WELD : Web – Enabled Landsat Data

DATASET OVERVIEW / APPLICATION

The NASA funded Web-enabled Landsat Data (WELD) project is systematically generating 30m consistent Landsat Enhanced Thematic Mapper Plus (ETM+) mosaics of the conterminous United States and Alaska from 2002 to 2012. In addition, annual percentage of tree cover, bare ground, vegetation and water will be generated.

The WELD products are developed specifically to provide consistent data that can be used to derive land cover, geophysical and biophysical products for assessment of surface dynamics and to study Earth system functioning.

DATA DEMOCRACY

Data Availability: The WELD products are available for the conterminous United States (CONUS) and Alaska as weekly, monthly, seasonal (3 month) and annual products.

Policy: Freely available for educational, research, or commercial applications.

Formats: The products are generated in Hierarchical Data Format (HDF4) in separate 5000 x 5000 30-m pixel tiles defined in the Albers Equal Area projection.

Related Software: HDF tile coordinate calculator; Tile to GeoTIFF; Tools for visualization of WELD in Arc, ENV, MATLAB, IDL and NCL.

Documentation: Detailed ATBD and product overview and tools are provided on the dataset website.

DATA QUALITY INFORMATION

- Data sets are provided with per-pixel quality assessment information at weekly, monthly, seasonal (3 month), and annual time scales.

- **Data QA plan:**
  - QA is tracked by systematic examination of the true colour browse images, enabling rapid identification of problematic areas/periods for detailed inspection.
  - User informed feedback and time-series analyses as the dataset matures will also enable data quality to be assessed.

- **Data Validation plan**
  - *Restricted by availability of datasets to compare TOA reflectance, brightness temperature, NDVI and cloud product data*
  - Comparison of WELD NDVI with NDVI derived from the instantaneous radiance measured by flux tower pyranometers and PAR sensors.
  - Development of a WELD classification tree cloud mask to assess performance of the cloud detection algorithm.
  - Validation of the Version 2.0 WELD products will focus on validation of the atmospherically corrected reflectance by comparison with AEORNET data.
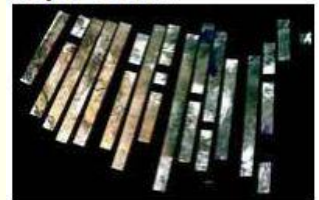
DATASET CITATION AND POC

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Citation: Roy, D.P., Ju, J., Kline, K., Scaramuzza, P.L., Kovalskyy, V., Hansen, M.C., Loveland, T.R., Vermote, E.F., Zhang, C., 2010, Web-enabled Landsat Data (WELD): Landsat ETM+ Composited Mosaics of the Conterminous United States, *Remote Sensing of Environment*, 114: 35-49.

Website: http://globalmonitoring.sdstate.edu/projects/weld/

CONUS Annual

Winter

Spring

Summer

Autumn

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