File: ISIS-PG-FMT101_XXxy0_dat.pdf

Description of 'XXxy0.dat'; RAND Input and Output File Format, where XX denotes the first two letters of the Saturnian moon such that XX: di=Dione; en=Enceladus; ia=Iapetus; mi=Mimas; rh=Rhea; te=Tethys.

Created as part of a project to put planetary geodesy control networks on the web. These control networks are from ISIS Planetary Geodesy Software (formerly RAND/USGS Planetary Geodesy (RUPG) Software).

Version: 2015.10.05

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Filename: XXxy0.dat (example: dixy0.dat)

File format:

Group 1 - Image pixel measurements ("nmea" records) (Note 2):

Record 1:

Name	Columns	Format	Description (units)
PicNo	1-5	I5	Alphanumeric point identification (unitless). Note 3.
Pointid	6-10	I5	Integer image identification. Usually flight data sequence (FSC) or similar image number (unitless). Note 4.
mm 1	11-20	F9.2	mm-1 measurement on image (mm). Note 5.
mm 2	21-30	F9.2	mm-2 measurement on image (mm). Note 5.
Diameter	31-34	F4.2	Feature size (e.g. crater diameter) (km). If blank or "-0.0000" no value is available. Note 7.
F.L.	35-47	F12.3	Unknown
Line	60-65	F6.1	Line measurement on image (pixels). Note 5.
Samp	66-71	F6.1	Sample measurement on image (pixels). Note 5.
FSC	72-79	I8	Flight Data Sequence

Sample (5 measurements from "dixy0.dat"):

40013 110 -1.4880 -0.0435 0.00   1500.190   294.1 400.3 3490334

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40013  111  -1.4946   0.0988  0.00      1500.190                293.7 410.7
3490334
40013  112  -1.5452   0.2537  0.00      1500.190                290.1 422.0
3490334
40013  113  -1.4500   0.1285  0.00      1500.190                297.0 412.9
3490334
40013  114  -1.3690   0.1879  0.00      1500.190                303.0 417.3
3490334
```

etc.

Notes:

1. In some non-standard versions of files in this format, the header records may be missing, or the number of records may be missing or incorrect (or given as "XXXXXX").
2. The ISIS Qmatch program reads and writes the Group 2 records in free format, with blanks for field separation. However, the nominal format is given here, and this was in fact required by some of the early RAND and USGS utility programs which read this format, and is still used by some of the ISIS programs that have not yet been switched to using free format.
3. The ISIS Planetary Geodesy software currently allows for 7 character point identifications, in a right justified (A7) format. (Some early RAND and USGS utility programs require the use of 5 character point identifications for non-lunar data.)
4. ISIS 2.x currently requires that image identifications be integer*4 numbers. Future versions of ISIS (e.g. 3.x) will allow for alphanumeric identifications, probably up to at least 32 characters.
5. Line and sample coordinates are in the sense that coordinate (1,1) is defined as at the upper-left pixel of an image. Integer coordinates define the center of each pixel.
6. For each point, a reference (or "truth") image should preferably be identified and the CLASS designator set to "T". (The other measures on the point should have one of the other classes.) The reference image can be selected arbitrarily, or perhaps selected as the image with the clearest (or highest resolution) view of the point. The ISIS Qmatch program will not display images for a point until one of the images is designated the "truth" image.
7. Some early non-standard versions of file in this format had the resolution given in km/pixel, rather than feature size.
8. It is useful to put the actual filename of the image corresponding to the given imageid into the comment field, in order to document the physical connection between the measurements here and actual image files. Note that the user must also keep track of and document the use of multiple versions of images (and their corresponding measurement files if any) in the case where there may be a geometric change in the image.

Other notes:

A. In some non-standard versions of files in this format, lines beginning with "#" should be treated as comments.
B. The user must currently take care to keep measurement files separated as much as possible by mission (and/or camera), in cases where image

numbers are not unique across missions. A future version (e.g. for ISIS 3.x) of this format will include a camera/mission identifier.
C. ".mat" (for matchpoint) is often used as the file name extension of files of this type. However, note that this is an unusual "reserved" special extension in Microsoft Windows for files of type "Microsoft Access Table Shortcut" and it might be preferable to simply use the ".dat" extension.

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References:

ISIS: See http://isis.astrogeology.usgs.gov/ for general information.

ISIS Planetary Geodesy: Under construction. But see:

http://isis.astrogeology.usgs.gov/Isis2/isis-bin//viking_geodesy.cgi for information on processing Viking images, and

http://isis.astrogeology.usgs.gov/Isis2/isis-bin//cassini_geodesy.cgi for information on processing Cassini images.   Also see:

http://astrogeology.usgs.gov/Projects/ControlNetworks/ for example input and output files.

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Document History:

Begun 2006.08.10 by B. Archinal, based on RUPG-FMT1001.doc.

Modifications: Modified 2015.10.05 by G. Cushing for web release.

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(End of document.)