Atmospheric Compensation

(DG A_Comp)

Bringing Satellite Imagery into the Commercial Products Industry

Spatial Registration: Use inherently accurate pointing accuracies of DigitalGlobe satellites to create a network of control points

Spectral Registration: Atmospherically correct multi-spectral imagery to normalize from digital number into surface reflectance

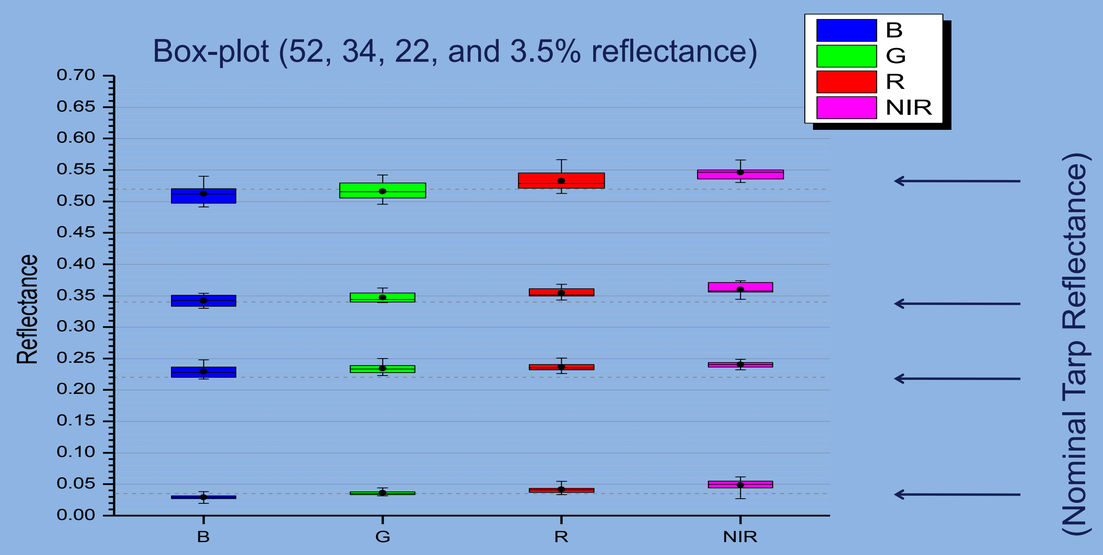
Digital Number - - - -> Surface Reflectance *

Validation

Calibrated Tarps

Stennis Space Center

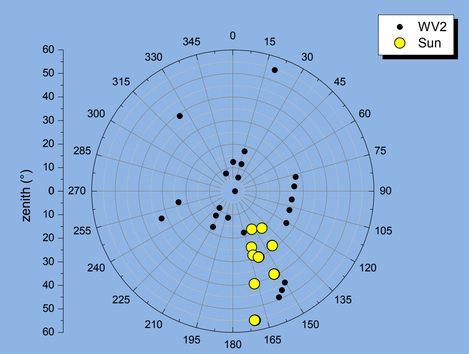
Location	Date	Sat. Az.	Sat. El.
NASA Stennis Space Center, MS	7-Feb-06	208.2	83.2
NASA Stennis Space Center, MS	10-Jan-04	259.7	88.2
NASA Stennis Space Center, MS	14-Nov-02	274.2	79.2
NASA Stennis Space Center, MS	12-Mar-05	268.4	77.7
Brookings, SD	15-Sep-03	284.4	83.1
Brookings, SD	7-Sep-02	191.4	74.6
Brookings, SD	20-Jul-02	349.7	64.3
Brookings, SD	18-Oct-05	298.2	73.2
Wiggins, MS	15-Mar-06	319.5	76.7
Wiggins, MS	7-Jan-06	300.0	68.0
Wiggins, MS	25-Jan-06	296.6	69.3
Park Falls, WI	5-Aug-05	261.5	69.4

