

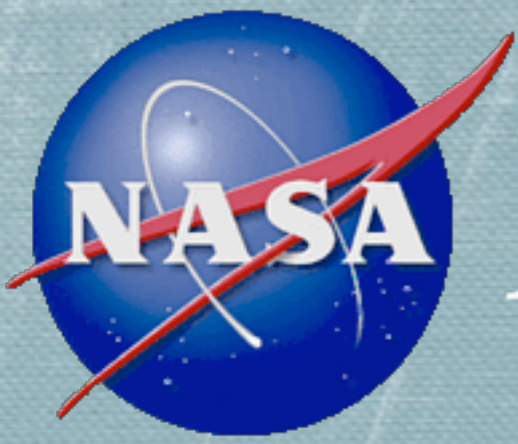


SEAMONSTER: A wireless Sensor Web prototype applied to studying glaciated watersheds

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Acknowledgements



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- Numerous UAS and UAF / GI students, staff, faculty
- North Star, Era, Coastal, Temsco - helicopter support

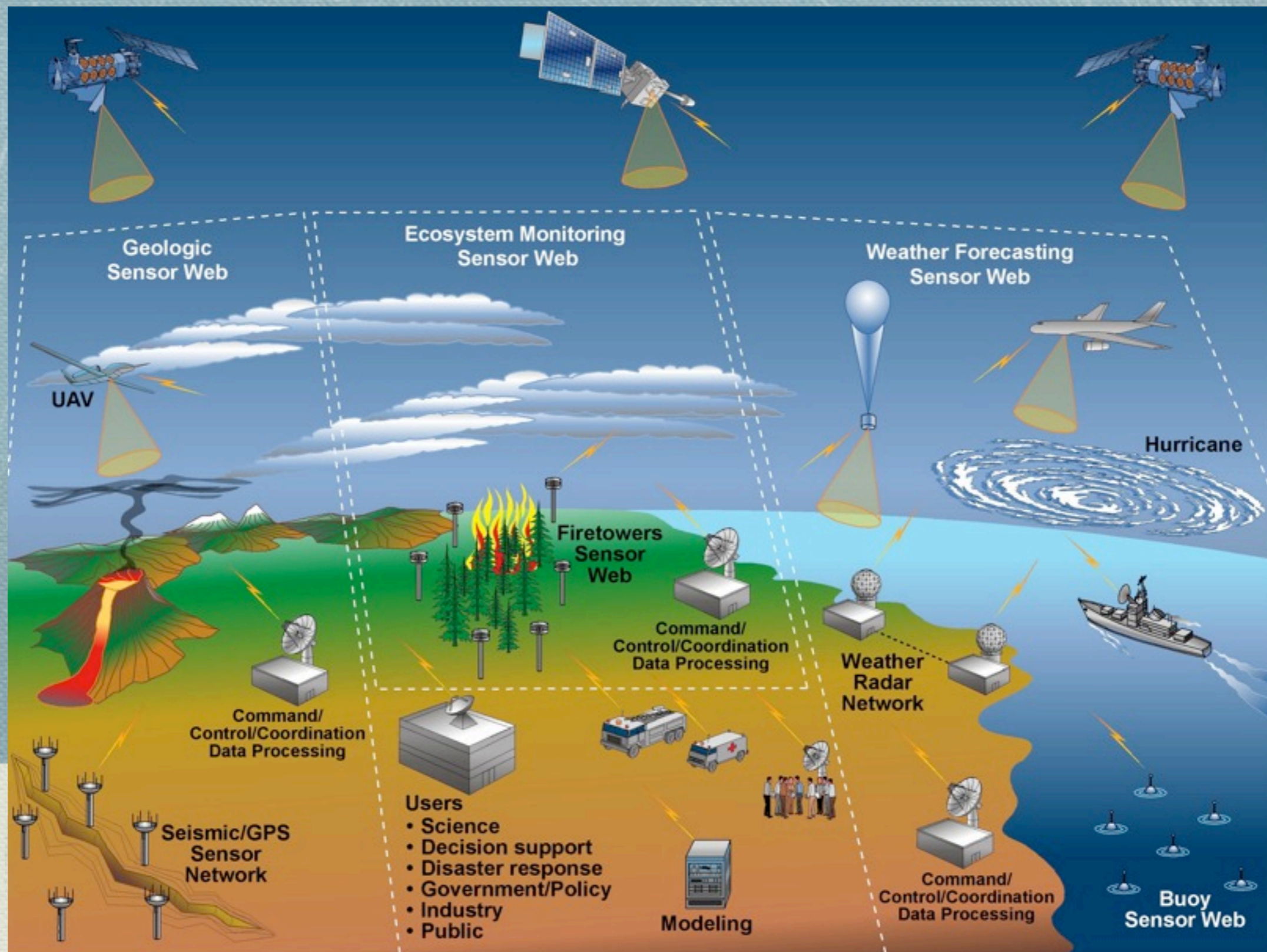
Acknowledgements



Overview

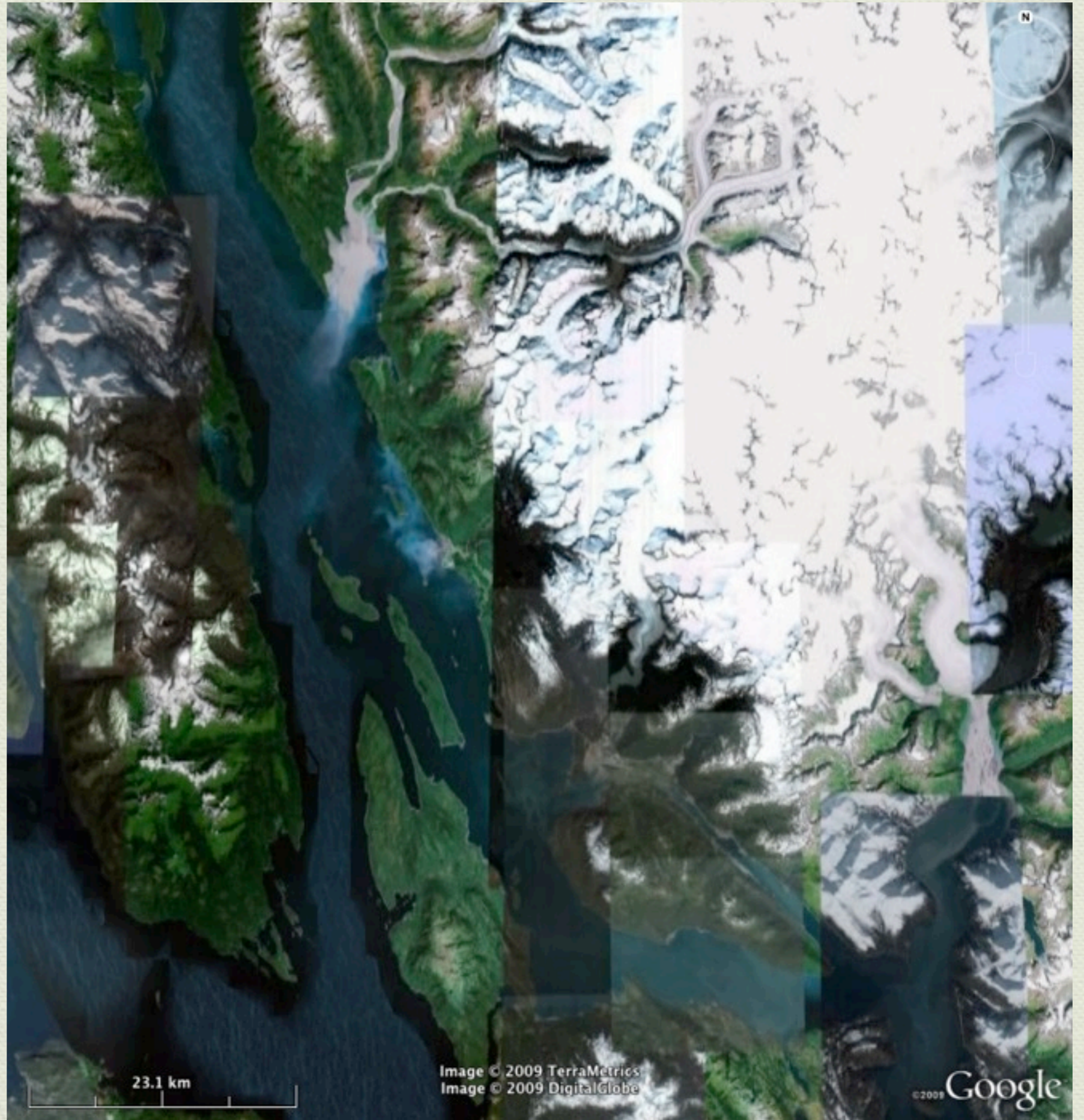
- ◆ Science & Technology
 - Southeast Alaska
 - Science Motivation
 - SEAMONSTER
- ◆ Outcomes of Project
- ◆ Lessons Learned
- ◆ Future





