



**In the summer and fall of 2008 a demonstration of this technology was conducted at two locations. The system tested<sup>1</sup> included:**

- Solar panel/solar controller
- MINI-SAT™ with satellite communication
- Level-watch water level sensor
- Cost—\$1800.00 plus shipping
- Estimated annual subscription = \$80.00
- Supplies for installation = \$50.00


**Cost savings reported by one user in the first year = \$756.00 in fuel, \$2016.00 in labor and \$800.00 in maintenance of the water system for a total savings of \$3572.00.**


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**Remote livestock water monitoring systems are:**

- **Reliable**
  - **Portable**
  - **Expandable**
  - **Cost Effective**
  - **Accurate**
  - **Easy to install**
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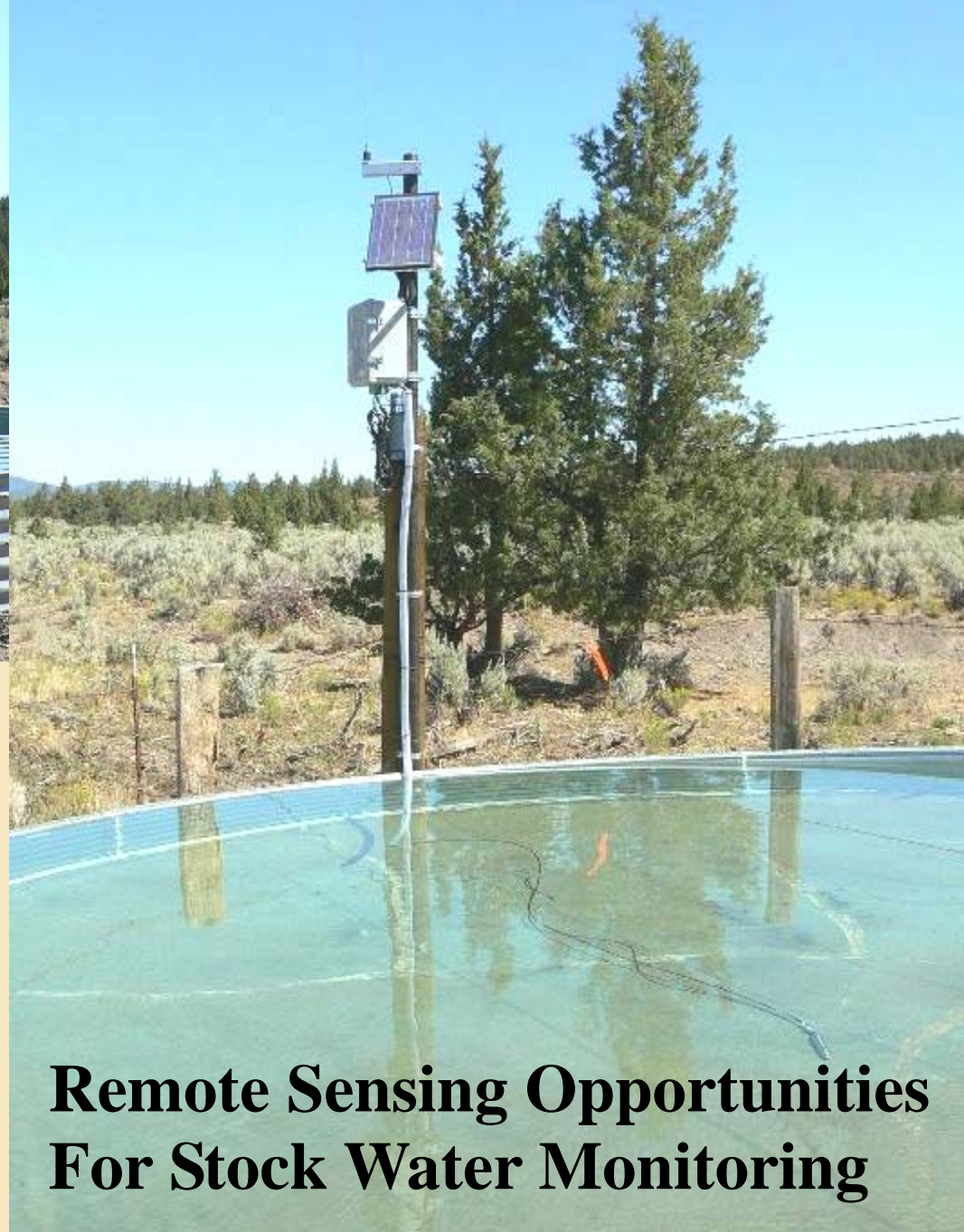
Partners in this project were:

 Agsys Northwest, Mike Omeg/Mike Land, 912 E 10th St., The Dalles, OR., 97058, 541-288-7253, mjland@gorge.net

 Automata Inc., Lenny Feuer, 104 New Mohawk Rd. Ste A, Nevada City, CA 95959-3261, 800-994-0380, automata@automata-inc.com

<sup>1</sup>To simplify terminology, trade names of products are listed here. However, no endorsement is intended nor criticism implied of products not mentioned. Elements of this system are available from a variety of manufacturers.

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# Remote Sensing Opportunities For Stock Water Monitoring



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## Why the need for remote monitoring systems?

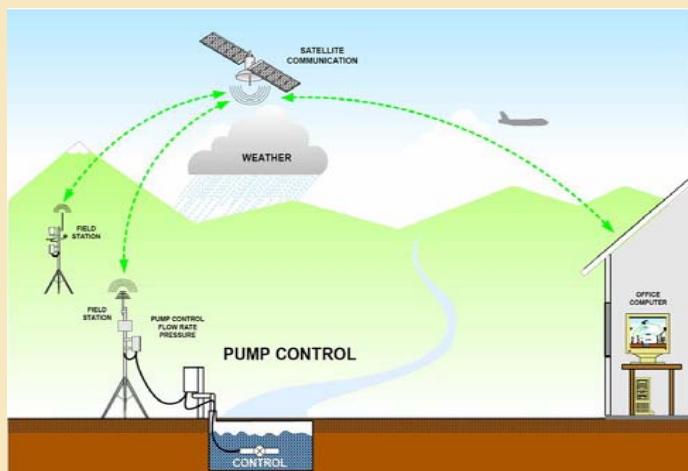
- Water developments in the intermountain west provide one of the most effective means of managing livestock distribution and forage utilization.
- Ranches are often large, covering many square miles, involving multiple herds.
- Ranchers are challenged with assuring water is available to livestock while trying to manage multiple activities each day.
- Water checks can involve driving 20 to 100 miles per trip.
- Labor resources, cost of fuel, vehicle maintenance and time require the rancher to make choices about daily workloads and priorities.

## Challenge

How to reliably monitor stock water at a reasonable cost

Remote sensing provides a way to monitor stock water supplies. Remote sensing involves the collection of information using sensors and data loggers. Once the information is collected, the

information has to be transferred in a manner which is usable to the rancher. Communication technology available today includes cell phones, spread spectrum radio (ground based radio) and satellite. Once the information is transferred, it must be displayed so that the rancher can use it. Internet services, spreadsheets and graphing opportunities are methods to display data.



## System Choices and Features

### Ground-based radio

- Large number of stations (monitoring sites)
- Radio communications require line of sight
- Repeater stations can be used as field station
- Base station can access up to 150 field stations
- Large variety of sensors
- Real time access and sensor control
- Customizable email and telephone alarms for low water level
- No annual charges

### Satellite

- Field station is stand alone—doesn't need a base station
- Large variety of sensors
- Doesn't need line of sight – install anywhere
- Customizable email and telephone alarms for low water level
- Delayed access and sensor control
- Annual satellite and web server fees