

Soil Moisture Monitoring with Remote Sensors

Bill Buhrig, Clint Shock

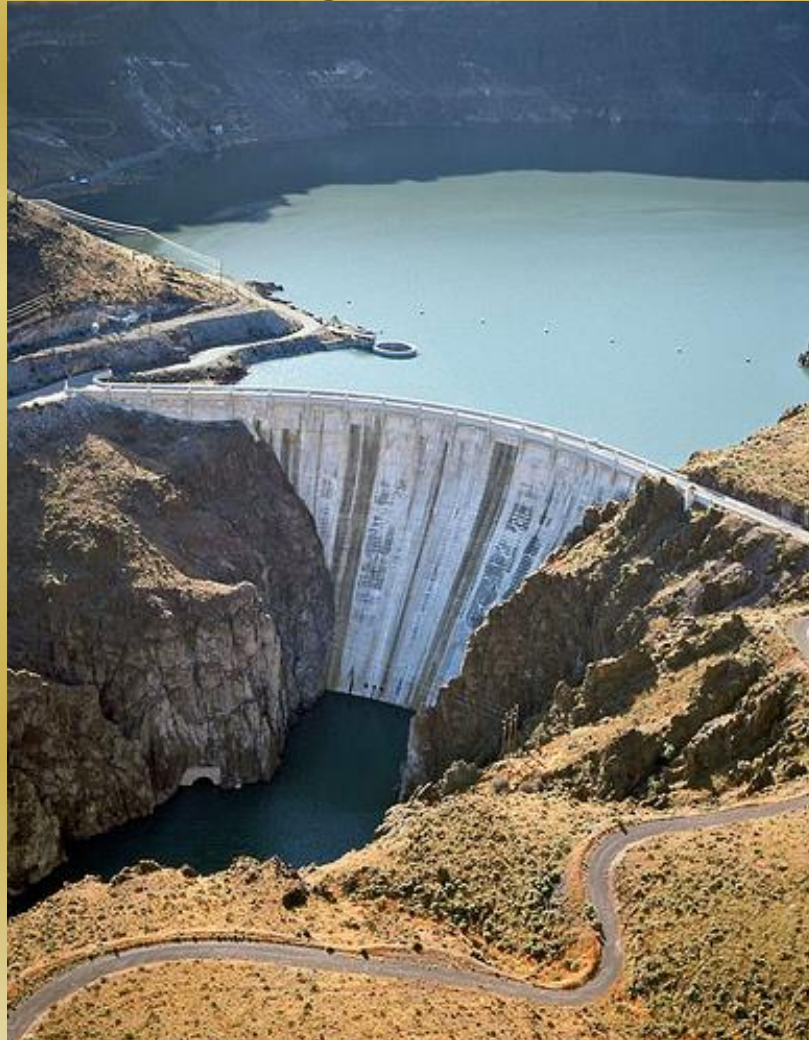
Nampa, ID

December 18, 2014



Irrigation:

This region relies on surface irrigation water



Irrigated Acres:

Technology keeps
advancing!



Maybe our moisture
monitoring should be
advancing as well!

