



# ***Annual Toolik GIS Report***

# Overview

- **Metrics and Highlights From 2015**
- **BLM Collaboration on Data Sharing**
- **Common Use Boardwalk**
- **Aerial Photographs**
- **Control Watershed**
- **2012 Science Vision Workshop  
Recommendations for GIS Dept.**



# Requests Completed

2012: 219 Requests from 31 Institutions

2013: 215 Requests from 28 Institutions

2014: 253 Requests from 33 Institutions

2015: 213 Requests from 36 Institutions

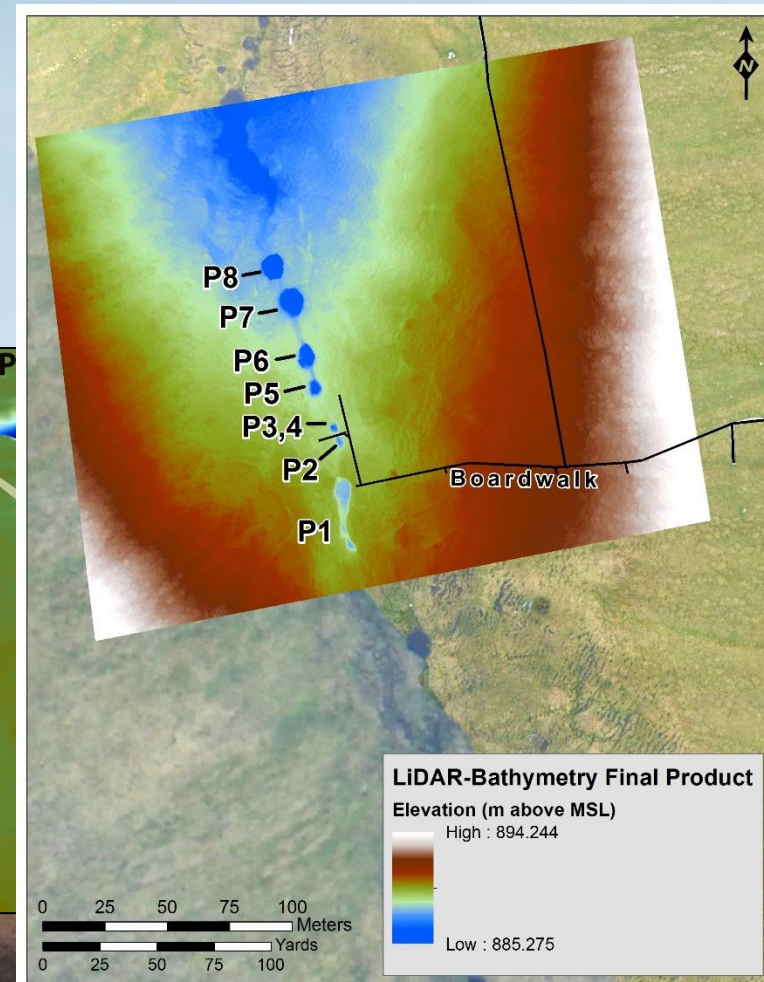




# Requests

## Merging of LiDAR & Bathymetric Dataset

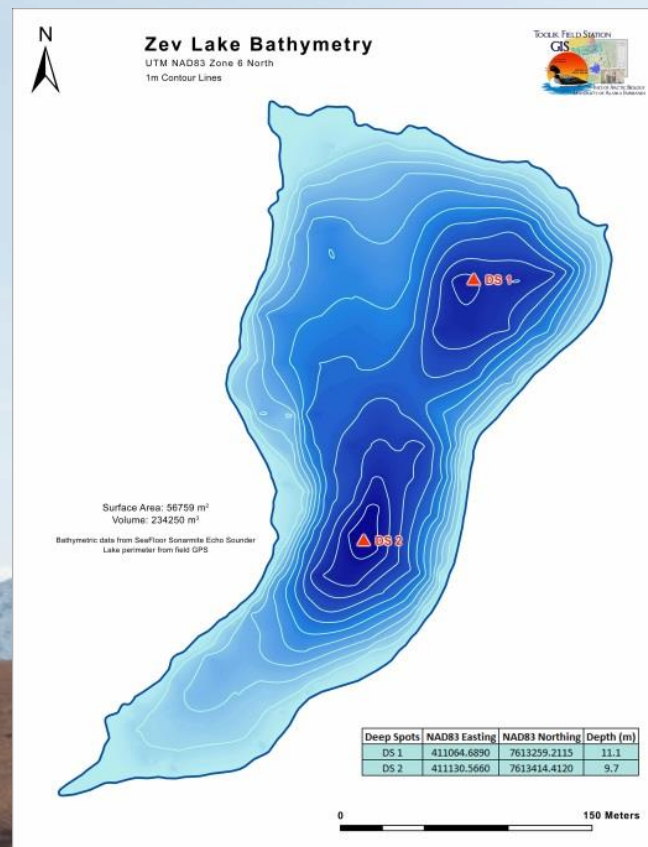
- Seamless Detailed 3D Model of Terrestrial Topography and Pool Bathymetry
- Integrated with Groundwater Flow Data
- Randy will be Credited as Contributor Author on any Publication



