse product, as indicated in the modified version of the BROWSE\_INDEX.TAB and the browse product labels.

Because 'SECONDARY' browse products are also available, a text should appear beneath the default postcard saying 'click to view secondary browse products'. When the default postcard is clicked on, a new window should open with a scrollbar and a presentation of the SECONDARY postcards (overview products in this case), which can be enlarged by clicking on them. The UI should be the same as was described in Section 3.2.3 and is illustrated in Figure 6.

### **3.5 Case 5: Combination of cases 2 and 3**

#### **3.5.1 BROWSE\_INDEX and Label Implications**

In this case a team may have several browse products for each data product and some "overview" browse products relevant to several data products (Section 2.1.5). The BROWSE\_USAGE\_ID should be included in the browse product labels and in the BROWSE\_INDEX to indicate whether products are PRIMARY or SECONDARY. The SOURCE\_PRODUCT\_ID should be used as a SET in the case of the "overview" browse products, listing all data products to which they refer.

For multiple browse products referring to the same data product (case2):

- The SOURCE\_PRODUCT\_ID should indicate the data product from which it is derived
- The BROWSE\_USAGE\_ID should be set to PRIMARY for the default browse product you wish to have displayed in the Latest Results screen, and SECONDARY for all other products

For the "overview" browse product labels:

- The SOURCE\_PRODUCT\_ID should be a SET of values, indicating all of the data products from which it is derived
- The BROWSE\_USAGE\_ID should be set to SECONDARY.

The BROWSE\_INDEX will now be of the form:

FILE\_SPECIFICATION\_NAME, PRODUCT\_ID, SOURCE\_PRODUCT\_ID,  
PRODUCT\_CREATION\_TIME, DATA\_SET\_ID, RELEASE\_ID, REVISION\_ID,  
BROWSE\_USAGE\_ID

In the BROWSE\_INDEX:

- Each PRIMARY and SECONDARY browse product for Case 2 will have a single line using the SOURCE\_PRODUCT\_ID to refer back to its corresponding data product.
- Each "overview" browse product will have several lines, one for each of the products to which it is referenced. All of these lines will have a BROWSE\_USAGE\_ID of SECONDARY.

Details of this are shown in Section 2.1.5.3. An example of the browse product labels and BROWSE\_INDEX files with these changes is provided in Appendix D.

#### **3.5.2 PVV Implications**

The PVV will have to accept browse index files with the BROWSE\_USAGE\_ID column during verification. It may also be necessary to extract the values for the BROWSE\_USAGE\_ID and

SOURCE\_PRODUCT\_ID into the database during ingestion to understand how we should handle the display of the browse product in the UI, although this may not be a PVV task.

If the 'pvv indexes' command is run on this data set, it should extract the BROWSE\_USAGE\_ID and SOURCE\_PRODUCT\_ID values from the browse product labels.

- For the multiple browse products referring to the same data product, each label will have a single value for SOURCE\_PRODUCT\_ID. The BROWSE\_INDEX can be generated with one line for each browse product, simply plugging in the relevant values extracted from the labels. The BROWSE\_USAGE\_ID here would be either PRIMARY or SECONDARY, as read from the labels.
- For the 'overview' browse products, each value listed for the SOURCE\_PRODUCT\_ID should be extracted and placed in a new row of the BROWSE\_INDEX table. Each "overview" product will therefore have several lines in the BROWSE\_INDEX table, one for each SOURCE\_PRODUCT\_ID. The BROWSE\_USAGE\_ID for these products would be SECONDARY, as read from the labels.

Section 2.1.5.3 gives an example of the index structure and a more complete example is provided in Appendix D.

### 3.5.3 User Interface Implications

For cases where there are 'primary', 'secondary' and 'overview' browse products in a data set, the default postcard in the 'Latest Results' screen should be the 'PRIMARY' browse product, as indicated in the modified version of the BROWSE\_INDEX.TAB and the browse product labels.

Because 'SECONDARY' browse products are also available, a text should appear beneath the default postcard saying 'click to view secondary browse products'. When the default postcard is clicked on, a new window should open with a scrollbar and a presentation of the SECONDARY postcards, which can be enlarged by clicking on them. 'Overview' browse products are treated as SECONDARY, as indicated in their labels and in the BROWSE\_INDEX. The UI should be the same as was described in Section 3.2.3 and is illustrated in Figure 6.

## 4. Summary of PVV Implications and Requirements

There are a number of minor changes required to the PVV for data set verification purposes and for ingestion purposes.

- o The PVV should be able to handle browse product labels and BROWSE\_INDEX files with and without the BROWSE\_USAGE\_ID keyword / column.
- o The 'pvv indexes' command should be able to create a BROWSE\_INDEX.TAB and BROWSE\_INDEX.LBL file with the new BROWSE\_USAGE\_ID column following the rules:
  - Read the BROWSE\_USAGE\_ID and SOURCE\_PRODUCT\_ID from browse product labels
    - i. If the BROWSE\_USAGE\_ID keyword is missing, assume it is "N/A"
  - Use these values to generate a BROWSE\_INDEX with the columns  
FILE\_SPECIFICATION\_NAME, PRODUCT\_ID, SOURCE\_PRODUCT\_ID,  
PRODUCT\_CREATION\_TIME, DATA\_SET\_ID, RELEASE\_ID, REVISION\_ID,  
BROWSE\_USAGE\_ID



- If multiple values are listed for the SOURCE\_PRODUCT\_ID, create one line for each value, using the same PRODUCT\_ID from the browse label on each line, for example:

-----  
Subsection of MY\_BROWSE\_PRODUCT.LBL:

PDS\_VERSION\_ID = PDS3

.....

