

LPCS: A tool to automatically blend satellite products for comparative analysis

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NOAA and the U.S. Geological Survey (USGS) Earth Resources Observation and Science (EROS) Center are collaborating on the development of a Land Product Characterization System (LPCS) that will facilitate the application of multi-satellite and in-situ data for characterization and validation of GOES-R and JPSS land-related products (e.g., Surface Reflectance, Normalized Difference Vegetation Index, and Land Surface Temperature). The system is planned to utilize data and products available and anticipated from the Landsat 8, ESA Sentinel-2 and -3 series of satellites, and other relatively high and medium resolution sensors, to validate GOES-R Advanced Baseline Imager (ABI) and S-NPP/JPSS Visible Infrared Imager Radiometer Suite (VIIRS) products.

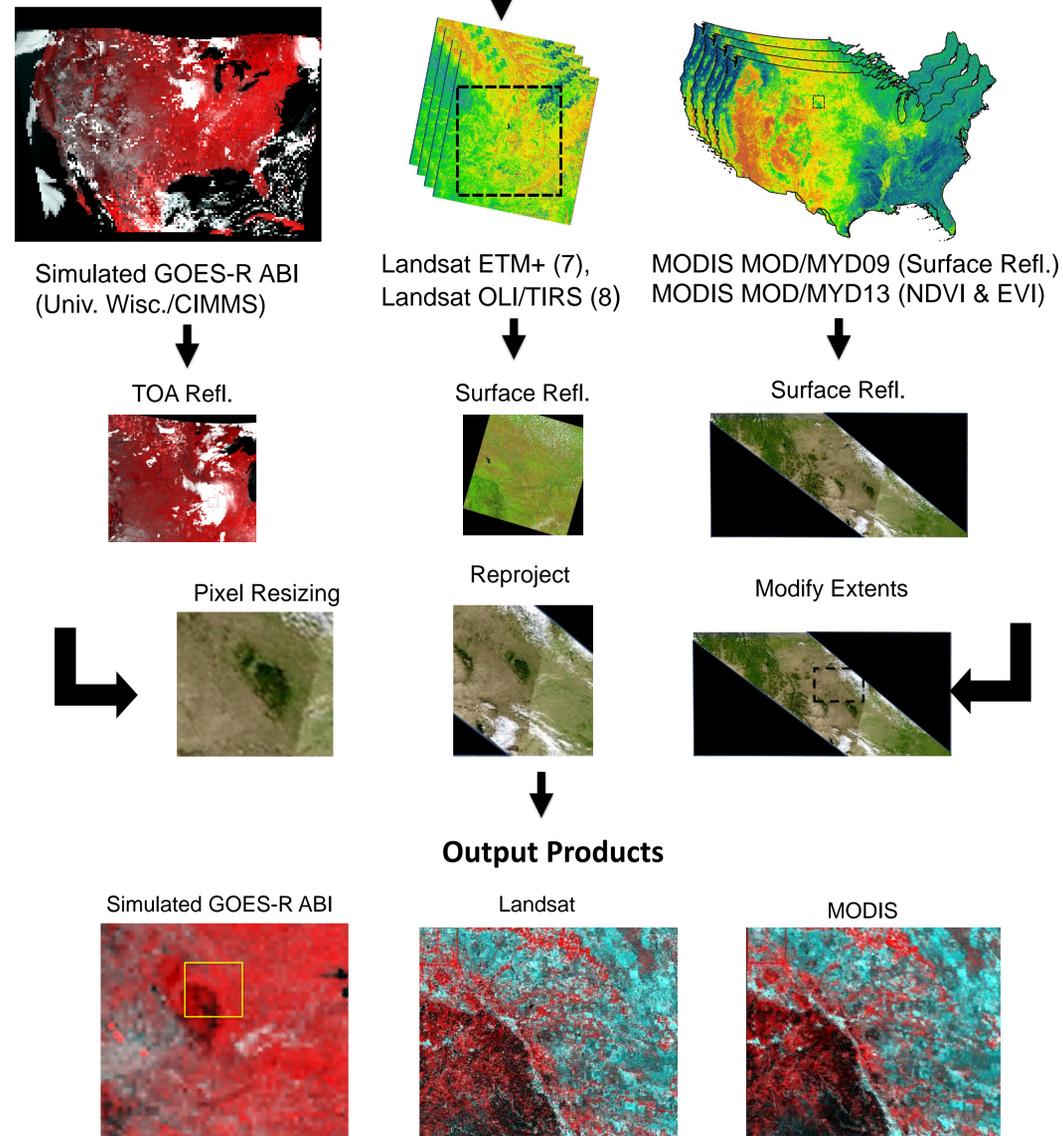
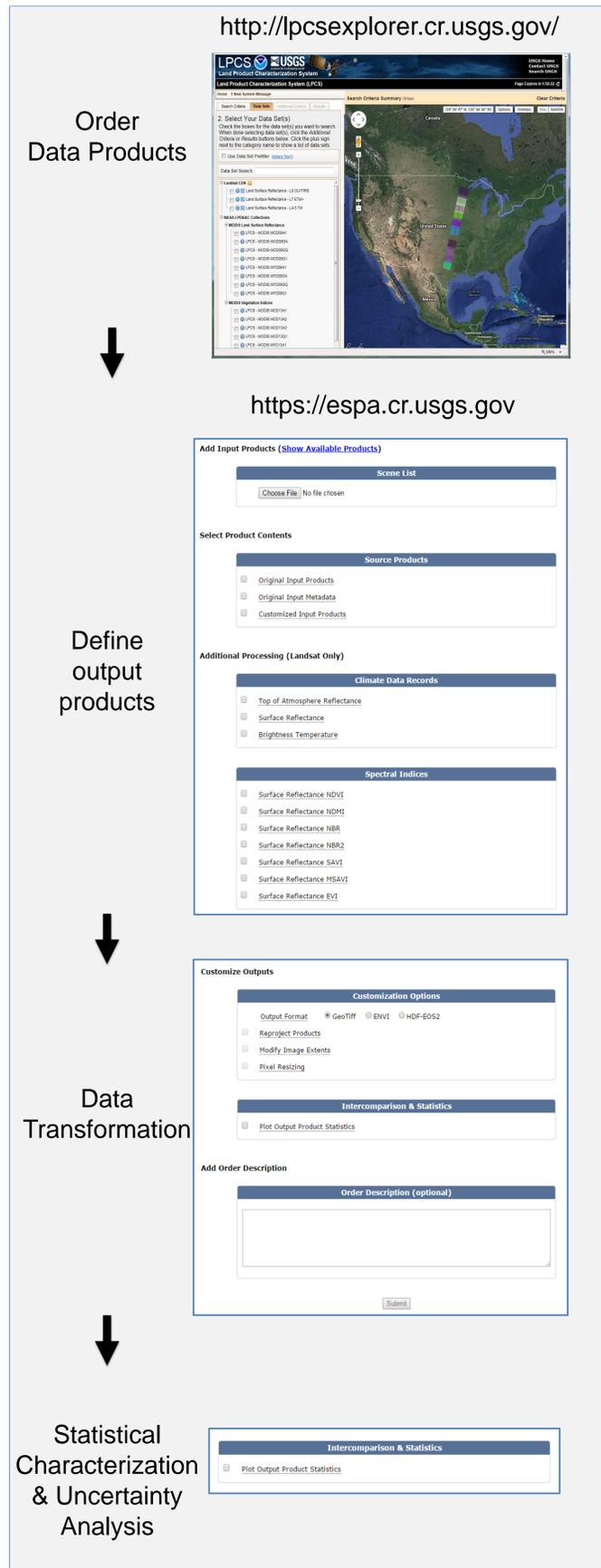
The LPCS includes data inventory, access, and analysis functions that will permit selection of data to be easily identified, retrieved, co-registered, and compared statistically through a single interface. This functionality is evolving through a beta operational phase (2015) before becoming operational in 2016.

