Geosciences Node Tools

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Geosciences Node Tools

- Archive Management System
- PDS4 Label Generation Tool
- Image Processing Library

AMS - Archive Management System

Purpose

- Track integrity of PDS Geosciences Node archive holdings at directory and file level

Used by

- Node personnel

Method

- Maintain archive baseline catalogs
- Perform monthly validation scans

Configuration

- Graphical user interface (GUI)
- Command line processing application (multi-threaded)
- Requires Windows, MS SQL

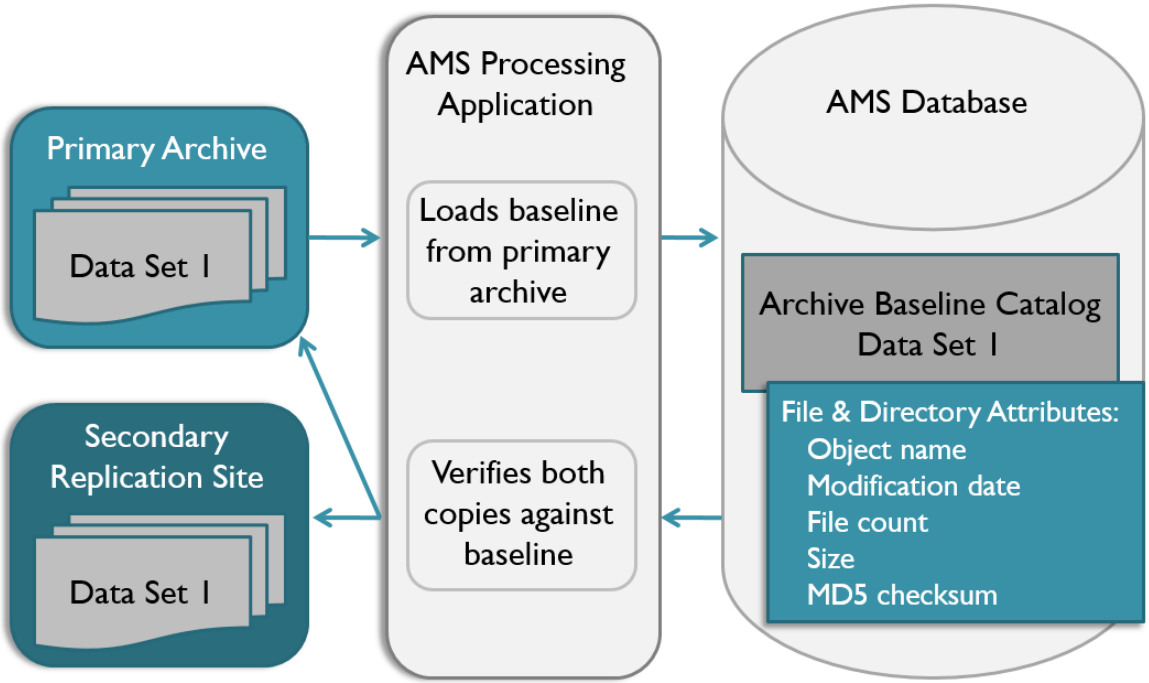
Next Steps

- Updates for PDS4

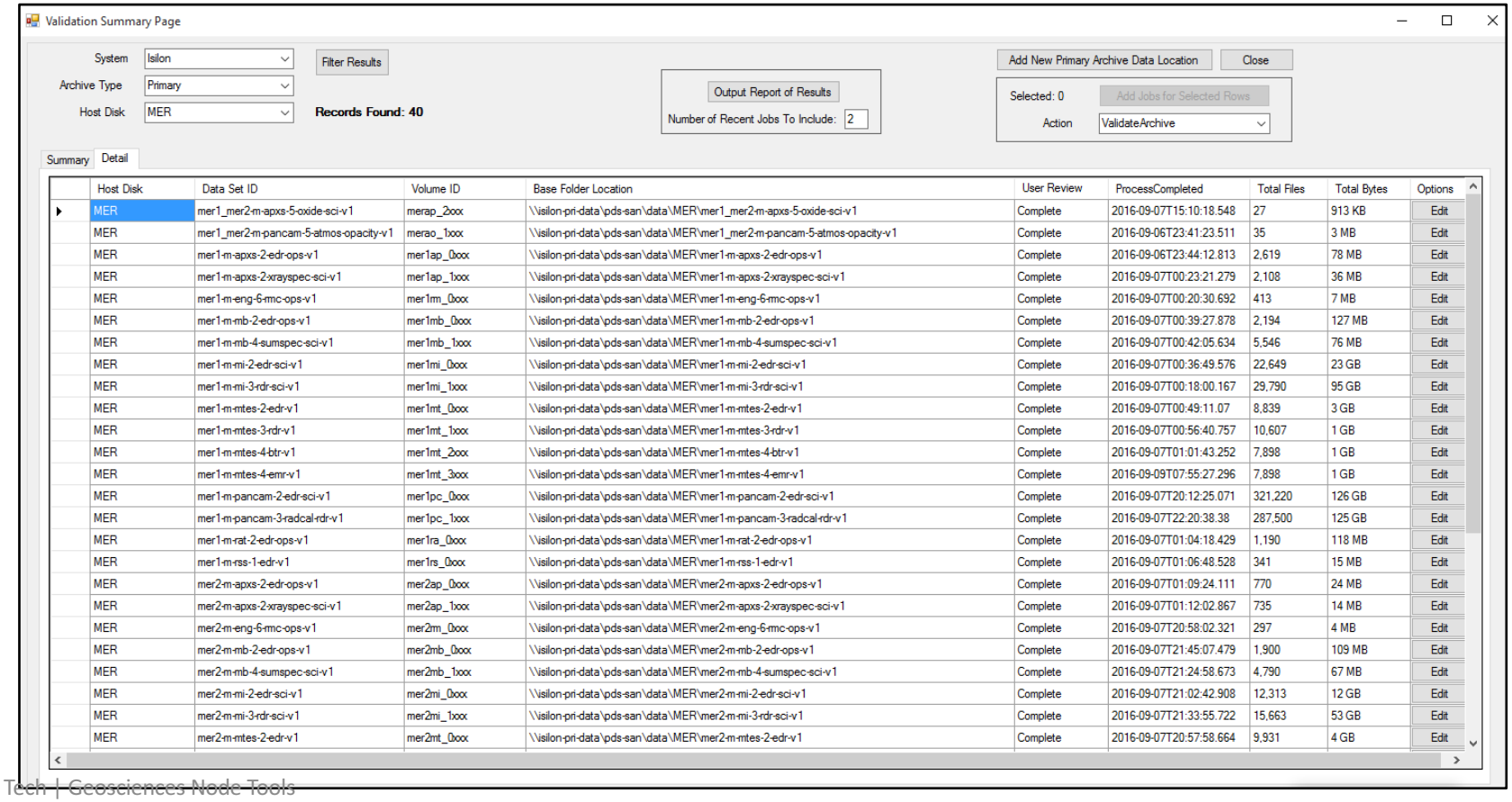
Contact

- Dan Scholes (scholes@wunder.wustl.edu)

