

A horizontal banner image featuring a sequence of celestial bodies from left to right: a blue and white planet (Earth), a brown planet (Mars), a brown planet (Mars), a white planet (Jupiter), and a brown planet (Mars). The text "Planetary Data System" is overlaid in white on the right side of the banner.

Planetary Data System

# **PDS4 "Simple" Table Example**

**PDS 2010 Tech Session**

**June 10, 2009**

**PDS 2010 Data Design WG**

# Outline

- The most basic of ASCII tables with a mix of numeric and character valued columns.
- Fixed-width columns.
- Well-defined PDS3 label.
- PDS4 label example shown here.

# Phoenix Telltale Experiment

- Added-on experiment that provides information about wind speed and direction through imaging a “weather vane”.
- Data as delivered consisted of an Excel file.
- Data as archived included converting the Excel to a CSV file and manually fixing column widths.

## Telltale – example of a “simple” table structure

- A single table of 10 columns, no header, delimited by commas.
- Each record is fixed length and each column is fixed length.
- Some columns with “ASCII\_REAL” values have decimal points that do not “line up”. This preserves the total byte length of the column.

# What is different in PDS4?

- The table itself is unchanged.
- Labeling will be different depending on the implementation chosen but should retain the information from the PDS3 label.



# PDS 3 label fragment

```
PDS_VERSION_ID           = PDS3
RECORD_TYPE              = FIXED_LENGTH
RECORD_BYTES             = 88
FILE_RECORDS             = 3727
^TABLE                   = "CHAR_TABLE_COLLAPSED.TAB"
DATA_SET_ID              = "PHX-M-TT-5-WIND-VEL-DIR-V1.0"
MISSION_NAME             = "PHOENIX"
INSTRUMENT_HOST_NAME    = "PHOENIX"
INSTRUMENT_NAME          = "TELLTALE"
PRODUCT_ID               = "TELLTALE_91_151"
TARGET_NAME              = "MARS"
SPACECRAFT_CLOCK_START_COUNT = "904250279.448"
SPACECRAFT_CLOCK_STOP_COUNT = "909588864.598"
START_TIME               = 2008-08-26T20:36:36.856
STOP_TIME                = 2008-10-27T15:32:50.952
PRODUCT_CREATION_TIME   = 2009-04-15

OBJECT                   = TABLE
  INTERCHANGE_FORMAT     = ASCII
  ROW_BYTES              = 88
  ROWS                   = 3727
  COLUMNS               = 10
```

# PDS3 label fragment continued

```
OBJECT                = COLUMN
  NAME                = "SOL"
  DATA_TYPE          = ASCII_INTEGER
  START_BYTE          = 1
  BYTES               = 3
  FORMAT              = "I3"
  UNIT                = "N/A"
  DESCRIPTION         = "PHOENIX Sol number"
END_OBJECT            = COLUMN
OBJECT                = COLUMN
  NAME                = "LTST"
  DATA_TYPE          = ASCII_REAL
  START_BYTE          = 5
  BYTES               = 5
  FORMAT              = "F5.3"
  UNIT                = "N/A"
  DESCRIPTION         = "Local True Solar Time"
END_OBJECT            = COLUMN
OBJECT                = COLUMN
  NAME                = "LMST"
  DATA_TYPE          = ASCII_REAL
  START_BYTE          = 11
  BYTES               = 9
  FORMAT              = "F9.5"
  UNIT                = "N/A"
  DESCRIPTION         = "Local Mean Solar Time"
END_OBJECT            = COLUMN
```

Etc.