# Requests

## Summer Field Support

- Provided Field Support for 10 Projects
  - Collected Bathymetric Data
  - Processed Data and Delivered Maps Within Days of Request
- Added to ToolikGIS' Bathymetric Catalog of Research Lakes (>70)



# Requests

## Site Selection

- Provided Assistance to 9 Individuals/Groups
  - Daniel Ackerman
  - ACUASI
  - Ashley Asmus
  - Linda Deegan
  - Ned Fetcher
  - Rebecca Finger
  - INTERACT Group
  - Josh Schimel
  - Ken Tape

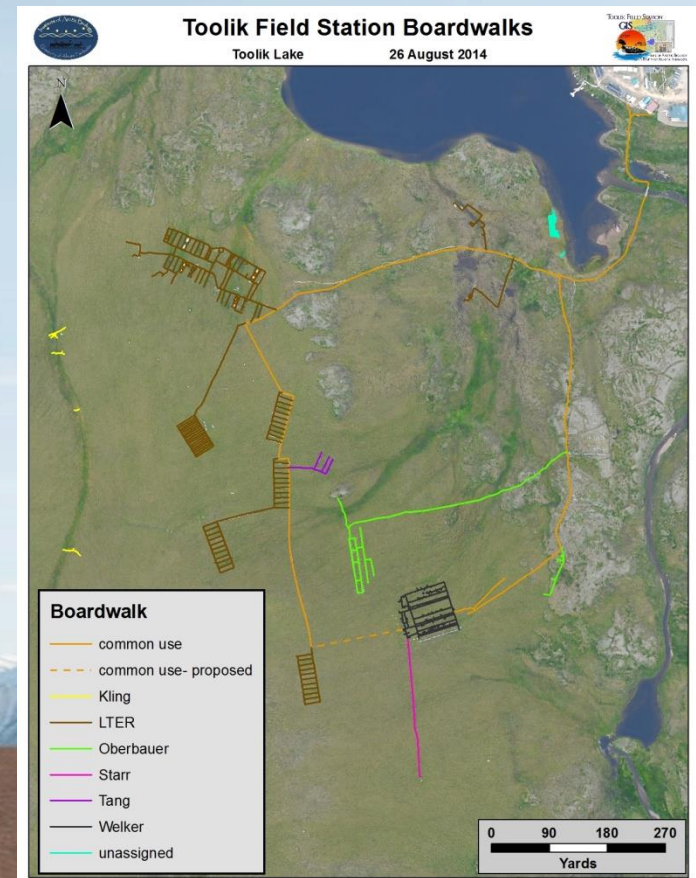


# **Update: BLM Collaboration on Data Sharing**

- **Periodic Meetings Between BLM, Toolik Management and Toolik GIS**
- **Improve Permitting Process & Streamline Annual Site Inspection Visit**
- **Created Shared Online Document**
  - **New Projects Permitted in 2015**
  - **PI Name, BLM Permit Number, Boardwalk (Y/N)**
  - **Shared Database of GPS Locations for Projects Permitted in 2015.**