AMS System Concept



AMS - Archive Status List



Host Disk	Data Set ID	Volume ID	Base Folder Location	User Review	ProcessCompleted	Total Files	Total Bytes	Options
MER	mer1_mer2-m-apxs-5-oxide-sci-v1	merap_2xxx	\\isilon-pri-data\pds-san\data\MER\mer1_mer2-m-apxs-5-oxide-sci-v1	Complete	2016-09-07T15:10:18.548	27	913 KB	Edit
MER	mer1_mer2-m-pancam-5-atmos-opacity-v1	merao_1xxx	\\isilon-pri-data\pds-san\data\MER\mer1_mer2-m-pancam-5-atmos-opacity-v1	Complete	2016-09-06T23:41:23.511	35	3 MB	Edit
MER	mer1-m-apxs-2-edr-ops-v1	mer1ap_0xxx	\\isilon-pri-data\pds-san\data\MER\mer1-m-apxs-2-edr-ops-v1	Complete	2016-09-06T23:44:12.813	2,619	78 MB	Edit
MER	mer1-m-apxs-2-xrayspec-sci-v1	mer1ap_1xxx	\\isilon-pri-data\pds-san\data\MER\mer1-m-apxs-2-xrayspec-sci-v1	Complete	2016-09-07T00:23:21.279	2,108	36 MB	Edit
MER	mer1-m-eng-6-rmc-ops-v1	mer1rm_0xxx	\\isilon-pri-data\pds-san\data\MER\mer1-m-eng-6-rmc-ops-v1	Complete	2016-09-07T00:20:30.692	413	7 MB	Edit
MER	mer1-m-mb-2-edr-ops-v1	mer1mb_0xxx	\\isilon-pri-data\pds-san\data\MER\mer1-m-mb-2-edr-ops-v1	Complete	2016-09-07T00:39:27.878	2,194	127 MB	Edit
MER	mer1-m-mb-4-sumspec-sci-v1	mer1mb_1xxx	\\isilon-pri-data\pds-san\data\MER\mer1-m-mb-4-sumspec-sci-v1	Complete	2016-09-07T00:42:05.634	5,546	76 MB	Edit
MER	mer1-m-mi-2-edr-sci-v1	mer1mi_0xxx	\\isilon-pri-data\pds-san\data\MER\mer1-m-mi-2-edr-sci-v1	Complete	2016-09-07T00:36:49.576	22,649	23 GB	Edit
MER	mer1-m-mi-3-rdr-sci-v1	mer1mi_1xxx	\\isilon-pri-data\pds-san\data\MER\mer1-m-mi-3-rdr-sci-v1	Complete	2016-09-07T00:18:00.167	29,790	95 GB	Edit
MER	mer1-m-mtes-2-edr-v1	mer1mt_0xxx	\\isilon-pri-data\pds-san\data\MER\mer1-m-mtes-2-edr-v1	Complete	2016-09-07T00:49:11.07	8,839	3 GB	Edit
MER	mer1-m-mtes-3-rdr-v1	mer1mt_1xxx	\\isilon-pri-data\pds-san\data\MER\mer1-m-mtes-3-rdr-v1	Complete	2016-09-07T00:56:40.757	10,607	1 GB	Edit
MER	mer1-m-mtes-4-btr-v1	mer1mt_2xxx	\\isilon-pri-data\pds-san\data\MER\mer1-m-mtes-4-btr-v1	Complete	2016-09-07T01:01:43.252	7,898	1 GB	Edit
MER	mer1-m-mtes-4-emr-v1	mer1mt_3xxx	\\isilon-pri-data\pds-san\data\MER\mer1-m-mtes-4-emr-v1	Complete	2016-09-09T07:55:27.296	7,898	1 GB	Edit
MER	mer1-m-pancam-2-edr-sci-v1	mer1pc_0xxx	\\isilon-pri-data\pds-san\data\MER\mer1-m-pancam-2-edr-sci-v1	Complete	2016-09-07T20:12:25.071	321,220	126 GB	Edit
MER	mer1-m-pancam-3-radcal-rdr-v1	mer1pc_1xxx	\\isilon-pri-data\pds-san\data\MER\mer1-m-pancam-3-radcal-rdr-v1	Complete	2016-09-07T22:20:38.38	287,500	125 GB	Edit
MER	mer1-m-rat-2-edr-ops-v1	mer1ra_0xxx	\\isilon-pri-data\pds-san\data\MER\mer1-m-rat-2-edr-ops-v1	Complete	2016-09-07T01:04:18.429	1,190	118 MB	Edit
MER	mer1-m-rss-1-edr-v1	mer1rs_0xxx	\\isilon-pri-data\pds-san\data\MER\mer1-m-rss-1-edr-v1	Complete	2016-09-07T01:06:48.528	341	15 MB	Edit
MER	mer2-m-apxs-2-edr-ops-v1	mer2ap_0xxx	\\isilon-pri-data\pds-san\data\MER\mer2-m-apxs-2-edr-ops-v1	Complete	2016-09-07T01:09:24.111	770	24 MB	Edit
MER	mer2-m-apxs-2-xrayspec-sci-v1	mer2ap_1xxx	\\isilon-pri-data\pds-san\data\MER\mer2-m-apxs-2-xrayspec-sci-v1	Complete	2016-09-07T01:12:02.867	735	14 MB	Edit
MER	mer2-m-eng-6-rmc-ops-v1	mer2rm_0xxx	\\isilon-pri-data\pds-san\data\MER\mer2-m-eng-6-rmc-ops-v1	Complete	2016-09-07T20:58:02.321	297	4 MB	Edit
MER	mer2-m-mb-2-edr-ops-v1	mer2mb_0xxx	\\isilon-pri-data\pds-san\data\MER\mer2-m-mb-2-edr-ops-v1	Complete	2016-09-07T21:45:07.479	1,900	109 MB	Edit
MER	mer2-m-mb-4-sumspec-sci-v1	mer2mb_1xxx	\\isilon-pri-data\pds-san\data\MER\mer2-m-mb-4-sumspec-sci-v1	Complete	2016-09-07T21:24:58.673	4,790	67 MB	Edit
MER	mer2-m-mi-2-edr-sci-v1	mer2mi_0xxx	\\isilon-pri-data\pds-san\data\MER\mer2-m-mi-2-edr-sci-v1	Complete	2016-09-07T21:02:42.908	12,313	12 GB	Edit
MER	mer2-m-mi-3-rdr-sci-v1	mer2mi_1xxx	\\isilon-pri-data\pds-san\data\MER\mer2-m-mi-3-rdr-sci-v1	Complete	2016-09-07T21:33:55.722	15,663	53 GB	Edit
MER	mer2-m-mtes-2-edr-v1	mer2mt_0xxx	\\isilon-pri-data\pds-san\data\MER\mer2-m-mtes-2-edr-v1	Complete	2016-09-07T20:57:58.664	9,931	4 GB	Edit