# PDS4 label fragment - part 1

```
##PDS4#
/* ***** LABEL TEMPLATE - PRODUCT_TABLE_CHARACTER ***** */
OBJECT = PRODUCT_TABLE_CHARACTER;
  OBJECT = IDENTIFICATION_SECTION;
    DD_VERSION_ID          = "DD_VERSION_ID";
    IDENTIFIER              = "some undetermined value of identifier";
    LABEL_REVISION_NOTE    = "20090101:1.0 - initial version;
                              20090102:1.1 - added another column";
    PDS_VERSION_ID         = "PDS4.0";
    PRODUCT_CREATION_TIME  = 2009-04-15;
    TITLE                   = "PHOENIX Mars Wind Experiment";
    URN                     = "http://URN:PHX-M-TT-5-WIND-VEL-DIR-
                              V1.0:PDS4_ATM_PRODUCT_TABLE_CHARACTER_ID:1.0";
    VERSION                 = "1.0";
  END_OBJECT = IDENTIFICATION_SECTION;
  OBJECT = DESCRIPTION_SECTION;
    DESCRIPTION             = "ANNOTATION FOR THE PRODUCT GOES HERE.";
  END_OBJECT = DESCRIPTION_SECTION;
  OBJECT = CIRCUMSTANCES_OF_OBSERVATION_SECTION;
    COMMENT                 = "Observation Intent";
    SPACECRAFT_CLOCK_START_COUNT = "904250279.448";
    SPACECRAFT_CLOCK_STOP_COUNT  = "909588864.598";
    START_TIME               = 2008-08-26T20:36:36.856;
    STOP_TIME                 = 2008-10-27T15:32:50.952;
  END_OBJECT = CIRCUMSTANCES_OF_OBSERVATION_SECTION;
```

# PDS4 label fragment - part 1

```
#PDS4#
/* ***** LABEL TEMPLATE - PRODUCT_TABLE_CHARACTER ***** */
OBJECT = PRODUCT_TABLE_CHARACTER;
  OBJECT = IDENTIFICATION_SECTION;
    DD_VERSION_ID      = "DD_VERSION_ID";
    IDENTIFIER         = "some undetermined value of identifier";
    LABEL_REVISION_NOTE = "20090101:1.0 - initial version;
                          20090102:1.1 - added another column";
    PDS_VERSION_ID     = "PDS4.0";
    PRODUCT_CREATION_TIME = 2009-04-15;
    TITLE              = "PHOENIX Mars Wind Experiment";
    URN                = "http://URN:PHX-M-TT-5-WIND-VEL-DIR-
                          V1.0:PDS4_ATM_PRODUCT_TABLE_CHARACTER_ID:1.0";
    VERSION            = "1.0";
  END_OBJECT = IDENTIFICATION_SECTION;
```

# PDS4 label fragment - part 1

```
OBJECT = DESCRIPTION_SECTION;  
  DESCRIPTION = "ANNOTATION FOR THE PRODUCT GOES HERE.";  
END_OBJECT = DESCRIPTION_SECTION;  
OBJECT = CIRCUMSTANCES_OF_OBSERVATION_SECTION;  
  COMMENT = "Observation Intent";  
  SPACECRAFT_CLOCK_START_COUNT = "904250279.448";  
  SPACECRAFT_CLOCK_STOP_COUNT = "909588864.598";  
  START_TIME = 2008-08-26T20:36:36.856;  
  STOP_TIME = 2008-10-27T15:32:50.952;  
END_OBJECT = CIRCUMSTANCES_OF_OBSERVATION_SECTION;
```

# PDS4 label fragment - part 2

```
OBJECT = DATASET_SECTION;  
  DATA_SET_ID          = "PHX-M-TT-5-WIND-VEL-DIR-V1.0";  
END_OBJECT = DATASET_SECTION;  
OBJECT = INSTRUMENT_SECTION;  
  INSTRUMENT_NAME      = "TELLTALE";  
END_OBJECT = INSTRUMENT_SECTION;  
OBJECT = MISSION_SECTION;  
  MISSION_NAME         = "PHOENIX";  
END_OBJECT = MISSION_SECTION;  
OBJECT = TARGET_SECTION;  
  TARGET_NAME          = MARS;  
END_OBJECT = TARGET_SECTION;  
OBJECT = INSTRUMENT_HOST_SECTION;  
  INSTRUMENT_HOST_ID   = PHX;  
END_OBJECT = INSTRUMENT_HOST_SECTION;
```