AIST PI Workshop 2/2007

Sensor Web Concept



Science Motivation

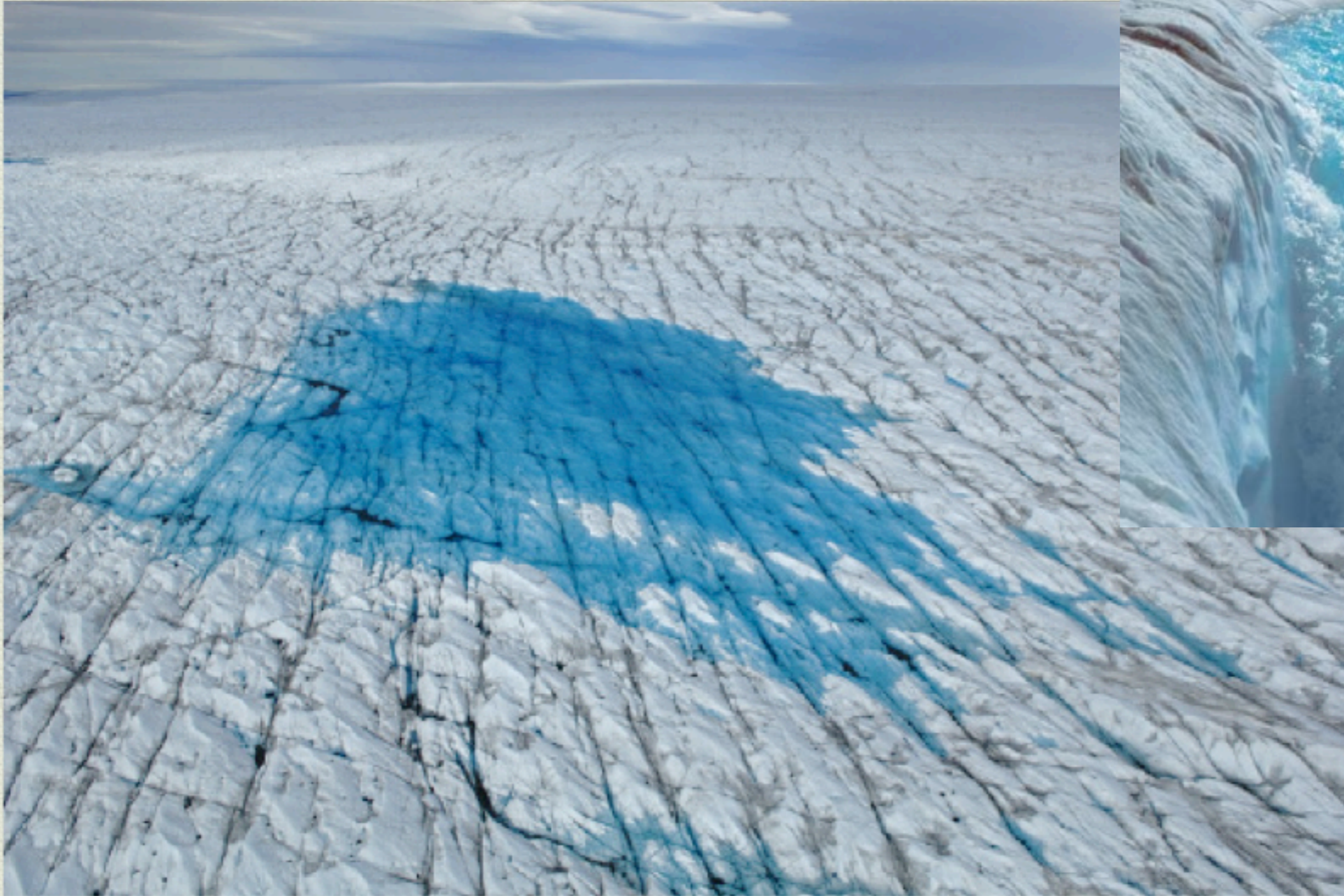
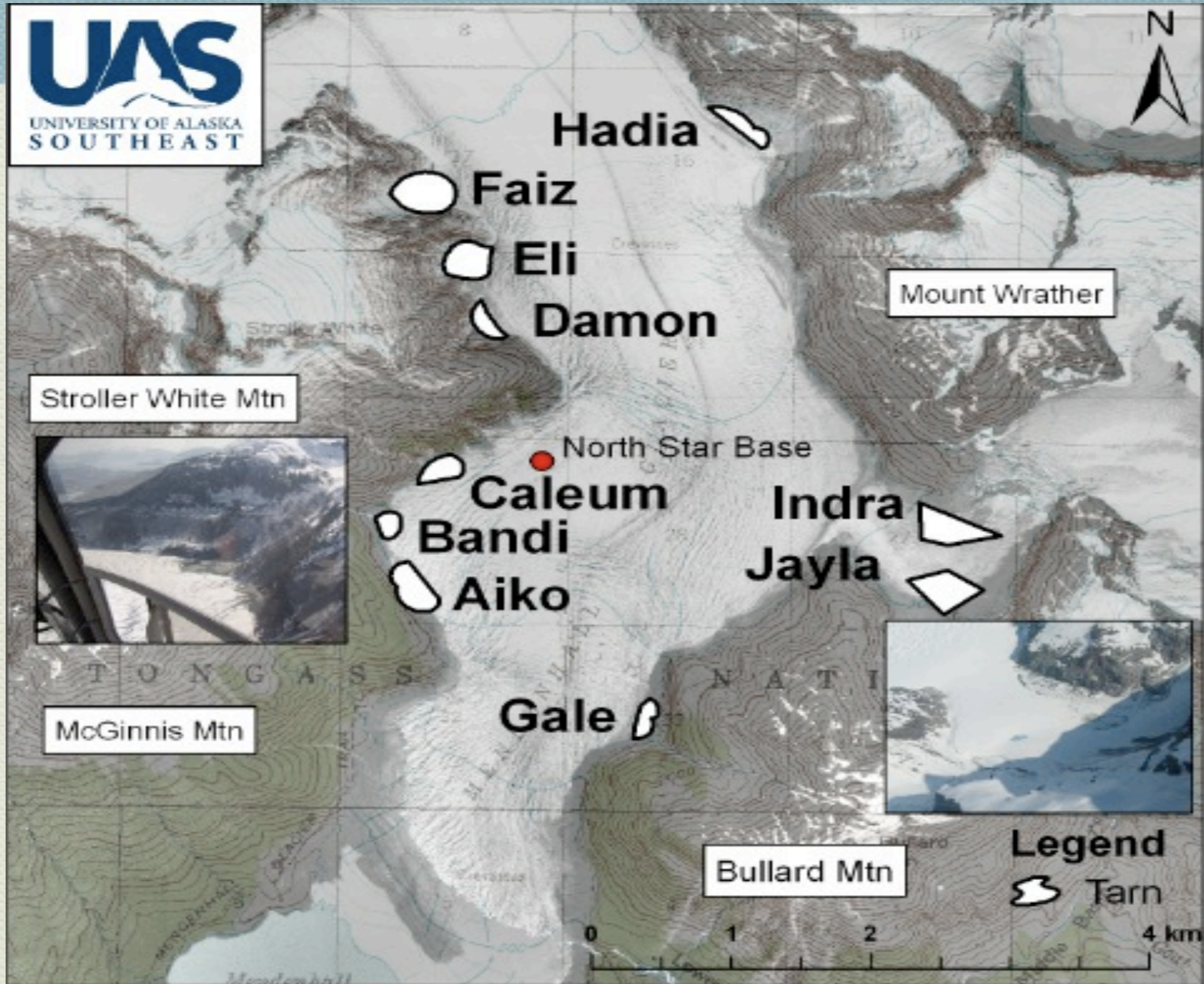