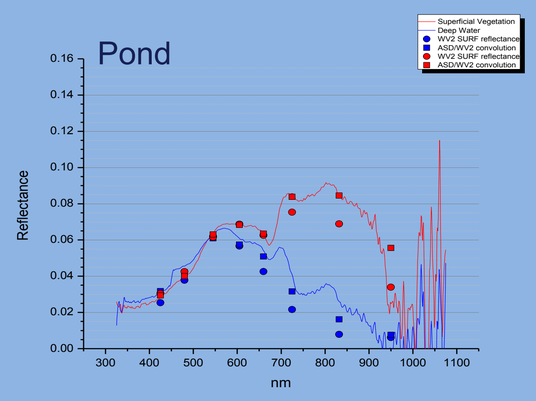


Coincidental Image Acquisition + ASD Spectrometer Ground Truth

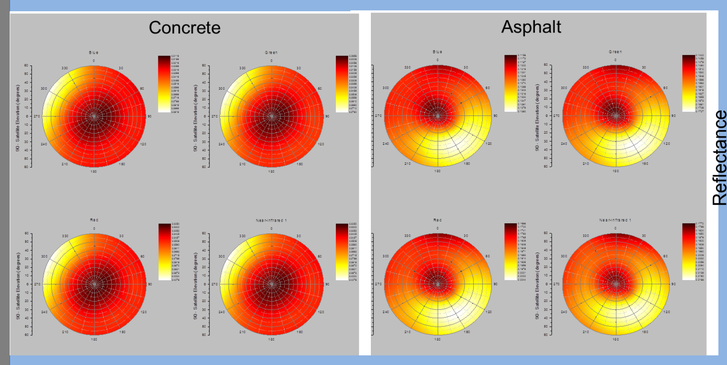
WorldView-2 Image Acquisitions

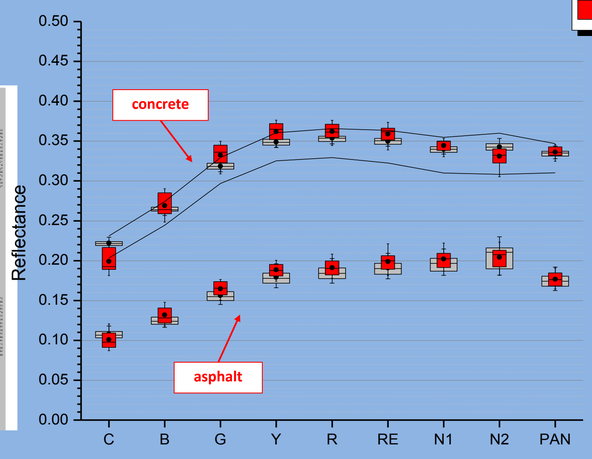
WV2 Image	CatID	Date	meanSunAz	meanSunEl	meanSatAz	meanSatEl
1	1030010005098C00	2010-06-05T18:02:26	141.0	68.9	165.1	71.8
2	103001000582F000	2010-06-18T18:27:12	153.6	71.9	324.8	51.0
3	10300100051AFE00	2010-06-24T18:09:52	141.9	70.0	218.4	80.9
4	103001000784E200	2010-11-03T18:10:20	170.1	34.3	16.6	72.4
5	10300100079DC100	2010-11-03T18:10:30	170.2	34.3	18.0	78.0
6	103001000760B200	2010-11-03T18:10:41	170.2	34.3	21.9	83.8
7	10300100077FC700	2010-11-03T18:10:52	170.3	34.3	93.3	89.0
8	103001000701FC00	2010-11-03T18:11:12	170.4	34.4	190.0	78.5
9	103001000913F200	2011-03-29T17:59:02	153.4	50.6	77.3	62.6
10	103001000A847800	2011-03-29T17:59:10	153.4	50.6	85.7	63.8
11	103001000AA58D00	2011-03-29T17:59:21	153.5	50.6	98.1	64.7
12	103001000A655E00	2011-03-29T17:59:29	153.5	50.6	108.6	64.6
13	103001000A905200	2011-03-29T17:59:40	153.6	50.6	120.8	63.5
14	103001000B335B00	2011-06-16T18:09:27	142.7	70.2	19.2	35.6
15	103001000C1D2D00	2011-08-09T18:33:50	161.6	64.9	248.9	57.6
16	103001000CC40500	2011-08-10T17:58:24	144.1	61.5	156.5	40.8
17	103001000D763100	2011-08-10T17:58:15	144.1	61.5	153.6	43.0
18	103001000CC55900	2011-08-10T17:58:06	144.0	61.4	150.3	45.3
19	103001000D46A300	2011-08-20T18:30:05	162.5	61.5	258.4	66.5
20	103001000D824500	2011-08-23T18:19:36	158.4	59.9	339.1	82.0
21	103001000DB4AA00	2011-08-23T18:20:10	158.6	59.9	214.7	77.4
22	103001000D272200	2011-08-23T18:20:19	158.7	59.9	208.9	72.6
23	103001000D7FF200	2011-09-22T18:18:55	166.8	49.6	0.9	77.6

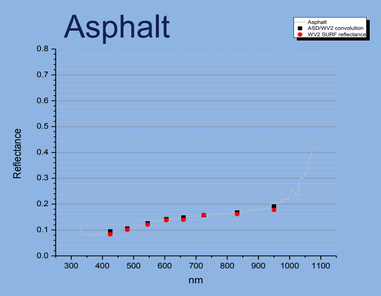


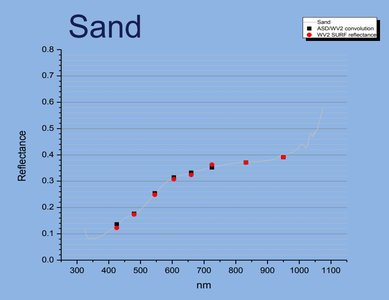


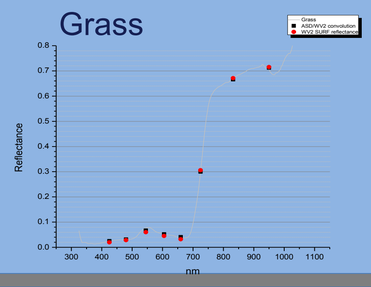
BRDF measurements

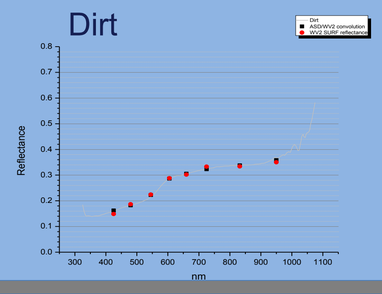










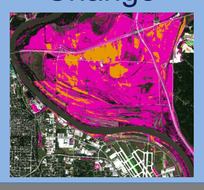


Use Cases

DigitalGlobe Surface Reflectance Enables:

- Radiometrically Normalized Mosaics
- Portable Classification Models
- Multi-Sensor Data Comparison
- Spectral Library Matching
- Change Detection

Day 1

Day 2

Change