PRODUCT\_ID = MY\_BROWSE\_PRODUCT

SOURCE\_PRODUCT\_ID = (MY\_PRODUCT\_1, MY\_PRODUCT\_2)

BROWSE\_USAGE\_ID = SECONDARY

...

END

-----  
Resulting lines in the BROWSE\_INDEX.TAB:

[PATH], "MY\_BROWSE\_PRODUCT", "MY\_PRODUCT\_1", ... [REVISION\_ID], "SECONDARY"

[PATH], "MY\_BROWSE\_PRODUCT", "MY\_PRODUCT\_2", ... [REVISION\_ID], "SECONDARY"

-----

- o It may also be necessary to extract the values for the BROWSE\_USAGE\_ID and SOURCE\_PRODUCT\_ID into the database during ingestion to understand how we should handle the display of the browse product in the UI, although this may not be a PVV task.



## **Appendix A: Example Browse Product Label and BROWSE\_INDEX files for Case 2: several browse products are associated with a single data product (Section 2.1.2)**

In this example, we have the following browse products:

FRM\_AIS\_RDR\_1844.PNG – primary browse for the data product FRM\_AIS\_RDR\_1844.DAT

FRM\_AIS\_RDR\_1844\_000.PNG – secondary browse for the data product  
FRM\_AIS\_RDR\_1844.DAT

FRM\_AIS\_RDR\_1844\_001.PNG – secondary browse for the data product  
FRM\_AIS\_RDR\_1844.DAT

FRM\_AIS\_RDR\_1844\_002.PNG – secondary browse for the data product  
FRM\_AIS\_RDR\_1844.DAT

### **Subsection of Browse Product Labels:**

-----  
**FRM\_AIS\_RDR\_1844.LBL**

PDS\_VERSION\_ID = PDS3

.....

PRODUCT\_ID = FRM\_AIS\_RDR\_1844.LBL

SOURCE\_PRODUCT\_ID = FRM\_AIS\_RDR\_1844.DAT

BROWSE\_USAGE\_ID = PRIMARY

...

END

-----  
**FRM\_AIS\_RDR\_1844\_000.LBL**

PDS\_VERSION\_ID = PDS3

.....

PRODUCT\_ID = FRM\_AIS\_RDR\_1844\_000.LBL

SOURCE\_PRODUCT\_ID = FRM\_AIS\_RDR\_1844.DAT

BROWSE\_USAGE\_ID = SECONDARY

...

END

-----  
**FRM\_AIS\_RDR\_1844\_001.LBL**

PDS\_VERSION\_ID = PDS3

.....

PRODUCT\_ID = FRM\_AIS\_RDR\_1844\_001.LBL



SOURCE\_PRODUCT\_ID = FRM\_AIS\_RDR\_1844.DAT  
BROWSE\_USAGE\_ID = SECONDARY

...

END

-----  
**FRM\_AIS\_RDR\_1844\_002.LBL**

PDS\_VERSION\_ID = PDS3

.....

PRODUCT\_ID = FRM\_AIS\_RDR\_1844\_002.LBL  
SOURCE\_PRODUCT\_ID = FRM\_AIS\_RDR\_1844.DAT  
BROWSE\_USAGE\_ID = SECONDARY

...

END

-----  
**BROWSE\_INDEX.LBL:**

PDS\_VERSION\_ID = PDS3  
RECORD\_TYPE = FIXED\_LENGTH  
RECORD\_BYTES = 201  
FILE\_RECORDS = 13006

LABEL\_REVISION\_NOTE = "  
2006-06-06, Robert A. Johnson (U. IOWA), Initial Revision  
2006-08-31, Robert A. Johnson (U. IOWA), Addition of Elements"

DATA\_SET\_ID = "MEX-M-MARSIS-3-RDR-AIS-V1.0"  
DATA\_SET\_NAME = "MARS EXPRESS MARS MARSIS RDR  
ACTIVE IONOSPHERE SOUNDING V1.0"  
PRODUCT\_ID = "BROWSE\_INDEX\_TAB"  
RELEASE\_ID = 0002  
REVISION\_ID = 0000  
PRODUCT\_CREATION\_TIME = 2006-09-22T14:27:27

START\_TIME = 2005-173T23:00:40.959  
STOP\_TIME = 2005-189T12:01:28.892  
SPACECRAFT\_CLOCK\_START\_COUNT = "1/0067561235.48170"  
SPACECRAFT\_CLOCK\_STOP\_COUNT = "1/0068904083.44505"  
MISSION\_NAME = "MARS EXPRESS"  
TARGET\_NAME = MARS  
TARGET\_TYPE = PLANET  
REFERENCE\_TARGET\_NAME = MARS

INSTRUMENT\_HOST\_NAME = "MARS EXPRESS"  
INSTRUMENT\_HOST\_ID = MEX  
INSTRUMENT\_NAME = "MARS ADVANCED RADAR FOR SUBSURFACE AND  
IONOSPHERE SOUNDING"  
INSTRUMENT\_ID = MARSIS