Photo
Credit:
James
Balog, EIS

Science Motivation



Science Motivation

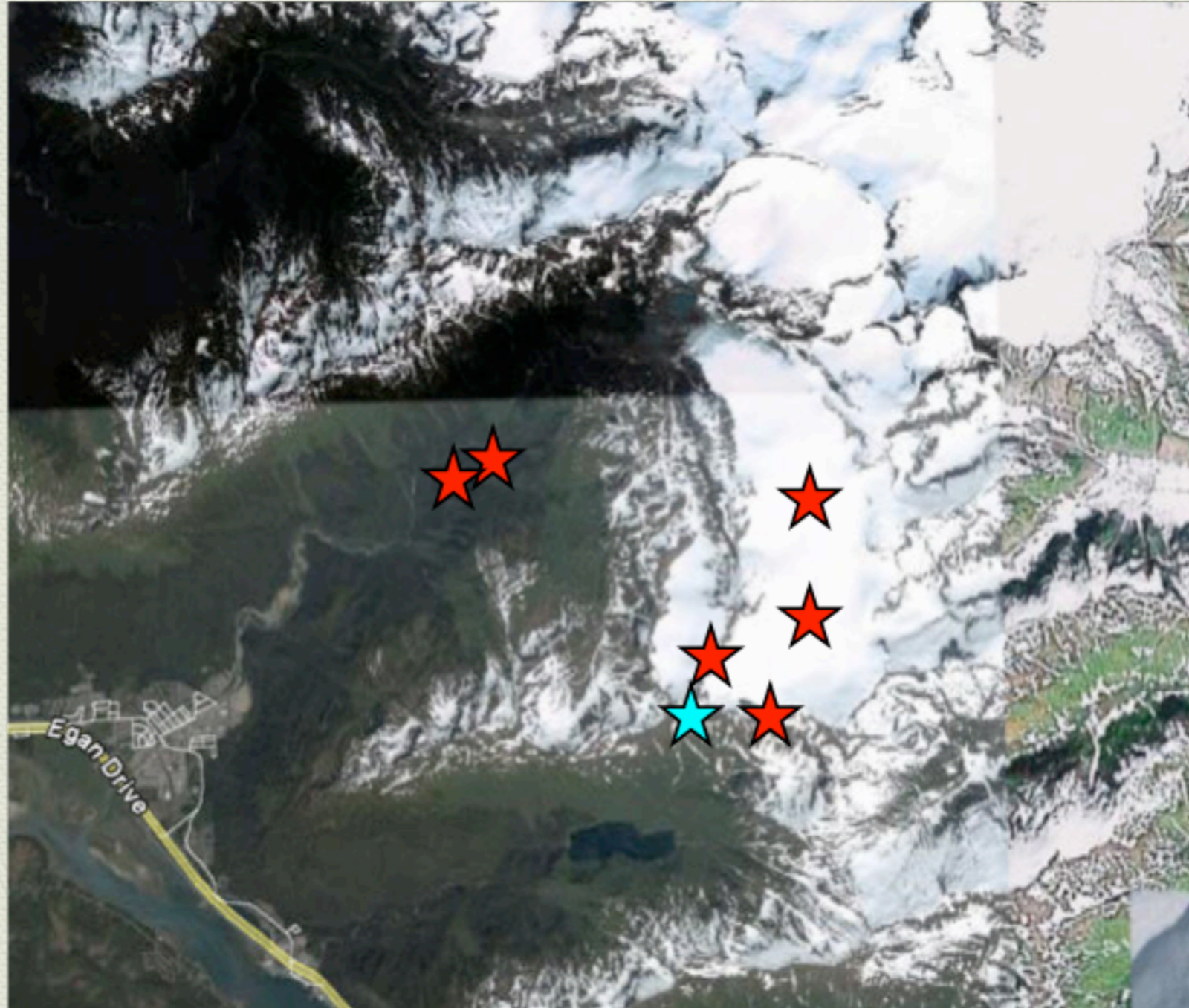


SEAMONSTER

- ◆ South
- ◆ East
- ◆ Alaska
- ◆ MOnitoring
- ◆ Network for
- ◆ Science
- ◆ Technology
- ◆ Education &
- ◆ Research

