**Temperature and Ice Phenology Information for Lake Management**

**Project Manager Qualifications and Organization Description**

**Leif Olmanson, PhD.**

**Project Principal Investigator (PI); Research Associate, Remote Sensing and Geospatial Analysis Laboratory, Dept. of Forest Resources**, has over 20 years experience developing remote sensing applications to create temporally and spatially rigorous datasets of water and land resources for large area ecosystem characterization. He is particularly interested in developing field validated image processing methods implemented in automated geospatial analysis systems such as Google’s Earth Engine and Minnesota Supercomputing Institutes supercomputers to gain a better understanding of the natural environment. He currently leads a team of researchers and computer scientists to build a near real-time water quality monitoring system for Minnesota’s >10,000 lakes using satellite imagery to providing critical water quality information for lake management. He is the PI on a USGS project “Advancing remote sensing methods for lake water quality and ice phenology” for which he and collaborator Christopher Crawford have collected some preliminary field measurements of optical measurements, ice thickness and snow characteristics. He will provide overall leadership for the project and contribute to development of computer code for prototype image pre-processing and algorithms to derive ice/snow phenology and lake temperature products.

**Benjamin Page, MS.**

**Co-I; Research Fellow, University of Minnesota’s Water Resources Center.** Ben’s primary research is focused on calibrating/validating satellite data for aquatic applications in Minnesota. As a former NASA associate, he has experience with a wide variety of Earth observation platforms and is passionate about implementing remote sensing strategies for lake management. Currently he has been transferring conventional optical and radar image processing methods to cloud- and high-performance computing infrastructures for automated monitoring purposes.

**Organization Description**

All personnel are based at the University of Minnesota, one of the largest, most comprehensive, and most prestigious public universities in the US ([umn.edu/twincities](http://www1.umn.edu/twincities/01_about.php)). The labs and offices of the investigators and collaborators are equipped with the necessary space and facilities needed for the proposed work.