SECTION\_ID = AIS  
INSTRUMENT\_TYPE = RADAR  
INSTRUMENT\_MODE\_ID = AIS  
INSTRUMENT\_MODE\_DESC = "ACTIVE IONOSPHERE SOUNDING"

PRODUCER\_FULL\_NAME = "RICHARD L. HUFF"  
PRODUCER\_INSTITUTION\_NAME = "UNIVERSITY OF IOWA"

FILE\_NAME = "BROWSE\_INDEX.LBL"  
^INDEX\_TABLE = "BROWSE\_INDEX.TAB"

OBJECT = INDEX\_TABLE  
INTERCHANGE\_FORMAT = ASCII  
ROWS = 13006  
ROW\_BYTES = 191  
COLUMNS = 8  
INDEX\_TYPE = SINGLE  
INDEXED\_FILE\_NAME = {"BROWSE\*.LBL"}  
DESCRIPTION = "BROWSE\_INDEX.TAB lists all label files in this  
volume."

OBJECT = COLUMN  
NAME = FILE\_SPECIFICATION\_NAME  
DATA\_TYPE = CHARACTER  
START\_BYTE = 2  
BYTES = 74  
//COLUMN\_NUMBER = 1  
DESCRIPTION = "Pathname to the detached label which  
identifies this data file. Or path name  
file. Or path name to text file."  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = PRODUCT\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 79  
BYTES = 24  
//COLUMN\_NUMBER = 2  
DESCRIPTION = "The name of the data file, which is unique  
within this data set."  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = SOURCE\_PRODUCT\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 106  
BYTES = 20  
//COLUMN\_NUMBER = 3  
DESCRIPTION = "The name of the source data file, which is  
unique within this data set."  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = PRODUCT\_CREATION\_TIME



DATA\_TYPE = TIME  
START\_BYTE = 129  
BYTES = 19  
//COLUMN\_NUMBER = 4  
DESCRIPTION = "Time at which the data file was created."  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = DATA\_SET\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 151  
BYTES = 27  
//COLUMN\_NUMBER = 5  
DESCRIPTION = "An identifier unique for this dataset"  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = RELEASE\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 180  
BYTES = 4  
//COLUMN\_NUMBER = 6  
DESCRIPTION = "Release ID"  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = REVISION\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 185  
BYTES = 4  
//COLUMN\_NUMBER = 7  
DESCRIPTION = "Revision ID"  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = BROWSE\_USAGE\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 190  
BYTES = 9  
//COLUMN\_NUMBER = 8  
DESCRIPTION = "This describes the type of browse image.  
Values are either PRIMARY, SECONDARY,  
or not applicable."  
END\_OBJECT = COLUMN

END\_OBJECT = INDEX\_TABLE  
END

---

**Subset of BROWSE\_INDEX.TAB:**

"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_1844.LBL  
","FRM\_AIS\_RDR\_1844.PNG ", "FRM\_AIS\_RDR\_1844.DAT", "2005-10-06T11:59:21", "MEX-M-  
MARSIS-3-RDR-AIS-V1.0", 0001, 0000, "PRIMARY"



**PSA Browse Product  
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"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/RDR1844/FRM\_AIS\_RDR\_1844\_00  
0.LBL","FRM\_AIS\_RDR\_1844\_000.PNG","FRM\_AIS\_RDR\_1844.DAT","2006-08-  
15T13:56:11","MEX-M-MARSIS-3-RDR-AIS-V1.0",0001,0000,"SECONDARY"  
"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/RDR1844/FRM\_AIS\_RDR\_1844\_00  
1.LBL","FRM\_AIS\_RDR\_1844\_001.PNG","FRM\_AIS\_RDR\_1844.DAT","2006-08-  
15T13:56:11","MEX-M-MARSIS-3-RDR-AIS-V1.0",0001,0000,"SECONDARY"  
"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/RDR1844/FRM\_AIS\_RDR\_1844\_00  
2.LBL","FRM\_AIS\_RDR\_1844\_002.PNG","FRM\_AIS\_RDR\_1844.DAT","2006-08-  
15T13:56:11","MEX-M-MARSIS-3-RDR-AIS-V1.0",0001,0000,"SECONDARY"



## **Appendix B: Example Browse Product Label and BROWSE\_INDEX files for Case 3: several data products point to a single browse product (Section 2.1.3)**

In this example, we have the following browse products:

FRM\_AIS\_RDR\_OVERVIEW\_1.PNG – an “overview” browse product referring to the data products FRM\_AIS\_RDR\_1844.DAT, FRM\_AIS\_RDR\_1845.DAT and FRM\_AIS\_RDR\_1846.DAT

FRM\_AIS\_RDR\_OVERVIEW\_2.PNG – an “overview” browse product referring to the data products FRM\_AIS\_RDR\_1847.DAT, FRM\_AIS\_RDR\_1848.DAT and FRM\_AIS\_RDR\_1849.DAT

### **Subsection of Browse Product Labels:**

-----  
**FRM\_AIS\_RDR\_OVERVIEW\_1.LBL**

PDS\_VERSION\_ID = PDS3

.....

PRODUCT\_ID = FRM\_AIS\_RDR\_OVERVIEW\_1.LBL

SOURCE\_PRODUCT\_ID = (“FRM\_AIS\_RDR\_1844.DAT”, “FRM\_AIS\_RDR\_1845.DAT”, “FRM\_AIS\_RDR\_1846.DAT”)

BROWSE\_USAGE\_ID = “N/A”

...