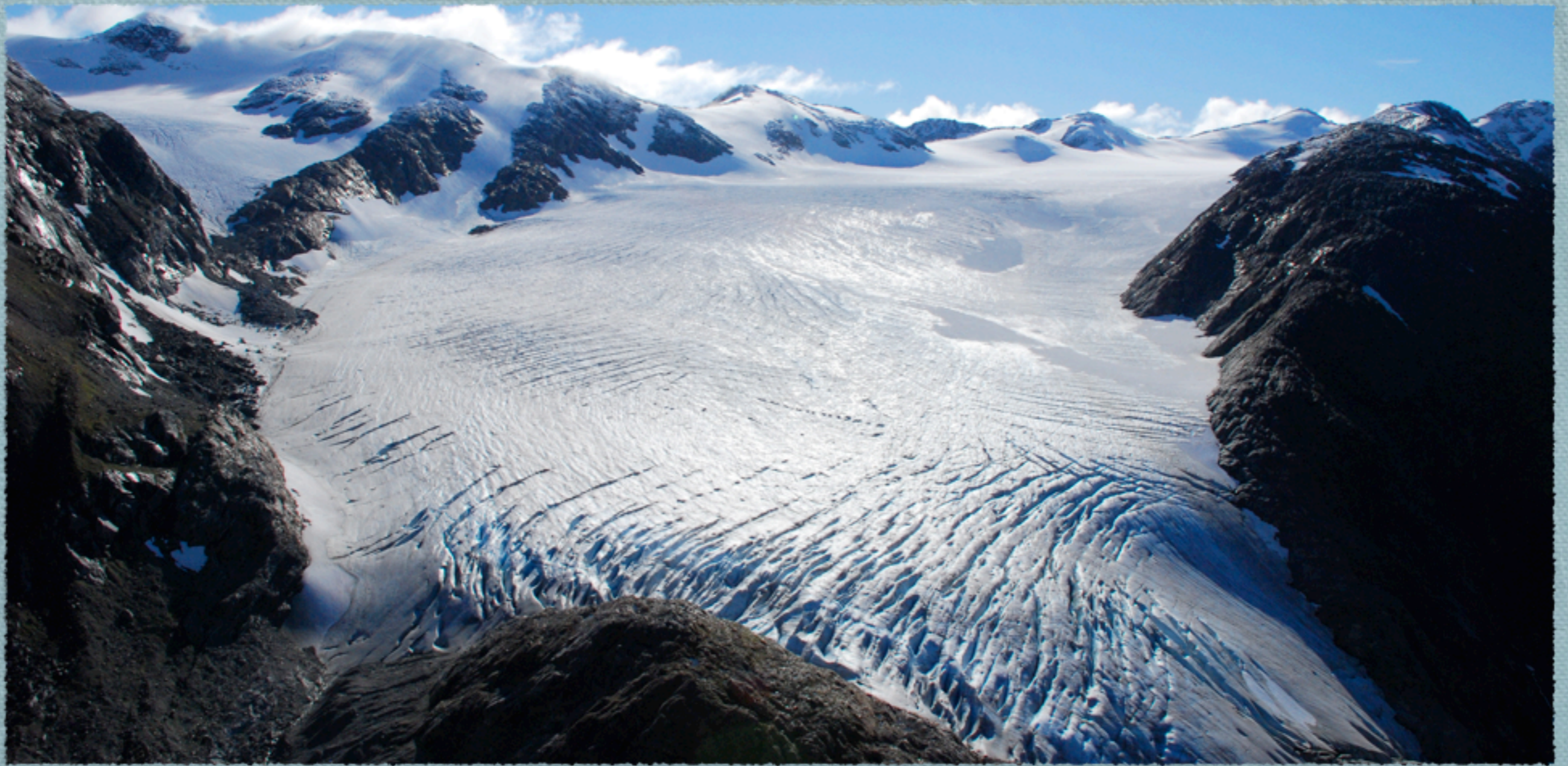


Lemon Creek Sensor Web









Lemon Creek Glacier



Lower Lemon Met Station

Instrumentation



Lake Level



Climate



Water
Quality