Plan Today

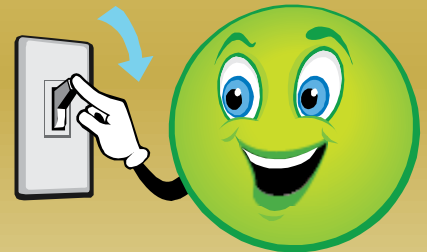


- Overview of a remote moisture monitoring program



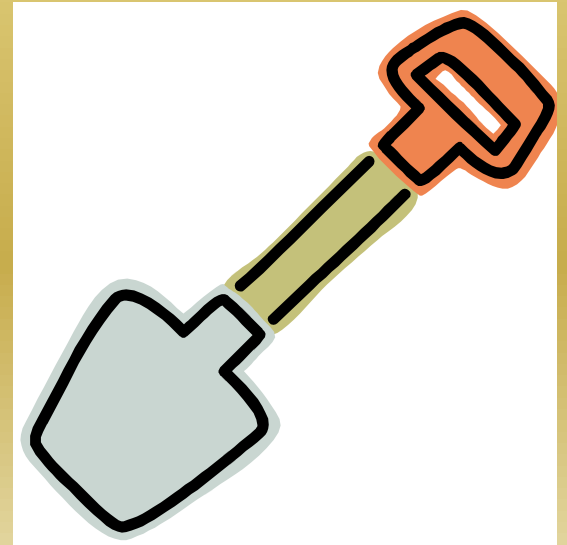
The Irrigation Goal:

- Only apply what the plant needs when it needs it
 - Can conserve water & nutrients
 - Reduce stress of over or under-watering



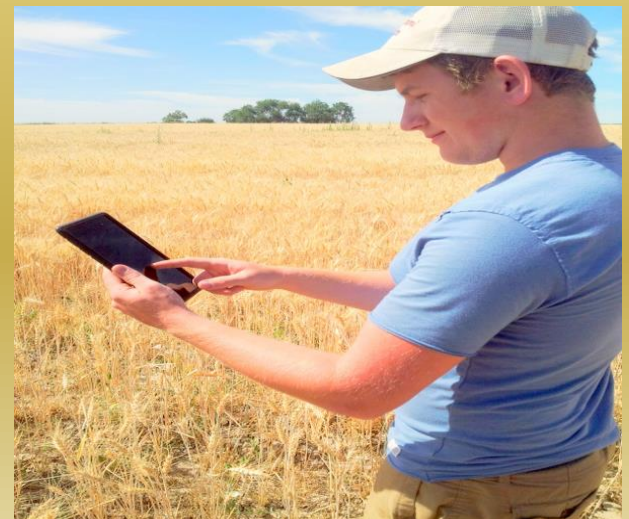
Accomplished by:

- Watermark Sensors
- Evapotranspiration
- Groundtruthing



Remote access

- **SensMit Web** by iDUS Controls Ltd.
 - working with Reinke & Irrrometer
 - Uses watermark sensors
 - Reports to a computer
 - Posts and logs data to a website
- Access real-time data via the fad we call the internet
 - Desktop/ smartphone
 - Phablet?



How the equipment looks



How the equipment works

- Each node can handle three moisture sensors, one soil temp and one air temp
- Nodes are solar powered
- Reports every 30 minutes
- Nodes communicate via the Fresnel Zone
 - Radio signals bounce from one to another across the mesh
 - Similar shape to a long jump rope
 - Why the nodes are 8-10' high

How the deployment might look



How the website looks

SensMit Web

Clinton Shock ▾ Logout

You're using our free trial, enjoy! our trial will expire on Dec. 31, 2014.

Welcome back Clinton.

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Meshes owned

B2050051

SENSMITS

STEVIA

TRAVELER #4

TRAVELER #3

TRAVELER #6

TRAVELER #5

TRAVELER #2

Shared with me

NONE

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Mesh [B2050051]