END

-----  
**FRM\_AIS\_RDR\_OVERVIEW\_2.LBL**

PDS\_VERSION\_ID = PDS3

.....

PRODUCT\_ID = FRM\_AIS\_RDR\_OVERVIEW\_2.LBL

SOURCE\_PRODUCT\_ID = (“FRM\_AIS\_RDR\_1847.DAT”, “FRM\_AIS\_RDR\_1848.DAT”, “FRM\_AIS\_RDR\_1849.DAT”)

BROWSE\_USAGE\_ID = “N/A”

...

END

-----  
**BROWSE\_INDEX.LBL:**

PDS\_VERSION\_ID = PDS3  
RECORD\_TYPE = FIXED\_LENGTH  
RECORD\_BYTES = 201



FILE\_RECORDS = 13006

LABEL\_REVISION\_NOTE = "  
2006-06-06, Robert A. Johnson (U. IOWA), Initial Revision  
2006-08-31, Robert A. Johnson (U. IOWA), Addition of Elements"

DATA\_SET\_ID = "MEX-M-MARSIS-3-RDR-AIS-V1.0"  
DATA\_SET\_NAME = "MARS EXPRESS MARS MARSIS RDR  
ACTIVE IONOSPHERE SOUNDING V1.0"

PRODUCT\_ID = "BROWSE\_INDEX\_TAB"  
RELEASE\_ID = 0002  
REVISION\_ID = 0000  
PRODUCT\_CREATION\_TIME = 2006-09-22T14:27:27

START\_TIME = 2005-173T23:00:40.959  
STOP\_TIME = 2005-189T12:01:28.892  
SPACECRAFT\_CLOCK\_START\_COUNT = "1/0067561235.48170"  
SPACECRAFT\_CLOCK\_STOP\_COUNT = "1/0068904083.44505"  
MISSION\_NAME = "MARS EXPRESS"  
TARGET\_NAME = MARS  
TARGET\_TYPE = PLANET  
REFERENCE\_TARGET\_NAME = MARS

INSTRUMENT\_HOST\_NAME = "MARS EXPRESS"  
INSTRUMENT\_HOST\_ID = MEX  
INSTRUMENT\_NAME = "MARS ADVANCED RADAR FOR SUBSURFACE AND  
IONOSPHERE SOUNDING"  
INSTRUMENT\_ID = MARSIS  
SECTION\_ID = AIS  
INSTRUMENT\_TYPE = RADAR  
INSTRUMENT\_MODE\_ID = AIS  
INSTRUMENT\_MODE\_DESC = "ACTIVE IONOSPHERE SOUNDING"

PRODUCER\_FULL\_NAME = "RICHARD L. HUFF"  
PRODUCER\_INSTITUTION\_NAME = "UNIVERSITY OF IOWA"

FILE\_NAME = "BROWSE\_INDEX.LBL"  
^INDEX\_TABLE = "BROWSE\_INDEX.TAB"

OBJECT = INDEX\_TABLE  
INTERCHANGE\_FORMAT = ASCII  
ROWS = 13006  
ROW\_BYTES = 191  
COLUMNS = 8  
INDEX\_TYPE = SINGLE  
INDEXED\_FILE\_NAME = {"BROWSE\*.LBL"}  
DESCRIPTION = "BROWSE\_INDEX.TAB lists all label files in this  
volume."

OBJECT = COLUMN  
NAME = FILE\_SPECIFICATION\_NAME  
DATA\_TYPE = CHARACTER  
START\_BYTE = 2  
BYTES = 74



```
//COLUMN_NUMBER      = 1
DESCRIPTION           = "Pathname to the detached label which
                        identifies this data file. Or path name
                        file. Or path name to text file."
END_OBJECT            = COLUMN

OBJECT                = COLUMN
NAME                  = PRODUCT_ID
DATA_TYPE             = CHARACTER
START_BYTE           = 79
BYTES                 = 24
//COLUMN_NUMBER      = 2
DESCRIPTION           = "The name of the data file, which is unique
                        within this data set."
END_OBJECT            = COLUMN

OBJECT                = COLUMN
NAME                  = SOURCE_PRODUCT_ID
DATA_TYPE             = CHARACTER
START_BYTE           = 106
BYTES                 = 20
//COLUMN_NUMBER      = 3
DESCRIPTION           = "The name of the source data file, which is
                        unique within this data set."
END_OBJECT            = COLUMN

OBJECT                = COLUMN
NAME                  = PRODUCT_CREATION_TIME
DATA_TYPE             = TIME
START_BYTE           = 129
BYTES                 = 19
//COLUMN_NUMBER      = 4
DESCRIPTION           = "Time at which the data file was created."
END_OBJECT            = COLUMN

OBJECT                = COLUMN
NAME                  = DATA_SET_ID
DATA_TYPE             = CHARACTER
START_BYTE           = 151
BYTES                 = 27
//COLUMN_NUMBER      = 5
DESCRIPTION           = "An identifier unique for this dataset"
END_OBJECT            = COLUMN

OBJECT                = COLUMN
NAME                  = RELEASE_ID
DATA_TYPE             = CHARACTER
START_BYTE           = 180
BYTES                 = 4
//COLUMN_NUMBER      = 6
DESCRIPTION           = "Release ID"
END_OBJECT            = COLUMN

OBJECT                = COLUMN
```



