HiRISE JPEG2000 Experience

Rodney Heyd

HiRISE JPEG2000 Use

- All HiRISE RDR Products are distributed in JPEG2000 format

- Detached Labels

- 10 bits/pixel

- Several "Extras" products are also in JPEG2000 format

Data Volume of JP2s

- RDRs

  - 8.8 Tb standard products (red filter and color products)

  - Nearly 14,000 standard products

- Extras

  - 10.8 Tb in extras

  - ~35,000 JP2 image products

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Data Distribution

- Online HiRISE PDS volume (http)

- PDS profile and product servers

- JPIP Server

- rsync is often used internally

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JPEG2000 Benefits

- Geotiff mapping metadata

- Multiple resolutions in a single file

- Much more efficient network transfers via jpip protocol

- Lossy or non-lossy compression

Compression Example

- PSP_006931_2530_RED

- 108,289x137,203

- 29.6 Gb uncompressed 16bpp

- 1.79 Gb non-lossy 10bpp

- 1.3 Gb lossy 8bpp

Potential Future Uses

- Partial image extractions from full data products

  - The HiRISE PDS_JP2 package supports extractions which include updated label information

  - PDS Product Server support?

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JPEG2000 Issues

- Few choices of client software that support jpip

- Client software doesn't support all JPEG2000 capabilities

  - IASViewer doesn't support HiRISE geotiff metadata

JPEG2000/JPIP S/W

- PDS_JP2 (Free, Supported by HiRISE)

- IAS_Viewer(Free, ITT)

- ExpressView(Free)

- GDAL(Free)

- ENVI/IDL

- ArcInfo

- Kakadu

- LizardTech GeoExpress