# Upgrades to Common Use Boardwalk

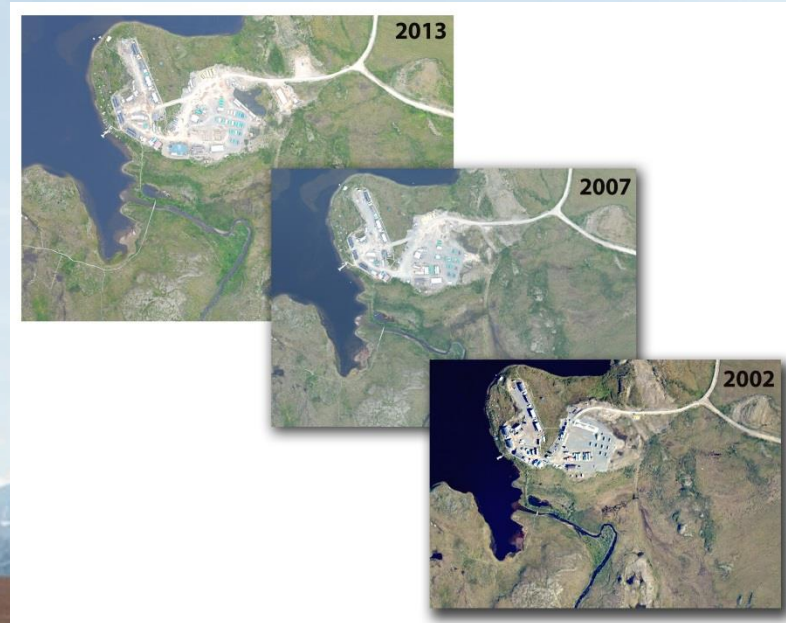
- Continued Collaboration With CPS Staff and Toolik Researchers
- South of Toolik in Good Condition
- Boardwalk Loop Completed
- Shift Focus to Imnavait for 2016