NAME = REVISION\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 185  
BYTES = 4  
//COLUMN\_NUMBER = 7  
DESCRIPTION = "Revision ID"  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = BROWSE\_USAGE\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 190  
BYTES = 9  
//COLUMN\_NUMBER = 8  
DESCRIPTION = "This describes the type of browse image.  
Values are either PRIMARY, SECONDARY  
or not applicable"  
END\_OBJECT = COLUMN

END\_OBJECT = INDEX\_TABLE  
END

-----  
**Subset of BROWSE\_INDEX.TAB:**

"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_OVERVIEW\_1.LBL  
","FRM\_AIS\_RDR\_OVERVIEW\_1.PNG ", "FRM\_AIS\_RDR\_1844.DAT", "2005-10-  
06T11:59:21", "MEX-M-MARSIS-3-RDR-AIS-V1.0", "0001,0000", "N/A"  
"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_OVERVIEW\_1.LBL  
","FRM\_AIS\_RDR\_OVERVIEW\_1.PNG ", "FRM\_AIS\_RDR\_1845.DAT", "2005-10-  
06T11:59:21", "MEX-M-MARSIS-3-RDR-AIS-V1.0", "0001,0000", "N/A"  
"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_OVERVIEW\_1.LBL  
","FRM\_AIS\_RDR\_OVERVIEW\_1.PNG ", "FRM\_AIS\_RDR\_1846.DAT", "2005-10-  
06T11:59:21", "MEX-M-MARSIS-3-RDR-AIS-V1.0", "0001,0000", "N/A"  
"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_OVERVIEW\_2.LBL  
","FRM\_AIS\_RDR\_OVERVIEW\_2.PNG ", "FRM\_AIS\_RDR\_1847.DAT", "2005-10-  
06T11:59:21", "MEX-M-MARSIS-3-RDR-AIS-V1.0", "0001,0000", "N/A"  
"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_OVERVIEW\_2.LBL  
","FRM\_AIS\_RDR\_OVERVIEW\_2.PNG ", "FRM\_AIS\_RDR\_1848.DAT", "2005-10-  
06T11:59:21", "MEX-M-MARSIS-3-RDR-AIS-V1.0", "0001,0000", "N/A"  
"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_OVERVIEW\_2.LBL  
","FRM\_AIS\_RDR\_OVERVIEW\_2.PNG ", "FRM\_AIS\_RDR\_1849.DAT", "2005-10-  
06T11:59:21", "MEX-M-MARSIS-3-RDR-AIS-V1.0", "0001,0000", "N/A"

## **Appendix C: Example Browse Product Label and BROWSE\_INDEX files for a Combination of Cases 1 and 3 (Section 2.1.4)**

In this example, we have the following browse products:

FRM\_AIS\_RDR\_1844.PNG – primary browse for the data product FRM\_AIS\_RDR\_1844.DAT

FRM\_AIS\_RDR\_1845.PNG – primary browse for the data product FRM\_AIS\_RDR\_1845.DAT

FRM\_AIS\_RDR\_OVERVIEW.PNG – an “overview” browse product referring to both  
FRM\_AIS\_RDR\_1844.DAT and FRM\_AIS\_RDR\_1845.DAT

### **Subsection of Browse Product Labels:**

-----  
**FRM\_AIS\_RDR\_1844.LBL**

PDS\_VERSION\_ID = PDS3

.....

PRODUCT\_ID = FRM\_AIS\_RDR\_1844.LBL

SOURCE\_PRODUCT\_ID = FRM\_AIS\_RDR\_1844.DAT

BROWSE\_USAGE\_ID = PRIMARY

...

END

-----  
**FRM\_AIS\_RDR\_1845.LBL**

PDS\_VERSION\_ID = PDS3

.....

PRODUCT\_ID = FRM\_AIS\_RDR\_1845.LBL

SOURCE\_PRODUCT\_ID = FRM\_AIS\_RDR\_1845.DAT

BROWSE\_USAGE\_ID = PRIMARY

...

END

-----  
**FRM\_AIS\_RDR\_OVERVIEW.LBL**

PDS\_VERSION\_ID = PDS3

.....

PRODUCT\_ID = FRM\_AIS\_RDR\_OVERVIEW.LBL

SOURCE\_PRODUCT\_ID = (“FRM\_AIS\_RDR\_1844.DAT”, “FRM\_AIS\_RDR\_1845.DAT”)

BROWSE\_USAGE\_ID = SECONDARY



...

END

-----  
**BROWSE\_INDEX.LBL:**

PDS\_VERSION\_ID = PDS3  
RECORD\_TYPE = FIXED\_LENGTH  
RECORD\_BYTES = 201  
FILE\_RECORDS = 13006

LABEL\_REVISION\_NOTE = "  
2006-06-06, Robert A. Johnson (U. IOWA), Initial Revision  
2006-08-31, Robert A. Johnson (U. IOWA), Addition of Elements"

DATA\_SET\_ID = "MEX-M-MARSIS-3-RDR-AIS-V1.0"  
DATA\_SET\_NAME = "MARS EXPRESS MARS MARSIS RDR  
ACTIVE IONOSPHERE SOUNDING V1.0"  
PRODUCT\_ID = "BROWSE\_INDEX\_TAB"  
RELEASE\_ID = 0002  
REVISION\_ID = 0000  
PRODUCT\_CREATION\_TIME = 2006-09-22T14:27:27