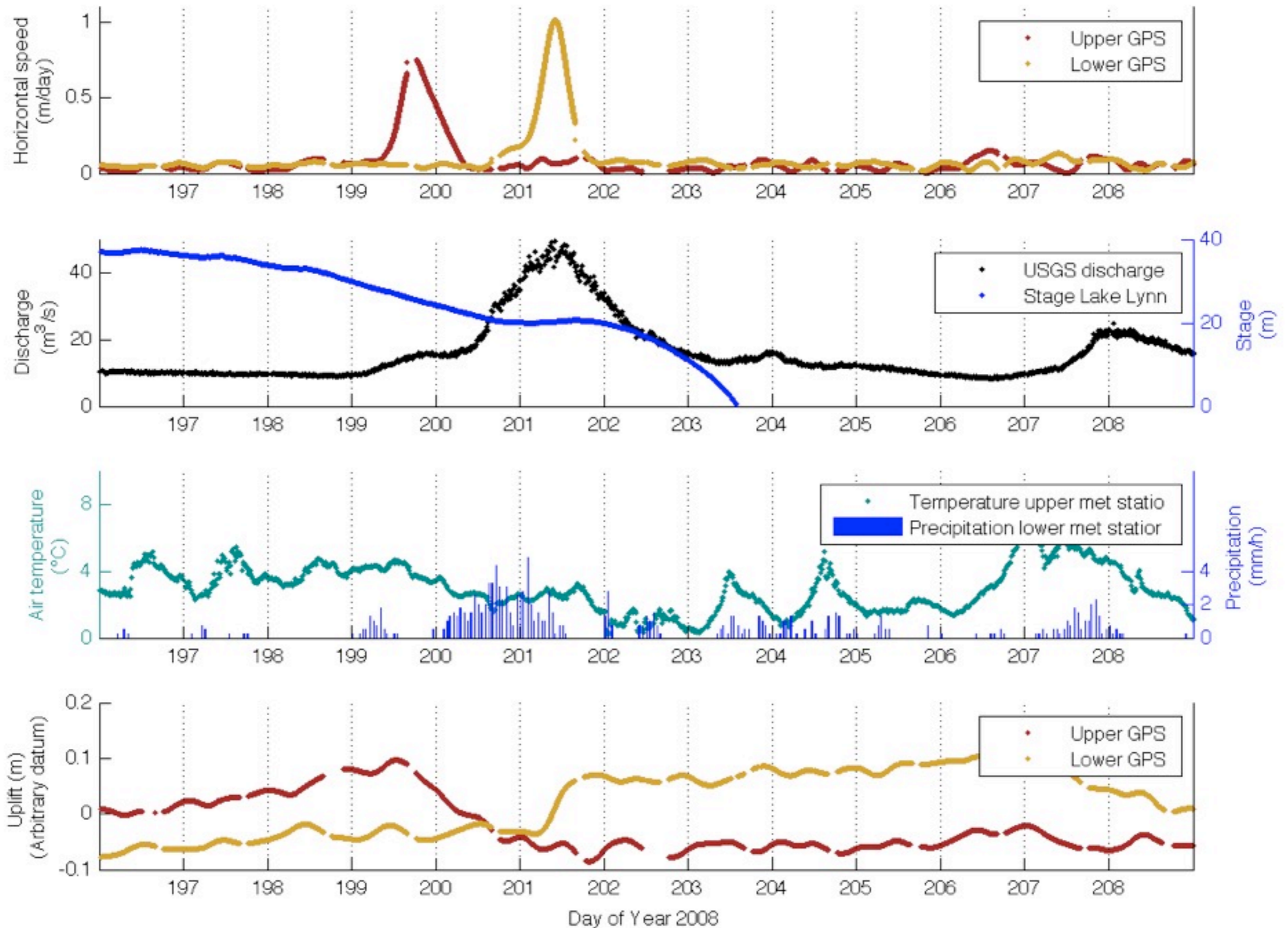


GPS / Seismic

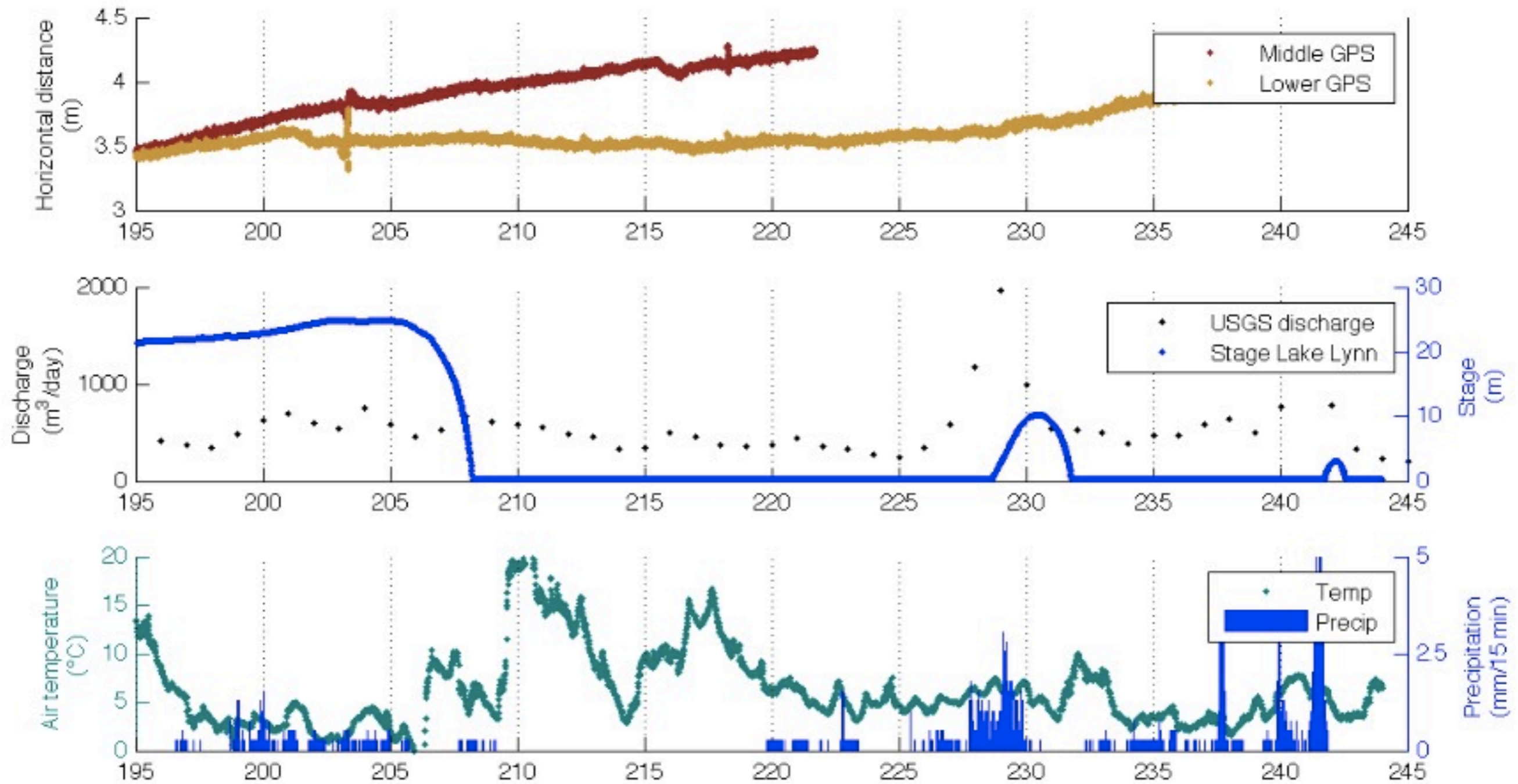


Cameras

Lemon Creek 2008



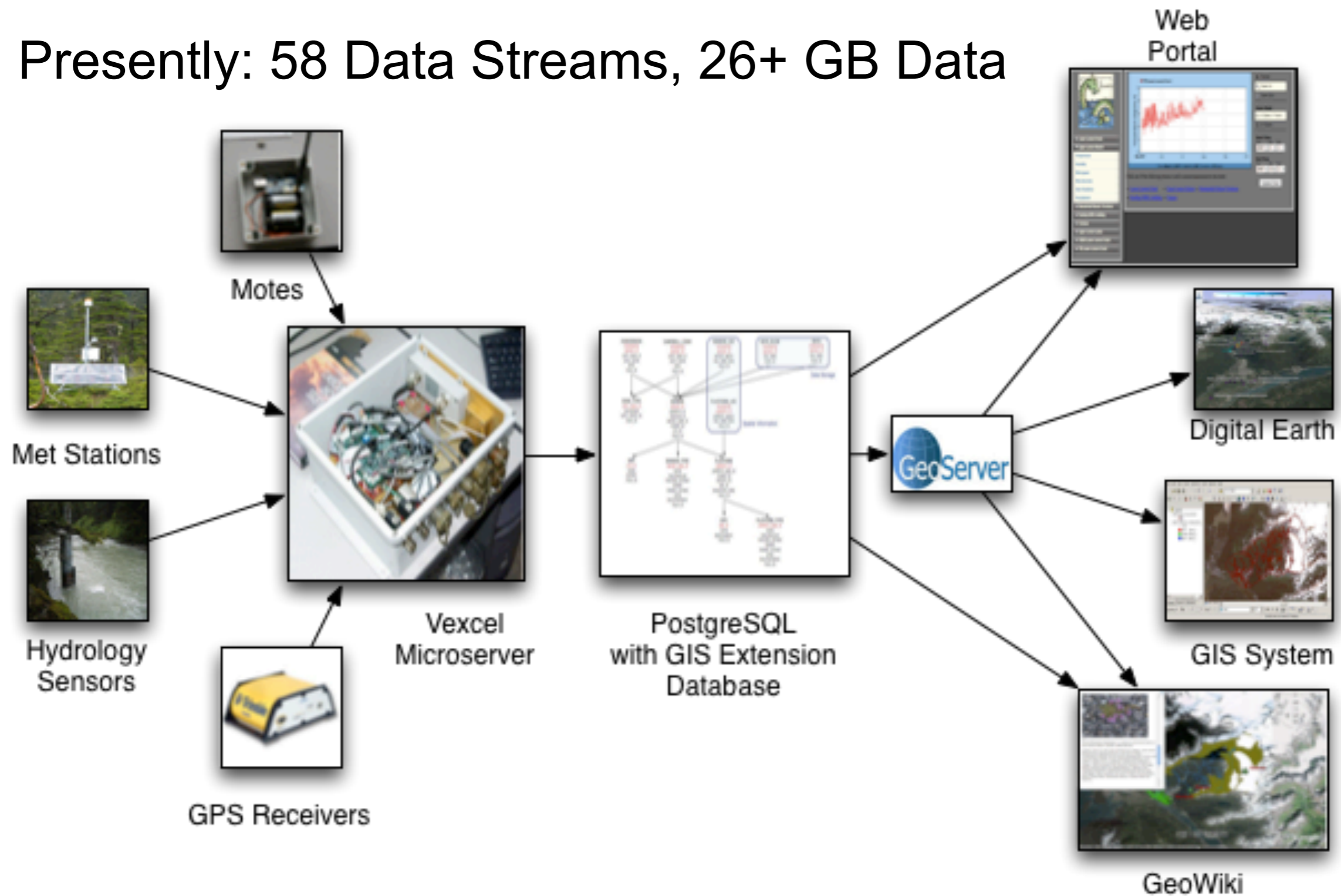
Lemon Creek 2009



Database and Access

<http://seamonster.jun.alaska.edu:8080/geoserver/mapPreview.do>

Presently: 58 Data Streams, 26+ GB Data





- ▶ Auke Lake PXD
- ▶ Eaglecrest MET
- ▶ Georgia Tech Snowmobile Robot
- ▼ Lemon Glacier Lakes PXD