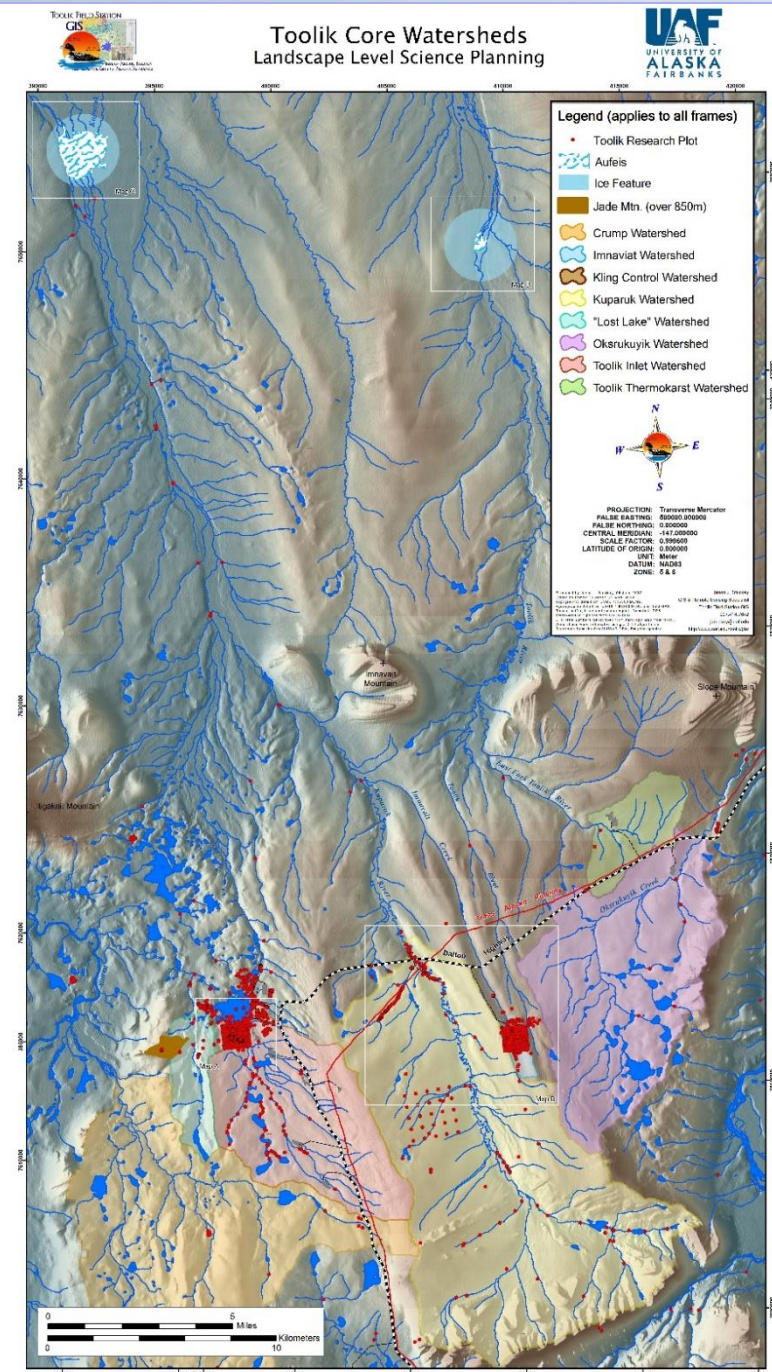
# Aerial Photographs

- Orthorectified & Georeferenced
- 2002, 2007 & 2013
- Metadata Written to INSPIRE Metadata Standards
- Available on Toolik GIS Website
- Historic 1949 & 1956 Photos Also Available



# Control Watershed

- Recurring Topic
  - Toolik Annual Meeting, 2015
  - Science Vision Workshops, 2012, 2004
- Core Ideas:
  - No Manipulative Research
  - No Destructive Research
- Propose Creation of a Working Group





# **Update on 2012 Science Vision Workshop Recommendations**

- Toolik Information System
- High-Resolution Digital Elevation Models
- Last Mile Connectivity (Wi-Fi on the Hill)





# Update on 2012 Science Vision Workshop Recommendations

- Toolik Information System

www.nordgis.org/sites/explore/explore.php

NordGIS

STATIONS RESEARCH PUBLICATIONS APPLICATION ABOUT

174 SITES Ongoing Projects 1962 - 2085

<b>Climate changes in North</b> 2009-2016 Climate changes and the thermal convection and radiation in atmosphere. Paleoclimatology and Mineralogy in Subarctic area	<a href="#">Show details</a>
<b>Climate effects on hydrology</b> 2014-2015 Hydrological Response to Changing Climate Conditions	<a href="#">Show details</a>
<b>Climate impacts on C balance</b> 2015-2016 Distinguishing the separate and interactive effects of temperature, nutrients and plant community shifts on ecosystem C balance across subarctic landscapes	<a href="#">Show details</a>
<b>COBRA</b> 2013-2016 Coordinating Organic plant Breeding Activities for Diversity	<a href="#">Show details</a>
<b>Collection of butterflies</b> 2013-2017 Collection of butterflies for ecological experiments and genetic analysis.	<a href="#">Show details</a>
<b>Cryogenic processes in soils</b> 2010-2016 Quantifying cryogenic soil-mixing in the tundra soil and its role for the long-term carbon cycling in the arctic	<a href="#">Show details</a>
<b>Demography of range limits</b> 2011-2015 Demographic causes of latitudinal range limits of a mountain plant across two continents: experimentally assessing direct climate effects and indirect effects of neighbouring plants	<a href="#">Show details</a>
<b>Dendroclimatology</b> 1995-2015 Tree-ring research in the Torneträsk area	<a href="#">Show details</a>
<b>Direct and indirect impacts of</b> 2014-2016 Direct and indirect impacts of climate change on carbon sequestration in mountains	<a href="#">Show details</a>
<b>Douglas fir below young birch</b> 2014-2017 Planting of douglas fir seedlings underneath a shelterwood of young natural regenerated birch	<a href="#">Show details</a>

More map

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# **Update on 2012 Science Vision Workshop Recommendations**

- **High-Resolution Digital Elevation Models (DEMs)**
  - **30-50cm Developed from 2013 Aerial Photos (2015)**
  - **1m DGGs Covering Dalton/Pipeline Area (2011-2012)**
  - **2m PGC of Toolik Region (2015)**
  - **2m PGC of Kuparuk Watershed (2015)**
  - **3m AK DOT Road to Umiat (2012)**



# Update on 2012 Science Vision Workshop Recommendations

- Last Mile Connectivity (Wi-Fi on Hill)
- Traci Ruthkoski, Amazon Web Services
  - Built and Successfully Tested Prototype
- Toolik Management
  - More Robust System
  - UAF OIT Compatible
  - BLM Permitting Options





# Website Usage - Metrics

## 10 Most Popular Pages

1. Homepage
2. General Maps
3. Data Download
4. Maps Homepage
5. Photos/Imagery
6. Thematic Maps
7. Plots/Permits
8. GPS Reservations
9. TAGA Maps
10. Online Mapping

## Downloads - Nov. 13, 2014 to Dec. 17 2015

	Unique Users	Maps/Files	Downloads
Maps	336	189	2056
GIS Data	482	64	4899

# ***Toolik GIS***