START\_TIME = 2005-173T23:00:40.959  
STOP\_TIME = 2005-189T12:01:28.892  
SPACECRAFT\_CLOCK\_START\_COUNT = "1/0067561235.48170"  
SPACECRAFT\_CLOCK\_STOP\_COUNT = "1/0068904083.44505"  
MISSION\_NAME = "MARS EXPRESS"  
TARGET\_NAME = MARS  
TARGET\_TYPE = PLANET  
REFERENCE\_TARGET\_NAME = MARS

INSTRUMENT\_HOST\_NAME = "MARS EXPRESS"  
INSTRUMENT\_HOST\_ID = MEX  
INSTRUMENT\_NAME = "MARS ADVANCED RADAR FOR SUBSURFACE AND  
IONOSPHERE SOUNDING"  
INSTRUMENT\_ID = MARSIS  
SECTION\_ID = AIS  
INSTRUMENT\_TYPE = RADAR  
INSTRUMENT\_MODE\_ID = AIS  
INSTRUMENT\_MODE\_DESC = "ACTIVE IONOSPHERE SOUNDING"

PRODUCER\_FULL\_NAME = "RICHARD L. HUFF"  
PRODUCER\_INSTITUTION\_NAME = "UNIVERSITY OF IOWA"

FILE\_NAME = "BROWSE\_INDEX.LBL"  
^INDEX\_TABLE = "BROWSE\_INDEX.TAB"

OBJECT = INDEX\_TABLE  
INTERCHANGE\_FORMAT = ASCII  
ROWS = 13006  
ROW\_BYTES = 191  
COLUMNS = 8



INDEX\_TYPE = SINGLE  
INDEXED\_FILE\_NAME = {"BROWSE\*.LBL"}  
DESCRIPTION = "BROWSE\_INDEX.TAB lists all label files in this  
volume."

OBJECT = COLUMN  
NAME = FILE\_SPECIFICATION\_NAME  
DATA\_TYPE = CHARACTER  
START\_BYTE = 2  
BYTES = 74  
//COLUMN\_NUMBER = 1  
DESCRIPTION = "Pathname to the detached label which  
identifies this data file. Or path name  
file. Or path name to text file."  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = PRODUCT\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 79  
BYTES = 24  
//COLUMN\_NUMBER = 2  
DESCRIPTION = "The name of the data file, which is unique  
within this data set."  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = SOURCE\_PRODUCT\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 106  
BYTES = 20  
//COLUMN\_NUMBER = 3  
DESCRIPTION = "The name of the source data file, which is  
unique within this data set."  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = PRODUCT\_CREATION\_TIME  
DATA\_TYPE = TIME  
START\_BYTE = 129  
BYTES = 19  
//COLUMN\_NUMBER = 4  
DESCRIPTION = "Time at which the data file was created."  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = DATA\_SET\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 151  
BYTES = 27  
//COLUMN\_NUMBER = 5  
DESCRIPTION = "An identifier unique for this dataset"  
END\_OBJECT = COLUMN



OBJECT = COLUMN  
NAME = RELEASE\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 180  
BYTES = 4  
//COLUMN\_NUMBER = 6  
DESCRIPTION = "Release ID"  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = REVISION\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 185  
BYTES = 4  
//COLUMN\_NUMBER = 7  
DESCRIPTION = "Revision ID"  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = BROWSE\_USAGE\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 190  
BYTES = 9  
//COLUMN\_NUMBER = 8  
DESCRIPTION = "This describes the type of browse image.  
Values are either PRIMARY, SECONDARY,  
or not applicable."  
END\_OBJECT = COLUMN

END\_OBJECT = INDEX\_TABLE  
END

-----  
**Subset of BROWSE\_INDEX.TAB:**

"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_1844.LBL  
","FRM\_AIS\_RDR\_1844.PNG ","FRM\_AIS\_RDR\_1844.DAT","2005-10-06T11:59:21","MEX-M-  
MARSIS-3-RDR-AIS-V1.0",0001,0000,"PRIMARY"  
"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_1845.LBL  
","FRM\_AIS\_RDR\_1845.PNG ","FRM\_AIS\_RDR\_1845.DAT","2005-10-06T11:59:21","MEX-M-  
MARSIS-3-RDR-AIS-V1.0",0001,0000,"PRIMARY"  
"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_OVERVIEW.LBL","  
FRM\_AIS\_RDR\_OVERVIEW.PNG","FRM\_AIS\_RDR\_1844.DAT","2006-08-15T13:56:11","MEX-  
M-MARSIS-3-RDR-AIS-V1.0",0001,0000,"SECONDARY"  
"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_OVERVIEW.LBL","  
FRM\_AIS\_RDR\_OVERVIEW.PNG","FRM\_AIS\_RDR\_1845.DAT","2006-08-15T13:56:11","MEX-  
M-MARSIS-3-RDR-AIS-V1.0",0001,0000,"SECONDARY"

## **Appendix D: Example Browse Product Label and BROWSE\_INDEX files for a Combination of Cases 2 and 3 (Section 2.1.5)**

In this example, we have the following browse products:

FRM\_AIS\_RDR\_1844.PNG – primary browse for the data product FRM\_AIS\_RDR\_1844.DAT

FRM\_AIS\_RDR\_1844\_000.PNG – secondary browse for the data product  
FRM\_AIS\_RDR\_1844.DAT