PDS4 Label Generation Tool

Purpose

- Merge product metadata in spreadsheet form with templates to produce PDS4 product label files

Used by

- Node personnel
- Data providers (future)

Method

- Excel spreadsheets populated with product metadata
- Product template created
- Merge process creates output label files

Configuration

- Command line processing application
- Requires Windows, Microsoft Excel

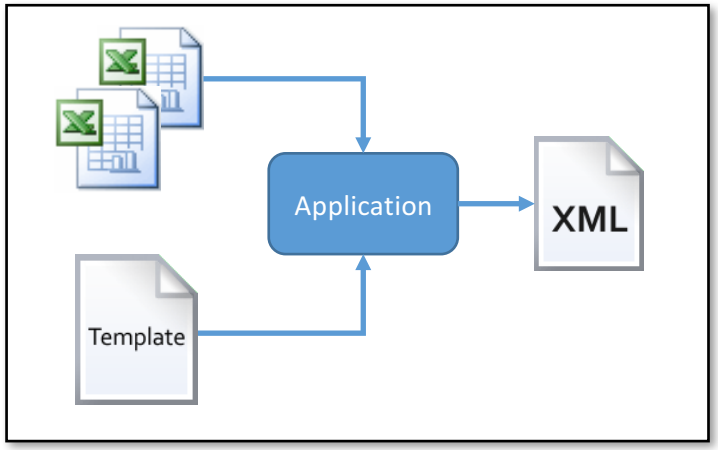
Next Steps

- Additional streamlining based on usage feedback

Contact

- Dan Scholes (scholes@wunder.wustl.edu)

PDS4 Label Generation Tool



Template

```
        <Observing_System>
            <name><!-- |lab_name| --></name>
            <description><!-- |lab_desc| --></description>
            <Observing_System_Component>
                <name><!-- |instr1_name| --></name>
                <type>Instrument</type>
                <Internal_Reference>
                    <lid_reference>urn:nasa:pds:context:instrument:<!-- |instr1_id| --></lid_r
                    <reference_type>is_instrument</reference_type>
                </Internal_Reference>
            </Observing_System_Component>
<!-- Hide if not populated: |instr2_id| -->
            <Observing_System_Component>
                <name><!-- |instr2_name| --></name>
                <type>Instrument</type>
                <Internal_Reference>
                    <lid_reference>urn:nasa:pds:context:instrument:<!-- |instr2_id| --></lid_r
                    <reference_type>is_instrument</reference_type>
                </Internal_Reference>
            </Observing_System_Component>
<!-- End of Hide if not populated: |instr2_id| -->
```

Output

```
<Observing_System>
    <name>RELAB</name>
    <description>Brown University reflectance spectroscopy laboratory</description>
    <Observing_System_Component>
        <name>Thermo Nexus 870 with PIKE AutoDiff</name>
        <type>Instrument</type>
        <Internal_Reference>
            <lid_reference>urn:nasa:pds:context:instrument:relab.bcf_ftir2</lid_reference>
            <reference_type>is_instrument</reference_type>
        </Internal_Reference>
    </Observing_System_Component>
</Observing_System>
```

Image Processing Library

Purpose
- PDS3 image processing functions

Used by
- Node personnel (Analyst's Notebook)

Method
- Image processing
  - Customized linear stretch of single- and 3-band images
  - RGB composite from three single-band images
  - Anaglyph from left-right stereo pair
  - DN value-based image mask
- Compatibility
  - Reads most PDS3 images
  - Multiple pixel formats (Byte, UInt16, Int16, UInt32, Int32, Float, and Double)