# PDS4 label fragment - part 3

```
OBJECT = TAGGED_TABLE_CHARACTER_SET;
OBJECT = TABLE_CHARACTER;
  DATA_LOCATION          = ("PHX_M_TT_TABLE_FILE",1);
  LOCAL_IDENTIFIER       = "PHX_M_TT_TABLE";
  FILE_TYPE              = CHARACTER;
  NUMBER_OF_FIELDS       = 10;
  NUMBER_OF_ROWS         = 3727;
  ROW_BYTES              = 88;
OBJECT = TABLE_CHARACTER_FIELD;
  FIELD_NAME              = "SOL";
  FIELD_NUMBER            = 1;
  FIELD_DATA_TYPE         = ASCII_INTEGER;
  FIELD_LOCATION          = 1;
  FIELD_LENGTH            = 3;
  FIELD_FORMAT            = "I3";
  FIELD_MIN_PHYSICAL     = 91;
  FIELD_MAX_PHYSICAL     = 151;
  FIELD_UNIT              = "N/A";
  FIELD_DESCRIPTION      = "PHOENIX Sol number";
END_OBJECT = TABLE_CHARACTER_FIELD;
OBJECT = TABLE_CHARACTER_FIELD;
  FIELD_NAME              = "LTST";
  FIELD_NUMBER            = 2;
  FIELD_DATA_TYPE         = ASCII_REAL;
  FIELD_LOCATION          = 5;
  FIELD_LENGTH            = 5;
  FIELD_FORMAT            = "F5.3";
  FIELD_MIN_PHYSICAL     = 0.088078704;
  FIELD_MAX_PHYSICAL     = 0.230243056;
  FIELD_UNIT              = "N/A";
  FIELD_DESCRIPTION      = "Local True Solar Time";
END_OBJECT = TABLE_CHARACTER_FIELD;
```

Etc.

# PDS4 label fragment - part 3

```
OBJECT = TAGGED_TABLE_CHARACTER_SET;  
OBJECT = TABLE_CHARACTER;  
  DATA_LOCATION          = ("PHX_M_TT_TABLE_FILE",1);  
  LOCAL_IDENTIFIER       = "PHX_M_TT_TABLE";  
  FILE_TYPE              = CHARACTER;  
  NUMBER_OF_FIELDS       = 10;  
  NUMBER_OF_ROWS         = 3727;  
  ROW_BYTES              = 88;
```

# PDS4 label fragment - part 3

```
OBJECT = TABLE_CHARACTER_FIELD;
  FIELD_NAME           = "SOL";
  FIELD_NUMBER         = 1;
  FIELD_DATA_TYPE      = ASCII_INTEGER;
  FIELD_LOCATION       = 1;
  FIELD_LENGTH         = 3;
  FIELD_FORMAT         = "I3";
  FIELD_MIN_PHYSICAL   = 91;
  FIELD_MAX_PHYSICAL   = 151;
  FIELD_UNIT           = "N/A";
  FIELD_DESCRIPTION    = "PHOENIX Sol number";
END_OBJECT = TABLE_CHARACTER_FIELD;
OBJECT = TABLE_CHARACTER_FIELD;
  FIELD_NAME           = "LTST";
  FIELD_NUMBER         = 2;
  FIELD_DATA_TYPE      = ASCII_REAL;
  FIELD_LOCATION       = 5;
  FIELD_LENGTH         = 5;
  FIELD_FORMAT         = "F5.3";
  FIELD_MIN_PHYSICAL   = 0.088078704;
  FIELD_MAX_PHYSICAL   = 0.230243056;
  FIELD_UNIT           = "N/A";
  FIELD_DESCRIPTION    = "Local True Solar Time";
END_OBJECT = TABLE_CHARACTER_FIELD;
```

Etc.

# PDS4 label fragment - part 4

```
OBJECT = some kind of optional attribute class;
  keyword    = value;
END_OBJECT = some kind of optional attribute class;
OBJECT = FILE_SECTION;
  OBJECT = FILE_CHARACTER_FIXED;
    LOCAL_IDENTIFIER = "PHX_M_TT_TABLE_FILE";
    CHECKSUM         = "0ff0a5dd0f3ea4e104b0eae98c87f36c";
    FILE_SIZE        = 111;
    FILE_NAME         = "PDS4_ATM_TABLE_CHAR.TAB";
    FILE_TYPE         = CHARACTER;
    MAX_RECORD_BYTES = 3727;
    RECORD_TYPE       = FIXED;
  END_OBJECT = FILE_CHARACTER_FIXED;
END_OBJECT = FILE_SECTION;
END_OBJECT = PRODUCT_TABLE_CHARACTER;
```