FRM\_AIS\_RDR\_1844\_001.PNG – secondary browse for the data product  
FRM\_AIS\_RDR\_1844.DAT

FRM\_AIS\_RDR\_1845.PNG – primary browse for the data product FRM\_AIS\_RDR\_1845.DAT

FRM\_AIS\_RDR\_1845\_000.PNG – secondary browse for the data product  
FRM\_AIS\_RDR\_1845.DAT

FRM\_AIS\_RDR\_1845\_001.PNG – secondary browse for the data product  
FRM\_AIS\_RDR\_1845.DAT

FRM\_AIS\_RDR\_OVERVIEW.PNG – an “overview” browse product referring to both  
FRM\_AIS\_RDR\_1844.DAT and FRM\_AIS\_RDR\_1845.DAT

### **Subsection of Browse Product Labels:**

-----  
**FRM\_AIS\_RDR\_1844.LBL**

PDS\_VERSION\_ID = PDS3

.....

PRODUCT\_ID = FRM\_AIS\_RDR\_1844.LBL

SOURCE\_PRODUCT\_ID = FRM\_AIS\_RDR\_1844.DAT

BROWSE\_USAGE\_ID = PRIMARY

...

END

-----  
**FRM\_AIS\_RDR\_1844\_000.LBL**

PDS\_VERSION\_ID = PDS3

.....

PRODUCT\_ID = FRM\_AIS\_RDR\_1844\_000.LBL

SOURCE\_PRODUCT\_ID = FRM\_AIS\_RDR\_1844.DAT

BROWSE\_USAGE\_ID = SECONDARY

...

END

-----



**FRM\_AIS\_RDR\_1844\_001.LBL**

PDS\_VERSION\_ID = PDS3

.....

PRODUCT\_ID = FRM\_AIS\_RDR\_1844\_001.LBL

SOURCE\_PRODUCT\_ID = FRM\_AIS\_RDR\_1844.DAT

BROWSE\_USAGE\_ID = SECONDARY

...

END

-----  
**FRM\_AIS\_RDR\_1845.LBL**

PDS\_VERSION\_ID = PDS3

.....

PRODUCT\_ID = FRM\_AIS\_RDR\_1845.LBL

SOURCE\_PRODUCT\_ID = FRM\_AIS\_RDR\_1845.DAT

BROWSE\_USAGE\_ID = PRIMARY

...

END

-----  
**FRM\_AIS\_RDR\_1845\_000.LBL**

PDS\_VERSION\_ID = PDS3

.....

PRODUCT\_ID = FRM\_AIS\_RDR\_1845\_000.LBL

SOURCE\_PRODUCT\_ID = FRM\_AIS\_RDR\_1845.DAT

BROWSE\_USAGE\_ID = SECONDARY

...

END

-----  
**FRM\_AIS\_RDR\_1845\_001.LBL**

PDS\_VERSION\_ID = PDS3

.....

PRODUCT\_ID = FRM\_AIS\_RDR\_1845\_001.LBL

SOURCE\_PRODUCT\_ID = FRM\_AIS\_RDR\_1845.DAT

BROWSE\_USAGE\_ID = SECONDARY

...

END

-----



**FRM\_AIS\_RDR\_OVERVIEW.LBL**

PDS\_VERSION\_ID = PDS3

.....

PRODUCT\_ID = FRM\_AIS\_RDR\_OVERVIEW.LBL

SOURCE\_PRODUCT\_ID = ("FRM\_AIS\_RDR\_1844.DAT", "FRM\_AIS\_RDR\_1845.DAT")

BROWSE\_USAGE\_ID = SECONDARY

...

END

-----  
**BROWSE\_INDEX.LBL:**

PDS\_VERSION\_ID = PDS3

RECORD\_TYPE = FIXED\_LENGTH

RECORD\_BYTES = 201

FILE\_RECORDS = 13006

LABEL\_REVISION\_NOTE = "  
2006-06-06, Robert A. Johnson (U. IOWA), Initial Revision  
2006-08-31, Robert A. Johnson (U. IOWA), Addition of Elements"

DATA\_SET\_ID = "MEX-M-MARSIS-3-RDR-AIS-V1.0"

DATA\_SET\_NAME = "MARS EXPRESS MARS MARSIS RDR  
ACTIVE IONOSPHERE SOUNDING V1.0"

PRODUCT\_ID = "BROWSE\_INDEX\_TAB"

RELEASE\_ID = 0002

REVISION\_ID = 0000

PRODUCT\_CREATION\_TIME = 2006-09-22T14:27:27

START\_TIME = 2005-173T23:00:40.959

STOP\_TIME = 2005-189T12:01:28.892

SPACECRAFT\_CLOCK\_START\_COUNT = "1/0067561235.48170"

SPACECRAFT\_CLOCK\_STOP\_COUNT = "1/0068904083.44505"

MISSION\_NAME = "MARS EXPRESS"

TARGET\_NAME = MARS

TARGET\_TYPE = PLANET

REFERENCE\_TARGET\_NAME = MARS

INSTRUMENT\_HOST\_NAME = "MARS EXPRESS"

INSTRUMENT\_HOST\_ID = MEX

INSTRUMENT\_NAME = "MARS ADVANCED RADAR FOR SUBSURFACE AND  
IONOSPHERE SOUNDING"