Stage

Voltage

- ▶ Lower Lemon Creek MET
- ▶ Lower Lemon Creek USGS
- ▶ Lower Lemon Creek YSI
- ▶ Mendenhall Glacier Terminus MET
- ▶ Montana Creek YSI
- ▶ Natural Science Research Lab MET
- ▶ UAS Campus MET
- ▶ Upper Lemon Glacier MET



Pointer

Zoom In

Zoom Out

Zoom Mode

X Zoom / Y Auto

XY Zoom

Start Time

Year Mon Day
2009 7 9

End Time

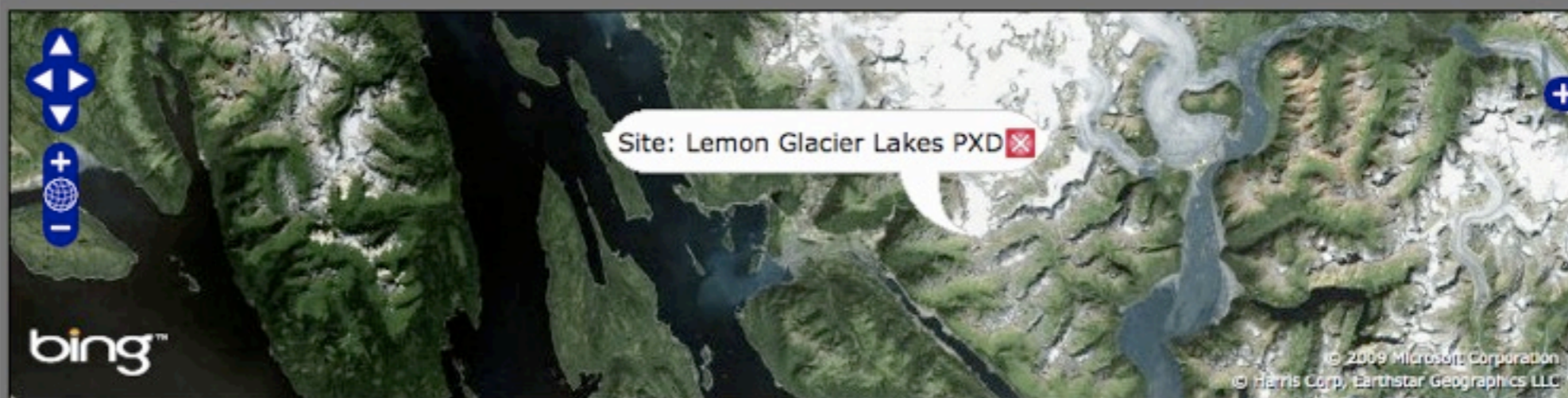
Year Mon Day
2009 7 30

Update Chart

[Data Download Page](#)

Click one of the following choices to add a second measurement to the chart:

- [Auke Lake PXD](#)





