**Final report for the atmospheric correction to LTER Landsat catalog project**

**September 27, 2013**

Goal of Project: The goal of this project is to build on the previously funded work of Kyle Cavanaugh to complete the atmospheric corrections to the LTER Landsat catalog. Atmospheric corrections are required before any higher level data products (e.g. maps of land cover change, biomass, NDVI) can be created. The corrected scenes can then be used by LTER researchers to work on a consistent approach to further analysis of change detection, land cover classifications, and biomass calculations across LTER sites. This was the highest priority identified by the LTER Spatial Data and Analysis Ad-Hoc Committee at the 2012 All Scientist Meeting.

Results: 10,471 images were converted to surface reflectance using Landsat Ecosystem Disturbance Adaptive Processing System (LEDAPS http://code.google.com/p/ledaps/). LEDAPS process convert Landsat data from digital numbers (DN) to surface reflectance. After conversion, each scene is packaged in a compressed tar file (*.tar.gz), which includes:

- surface reflectance (lndsr.*.hdf)
- top of atmosphere (TOA) reflectance (lndcal.*.hdf),
- thermal brightness temperature (lndth.*.hdf)

The data is organized by LTER site for automated EML production. The finished product was delivered in September 2013, to the LNO via external hard drives. The data was temporarily backed up on Oregon State University College of Forestry systems. The LNO will complete the metadata and make the data available through PASTA (per agreement with LNO staff).

The next step would be to notify LTER scientists and students of the products, once they are available through PASTA. It may be appropriate for a wider press release.

Contributors on this project include: Tom Spies (PI), Zhiqiang Yang and Peder Nelson (programming and technical support), Theresa Valentine (logistics and coordination with LNO), Margaret O'Brien (EML support), Kyle Cavanaugh (technical advice), and LNO staff (John Vande Castle, Mark Servilla, and Duane Costa) for technical advice, EML generation, and PASTA integration.

This project emerged from discussions at the 2012 All Scientist Meeting, within a workshop organized by the LTER Spatial Data and Analysis Committee.