INSTRUMENT\_ID = MARSIS

SECTION\_ID = AIS

INSTRUMENT\_TYPE = RADAR

INSTRUMENT\_MODE\_ID = AIS

INSTRUMENT\_MODE\_DESC = "ACTIVE IONOSPHERE SOUNDING"

PRODUCER\_FULL\_NAME = "RICHARD L. HUFF"

PRODUCER\_INSTITUTION\_NAME = "UNIVERSITY OF IOWA"



FILE\_NAME = "BROWSE\_INDEX.LBL"  
^INDEX\_TABLE = "BROWSE\_INDEX.TAB"

OBJECT = INDEX\_TABLE  
INTERCHANGE\_FORMAT = ASCII  
ROWS = 13006  
ROW\_BYTES = 191  
COLUMNS = 8  
INDEX\_TYPE = SINGLE  
INDEXED\_FILE\_NAME = {"BROWSE\*.LBL"}  
DESCRIPTION = "BROWSE\_INDEX.TAB lists all label files in this  
volume."

OBJECT = COLUMN  
NAME = FILE\_SPECIFICATION\_NAME  
DATA\_TYPE = CHARACTER  
START\_BYTE = 2  
BYTES = 74  
//COLUMN\_NUMBER = 1  
DESCRIPTION = "Pathname to the detached label which  
identifies this data file. Or path name  
file. Or path name to text file."  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = PRODUCT\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 79  
BYTES = 24  
//COLUMN\_NUMBER = 2  
DESCRIPTION = "The name of the data file, which is unique  
within this data set."  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = SOURCE\_PRODUCT\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 106  
BYTES = 20  
//COLUMN\_NUMBER = 3  
DESCRIPTION = "The name of the source data file, which is  
unique within this data set."  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = PRODUCT\_CREATION\_TIME  
DATA\_TYPE = TIME  
START\_BYTE = 129  
BYTES = 19  
//COLUMN\_NUMBER = 4  
DESCRIPTION = "Time at which the data file was created."  
END\_OBJECT = COLUMN



OBJECT = COLUMN  
NAME = DATA\_SET\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 151  
BYTES = 27  
//COLUMN\_NUMBER = 5  
DESCRIPTION = "An identifier unique for this dataset"  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = RELEASE\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 180  
BYTES = 4  
//COLUMN\_NUMBER = 6  
DESCRIPTION = "Release ID"  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = REVISION\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 185  
BYTES = 4  
//COLUMN\_NUMBER = 7  
DESCRIPTION = "Revision ID"  
END\_OBJECT = COLUMN

OBJECT = COLUMN  
NAME = BROWSE\_USAGE\_ID  
DATA\_TYPE = CHARACTER  
START\_BYTE = 190  
BYTES = 9  
//COLUMN\_NUMBER = 8  
DESCRIPTION = "This describes the type of browse image.  
Values are either PRIMARY, SECONDARY,  
or not applicable."  
END\_OBJECT = COLUMN

END\_OBJECT = INDEX\_TABLE  
END

-----  
**Subset of BROWSE\_INDEX.TAB:**

"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_1844.LBL  
","FRM\_AIS\_RDR\_1844.PNG ","FRM\_AIS\_RDR\_1844.DAT","2005-10-06T11:59:21","MEX-M-  
MARSIS-3-RDR-AIS-V1.0",0001,0000,"PRIMARY"  
"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_1845.LBL  
","FRM\_AIS\_RDR\_1845.PNG ","FRM\_AIS\_RDR\_1845.DAT","2005-10-06T11:59:21","MEX-M-  
MARSIS-3-RDR-AIS-V1.0",0001,0000,"PRIMARY"  
"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_1844\_000.LBL","F  
RM\_AIS\_RDR\_1844\_000.PNG","FRM\_AIS\_RDR\_1844.DAT","2006-08-15T13:56:11","MEX-M-  
MARSIS-3-RDR-AIS-V1.0",0001,0000,"SECONDARY"



"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_1844\_001.LBL","FRM\_AIS\_RDR\_1844\_001.PNG","FRM\_AIS\_RDR\_1844.DAT","2006-08-15T13:56:11","MEX-M-MARSIS-3-RDR-AIS-V1.0",0001,0000,"SECONDARY"

"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_1845\_000.LBL","FRM\_AIS\_RDR\_1845\_000.PNG","FRM\_AIS\_RDR\_1845.DAT","2006-08-15T13:56:11","MEX-M-MARSIS-3-RDR-AIS-V1.0",0001,0000,"SECONDARY"

"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_1845\_001.LBL","FRM\_AIS\_RDR\_1845\_001.PNG","FRM\_AIS\_RDR\_1845.DAT","2006-08-15T13:56:11","MEX-M-MARSIS-3-RDR-AIS-V1.0",0001,0000,"SECONDARY"

"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_OVERVIEW.LBL","FRM\_AIS\_RDR\_OVERVIEW.PNG","FRM\_AIS\_RDR\_1844.DAT","2006-08-15T13:56:11","MEX-M-MARSIS-3-RDR-AIS-V1.0",0001,0000,"SECONDARY"

"BROWSE/ACTIVE\_IONOSPHERIC\_SOUNDER/RDR184X/FRM\_AIS\_RDR\_OVERVIEW.LBL","FRM\_AIS\_RDR\_OVERVIEW.PNG","FRM\_AIS\_RDR\_1845.DAT","2006-08-15T13:56:11","MEX-M-MARSIS-3-RDR-AIS-V1.0",0001,0000,"SECONDARY"