Mesh Analyzer

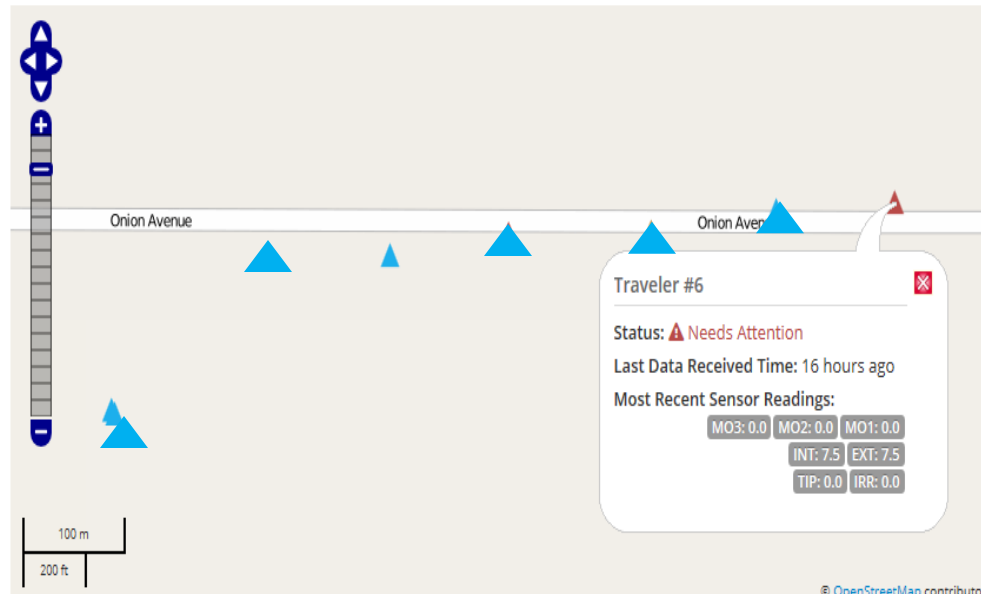
+ Add Mesh

Map Sensmit Utilities Sharing

Mesh Location

Select a Map Style: Streets

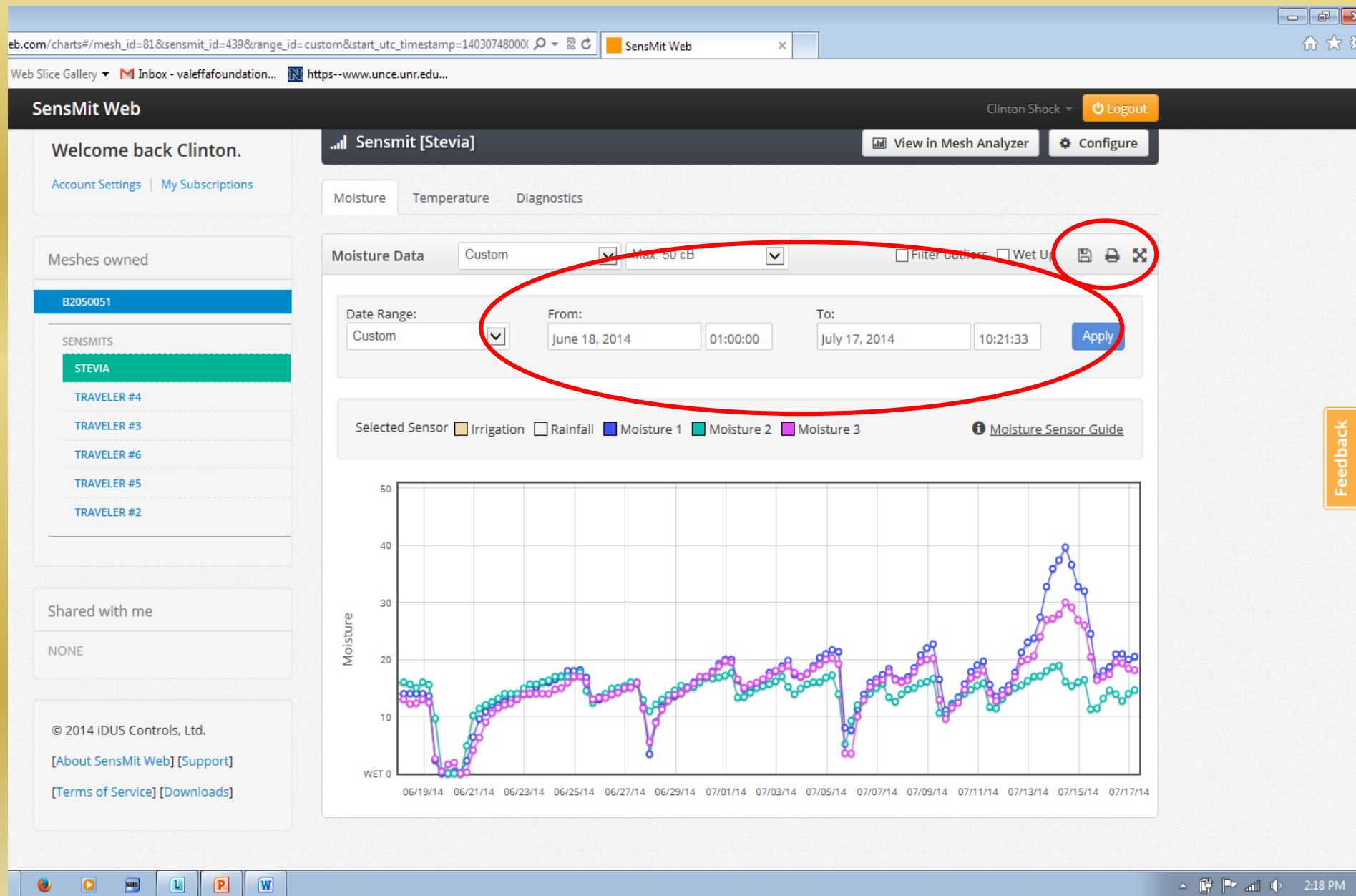
Good: ▲ Okay: ▲ Needs Attention: ▲



Feedback

8:20 AM

How the website looks



How the website looks

Web Slice Gallery | Inbox - valeffaoundation... | https--www.unce.unr.edu...

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Sensmit [Stevia]

[View in Mesh Analyzer](#)

[Configure](#)

Moisture

Temperature

Diagnostics

Temperature Data

Custom ▾

Unit: Fahrenheit °F ▾



Date Range:

Custom ▾

From:

July 1, 2014

