***** File PDS_IHW.TXT

PDS LABELS

The International Halley Watch agreed early in the project that all data would be submitted from the individual scientists to the Lead Center using the FITS format (Wells et al., 1981). When the decision was made to distribute this information on CD-ROM, it was determined that the data had to have even broader accessibility. For this reason the original FITS files, with contiguous headers and data, were split into separate files distinguishable by their filename extensions (.HDR for headers). The file sizes were preserved as multiples of 2880 bytes, allowing the original FITS byte stream to be recovered by concatenating the appropriate header and datafile.

In addition, detached (PDS) labels were constructed to allow parallel definition of the data files for the Planetary Data System (PDS). The reference for this project are as follows: SPIDS, Standards for the Preparation and Interchange of Data Sets, Martin, T. Z., et al, V1.1, JPL D-4683, 10/3/88; Planetary Data System, Data Preparation Workbook, Volume 2, Standards, V2.0, JPL D-7669, 05/03/91; and Planetary Data System, Standards Reference, V3.0, JPL D-7669, part 2, 11/20/92.

There are three data objects in this archive: ARRAY (COLLECTION), IMAGE, TABLE (TIME_SERIES as a subset). Our aim was to construct a PDS label for each data file on the CD-ROM. These PDS labels contain pointers to the actual data files (or to headers describing data submitted to the archive). There has been no effort to duplicate the documentation contained in the full FITS headers because the PDS and FITS headers for a given data file differ only in the filename extension. Instead we have attempted to use the power of the PDS label syntax to fully describe the data structures and thus gain access to the powerful software already supported by that group.

Most keywords were already in the Planetary Science Data Dictionary but a few dealing with the ARRAY and TIME_SERIES were introduced to specifically describe the IHW data. A listing of these keywords with definitions follow.

BYTES
    The number of bytes constituting a single data item

COLUMNS
    The number of items of information in each row of a data table

CONTAINER
    The container object allows for description of 2-d array data.

DATA_SET_ID
    A unique alphanumeric identifier for a data set. It is used as a primary key in the PDS catalog.

DATA_SET_PARAMETER_NAME
    The name of the physical parameter represented in an image. Note this definition differs from the PDS data dictionary definition.

DATA_TYPE
    The data type of a data item. Valid values are INTEGER, REAL, DATE,

TIME, and CHARACTER.

DERIVED_MAXIMUM
The maximum value occurring in the file for a given field

DERIVED_MINIMUM
The minimum value occurring in the file for a given field

DESCRIPTION
Text describing an object. Sometimes this is expressed as a pointer to another file containing the descriptive text; e.g., FITS header.

END_OBJECT
This keyword is used by ODL to indicate the end of a data object definition.

FILE_RECORDS
The number of physical records in a data file

FORMAT
The Fortran 77 representation of the format statement needed to read a data item in an ASCII file

IMAGE
The data in an image file, expressed as a pointer to the record where the data begins. For example, ^IMAGE = ("filename",3) indicates that image data begins in record 3 of file "filename".

INTERCHANGE_FORMAT
The type of data stored in a file; either "ASCII" or "BINARY"

ITEMS
Elements held in any arbitrary variable

ITEM_BYTES
Number of bytes per item

LINES
The number of lines in an image

LINE_SAMPLES
The number of samples contained in each image line

MINIMUM_SAMPLING_PARAMETER
For the spectrum object, the first value along the fastest varying axis

NAME
The name of a column in a table

NOTE
Descriptive text about a data file, referring to IHW disciplines

OBJECT
This keyword specifies the type of a data object. It is used by ODL to indicate the start of a data object definition.

OBSERVATION_TIME
As used by the International Halley Watch, the time at the midpoint of an observation.

OBSERVATION_ID
    A unique number which identifies each archived measurement gathered by
    the International Halley Watch.

OFFSET
    A shift in zero point required to properly calculate the reduced
    value represented in a FITS data record

PRODUCER_FULL_NAME
    The full name of those mainly responsible for production of
    a data set

RECORDS
    The number of records in the object being described; for example,
    the number of records in a header object

RECORD_BYTES
    The number of bytes in each record of a data file

RECORD_TYPE
    The record structure type of a data file. Valid values are
    FIXED_LENGTH, VARIABLE_LENGTH, and STREAM. Images and data tables
    usually have fixed-length records, whereas text files have stream
    format records.

REPETITIONS
    The number times a repeating data item recurs

ROWS
    The number of logical records in a data table

ROW_BYTES
    The number of bytes in each row (i.e., logical record) of a data
    table

SAMPLE_BITS
    The number of bits of data comprising one sample or pixel in an
    image, or element in other objects

SAMPLE_TYPE
    The data type of an image sample or pixel. The table below lists
    the values used on this CD-ROM:

UNSIGNED_INTEGER	An unsigned integer value. Samples with a length of 16 bits are in most-significant-byte first order.
MSB_INTEGER	A signed integer with most-significant-byte leading as required by FITS format
COMPLEX_INTEGER	The value represented in a process step (UVFITS) for certain types of radio data

SAMPLING_PARAMETER_INTERVAL
    Unit of change of the independent variable (assumed to be constant)

SAMPLING_PARAMETER_ITEMS
    Number of elements along independent axis

SAMPLING_PARAMETER_NAME
    Name associated with the independent variable

SAMPLING_PARAMETER_UNIT
    Unit associated with the independent variable

SCALING_FACTOR
    The factor that must be applied to the FITS data record to scale
    the values as described by UNIT

START_BYTE
    The byte position of the beginning of a data item within a row of
    data. The first item will have a START_BYTE of 1.

START_TIME
    The date and time of the beginning of an event, such as data
    collection, in PDS standard (UTC) format

TARGET_NAME
    The name of a planetary body, such as a planet or satellite

TEXT
    The object which contains an ASCII string with no formatting characters

TIME_SERIES
    The object in a form of a table that stores a sequence of measurements
    taken at regular intervals of time

UNIT
    The units of measure of a data item

REFERENCES

Martin, T.Z., Martin, M.D., Davis, R.L., Mehlman, R., Braun, M., Johnson
M.: October 3, 1988, Standards for the Preparation and Interchange of
Data Sets, Version 1.1, JPL D-4683.

Planetary Data System. Data Preparation Workbook, Volume 2, Standards,
V2.0, JPL D-7669, May 3, 1991.

Planetary Data System, Standards Reference, V3.0, JPL D-7669, part 2,
November 20, 1992.

Wells, D.C., Greisen, E.W., and Harten, R.H.: 1981, Astron. Astrophys.
Suppl. Ser. 44, 363.