Abbreviations	
TOA	Top of Atmosphere
NDVI	Normalized Difference Vegetation Index
EVI	Enhanced Vegetation Index
SAVI	Soil Adjusted Vegetation Index
MSAVI	Modified Soil Adjusted Vegetation Index
NDMI	Normalized Difference Moisture Index
NBR	Normalized Burn Ratio
NBR2	Normalized Burn Ratio 2



Land Product Characterization System (LPCS)

<http://landsat.usgs.gov/lpcs.php>

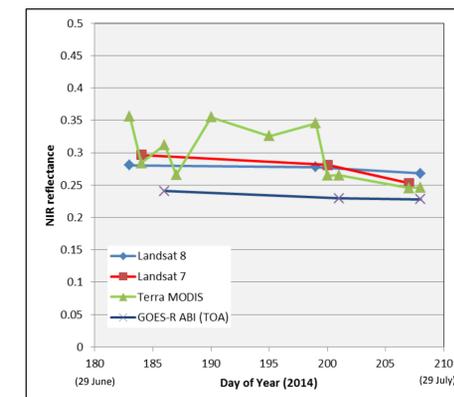


Simulated GOES-R ABI (left), Landsat (middle) and MODIS color infrared images (right). ABI (area within yellow rectangle) and MODIS data resampled to Landsat 30 meter spatial resolution. All data subset to same spatial extent and projected to Albers Equal Area prior to statistical analysis. **MODIS and Landsat data products currently available within LPCS, simulated GOES-R ABI and VIIRS data availability planned for early FY16.**

Tables and charts of individual bands or indices

	A	B	C	D	E	F	G
1	DATE	DOY	MINIMUM	MAXIMUM	MEAN	STDDEV	VALID
2	7/2/2014	183	854	6850	3562.327	693.2124	yes
3	7/3/2014	184	349	8094	2836.911	495.3851	yes
4	7/5/2014	186	290	6780	3122.295	493.9331	yes
5	7/6/2014	187	308	4667	2653.052	575.2196	yes
6	7/9/2014	190	815	5553	3545.954	658.4303	yes
7	7/14/2014	195	191	7778	3254.757	636.479	yes
8	7/18/2014	199	1253	5621	3455.974	681.7747	yes
9	7/19/2014	200	343	5165	2643.97	393.5894	yes
10	7/20/2014	201	404	8447	2648.748	691.372	yes
11	7/26/2014	207	309	5266	2452.574	376.6008	yes
12	7/27/2014	208	457	4713	2462.386	465.7057	yes
13							

Mean, minimum, maximum, standard deviation



Near-IR time series inter-comparisons

Future Data Products



Joint Polar Satellite System (JPSS) Visible Infrared Imaging Radiometer Suite (VIIRS)



Geostationary Operational Environmental Satellites - R Series (GOES-R)



European Space Agency (ESA) Sentinel-2



Committee on Earth Observing Satellites (CEOS) validation sites (and other network sites).