01:00:00

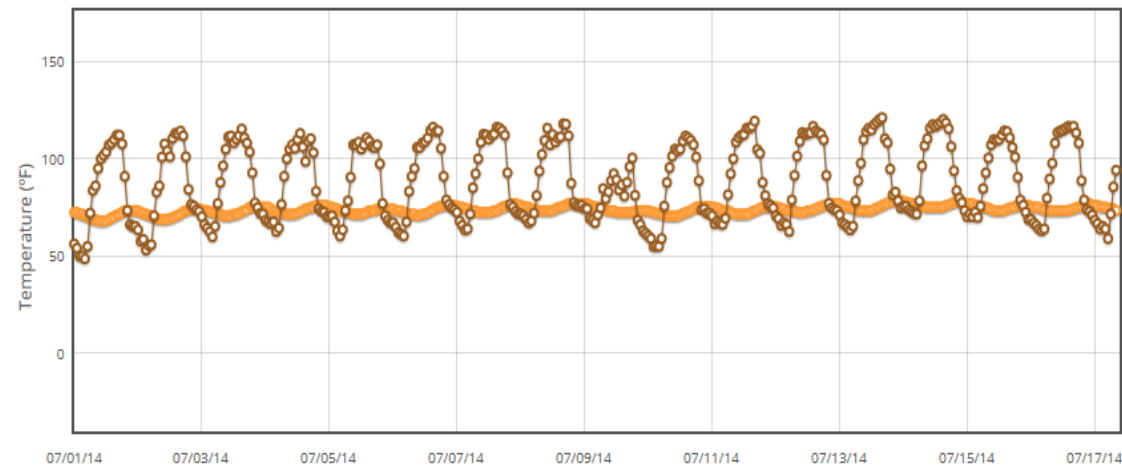
To:

July 17, 2014

10:21:33

[Apply](#)

Selected Sensor: ☒ External Temperature ☐ Internal Temperature



Going forward

- Will continue to learn more about this product's capability
 - Total range of the mesh
 - Lower the poles and still keep them talking to each other
- Have another product that we are going to try that is cell phone based
 - Different approach but a similar goal



Thank you!

Are there any questions?



PESSIMISM

EVERY DARK CLOUD HAS A SILVER LINING,
BUT LIGHTNING KILLS HUNDREDS OF PEOPLE EACH YEAR WHO ARE TRYING TO FIND IT.