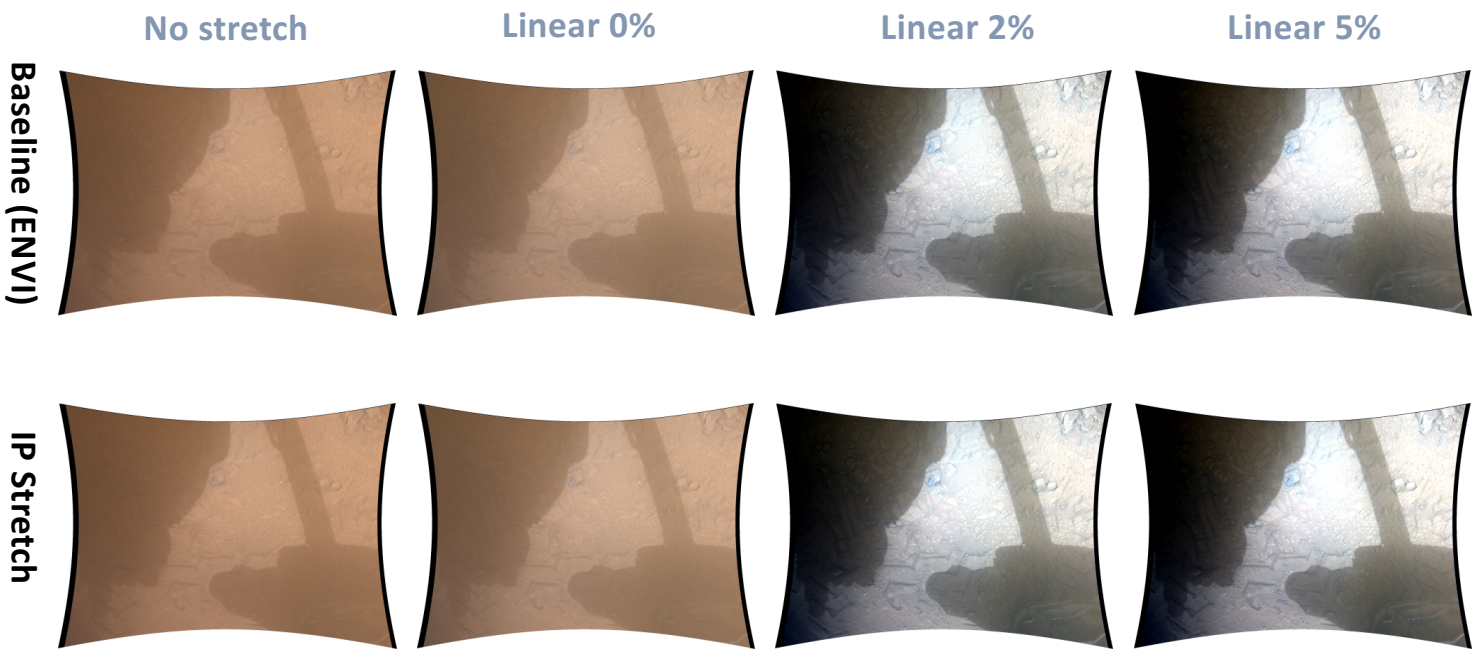
Configuration
- API in C# for 32- and 64-bit Windows

Next Steps
- Add support for PDS4 images

Contact
- June Wang (wang@wunder.wustl.edu)