Dr. Ayanna
Howard, Georgia
Tech



Tuesday, June 22, 2010



▶ Auke Lake PXD

▶ Eaglecrest MET

▼ Georgia Tech Snowmobile Robot

Temperature

Humidity

Pressure

▶ Lemon Glacier Lakes PXD

▶ Lower Lemon Creek MET

▶ Lower Lemon Creek USGS

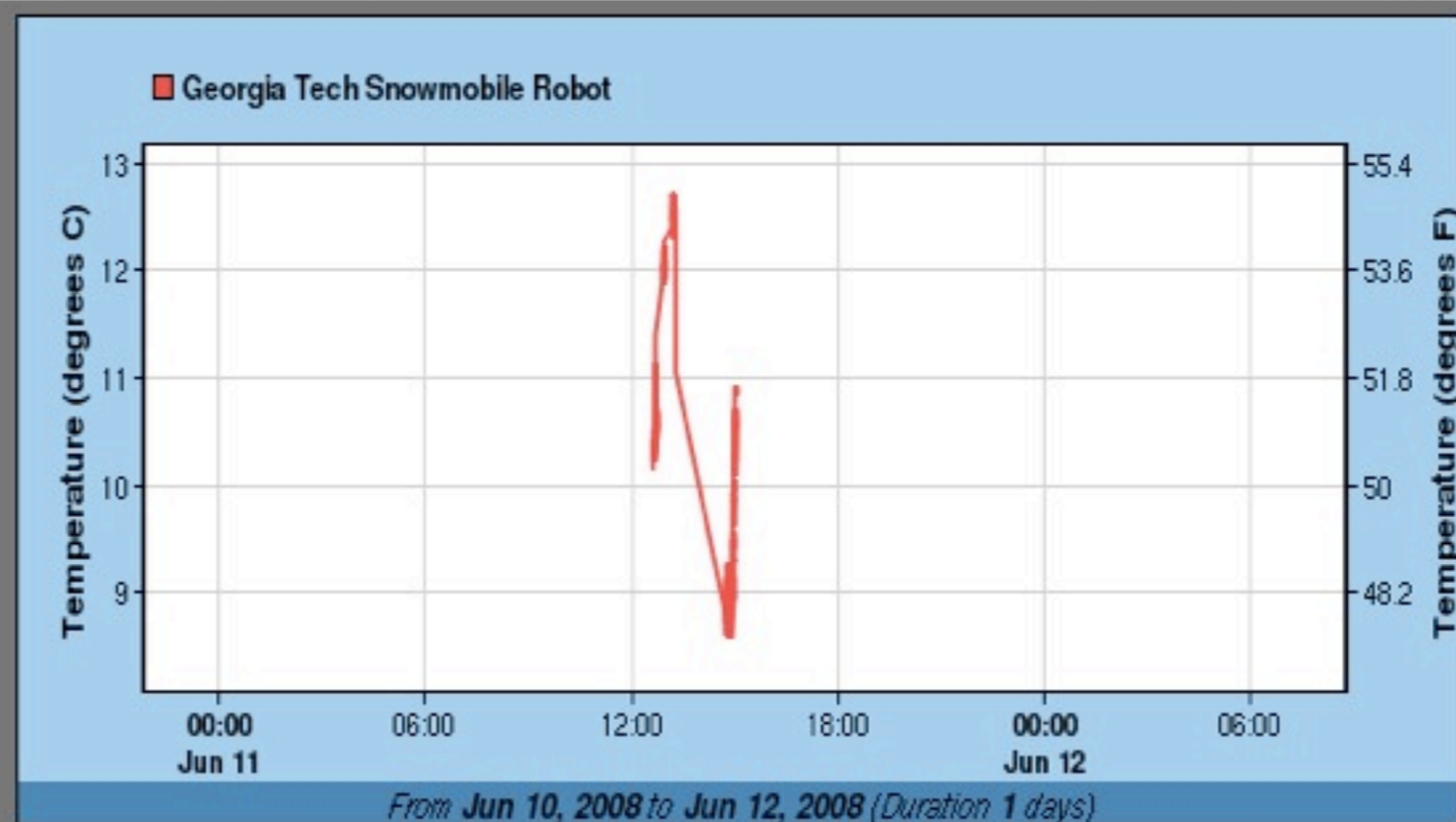
▶ Lower Lemon Creek YSI

▶ Mendenhall Glacier Terminus MET

▶ Natural Science Research Lab MET

▶ UAS Campus MET

▶ Upper Lemon Glacier MET



Pointer

Zoom In

Zoom Out

Zoom Mode

X Zoom / Y Auto

XY Zoom

Start Time

 Year Mon Day
 2008 6 10

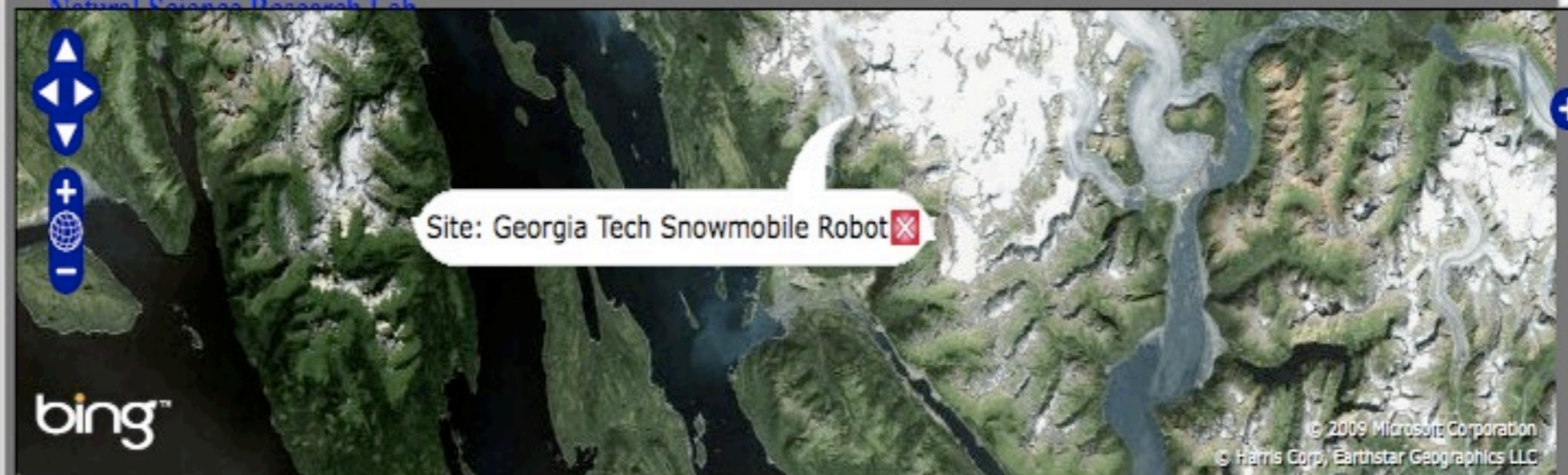
End Time

 Year Mon Day
 2008 6 12

Update Chart

[Data Download Page](#)

Click one of the following choices to add a second measurement to the chart:

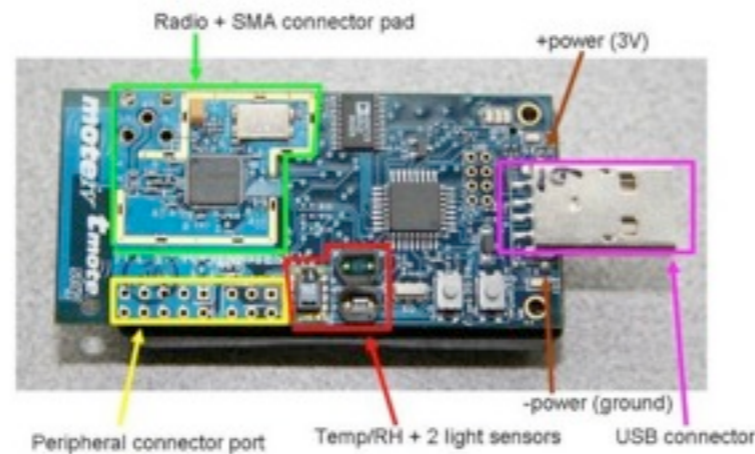
• [Lower Lemon Creek MET](#)• [Upper Lemon Glacier MET](#)• [Mendenhall Glacier Terminus MET](#)[Natural Science Research Lab](#)

Platforms



Vexcel Microserver, Linux

There are three different platforms in use, with relative computation, storage, and sensing capabilities as well as power requirements and cost.



Tmote, tinyOS



Linksys NSLU-2, a UAS testbed platform, Linux

Deployment-ready tmote



Current Status



Tuesday, June 22, 2010

Current Status



Tuesday, June 22, 2010

Project Outcomes

- **Sensor Web Concept Demonstrated**
- **Testbed Sensor Web**
 - **Snomotes**
 - **MACRO**
- **NOAA - Earth Information System**
- **Glacier Hydrology Science**
- **University and Public Concept**

Project Reflections

- 2008 summer of harsh weather impeded Lemon Creek Work
- Focus on “Tier One” Microservers
- Unanticipated collaborations were significant project outcome
- Student Involvement

All SEAMONSTER code, results, and methods are available online through our project wiki, outreach wiki, data browser, and svn code repository.

<http://seamonsterak.com/>

Thank you for your attention!

Questions?