IP Library validation test – MSL MARDI Data

0100MD0000340000101525E01_DRCL, BYTE, Dimension: 2108*1533

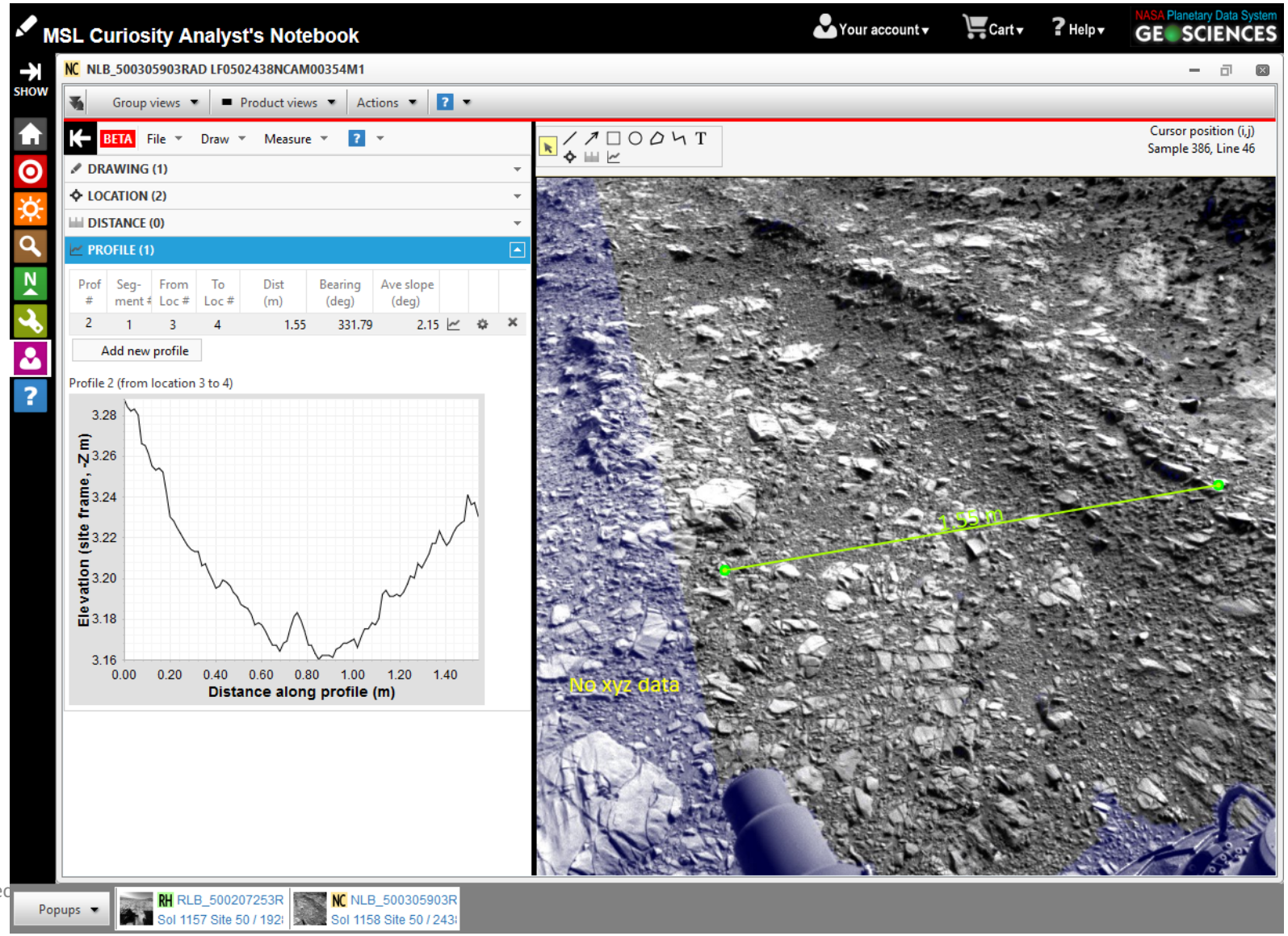


No difference

DN	Npts	Total	Percent
0	2935248	2935248	90.8306
1	296316	3231564	9.1694

DN	Npts	Total	Percent
0	2656931	2656931	82.2181
1	574633	3231564	17.7819

DN	Npts	Total	Percent
0	2614728	2614728	80.9122
1	616836	3231564	19.0878


MSL Curiosity Analyst's Notebook
Your account
Cart
Help
NASA Planetary Data System
GEOSCIENCES
SHOW
NC NLB_500305903RAD LF0502438NCAM00354M1
Group views
Product views
Actions
BETA
File
Draw
Measure
DRAWING (1)
LOCATION (2)
DISTANCE (0)
PROFILE (1)
Prof # | Seg-ment # | From Loc # | To Loc # | Dist (m) | Bearing (deg) | Ave slope (deg)
2 | 1 | 3 | 4 | 1.55 | 331.79 | 2.15
Add new profile
Profile 2 (from location 3 to 4)
Elevation (site frame, -Z m)
3.28
3.26
3.24
3.22
3.20
3.18
3.16
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
Distance along profile (m)
Cursor position (i,j)
Sample 386, Line 46
1.55 m
No xyz data
Popups
RH RLB_500207253R
Sol 1157 Site 50 / 192
NC NLB_500305903R
Sol 1158 Site 50 / 243