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SDWRI Water News

South Dakota Water Resources Institute

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# SDWRI WATER NEWS

SOUTH DAKOTA WATER RESOURCES INSTITUTE  
SOUTH DAKOTA STATE UNIVERSITY  
COLLEGE OF AGRICULTURE AND BIOLOGICAL SCIENCES

DECEMBER 2014

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## USGS 104g Research Projects

The U.S. Geological Survey in cooperation with the South Dakota Water Resources Institute requests proposals under Section 104(g) of the Water Resources Research Act of 1984. This competitive grant program focuses on: "water problems and issues of a regional or interstate nature beyond those of concern only to a single State and which relate to specific program priorities identified jointly by the Secretary (of the Interior) and the (water resources research) institutes."

### *Maximum Grant Size and Duration of Project:*

- Applicants shall not request total federal funds exceeding \$250,000 per project. Each applicant must match each Federal dollar provided to support each proposed project with not less than one dollar from non-federal sources.
- Proposed projects may be of 1 to 3 years in duration, with discrete 12-month budget periods.
- Proposals are due February 19, 2015

For more information about the grant opportunity, visit <http://www.sdstate.edu/abe/wri/research/104g.cfm>

## USGS 104b Research Projects Top 3 Pre-Proposals Selected

The South Dakota Water Resources Institute is excited to announce that the following 3 pre-proposals have been selected to submit full proposals for the SDWRI USGS 104b research grant program. The pre-proposals have been reviewed by four reviewers representing the South Dakota DENR, South Dakota NRCS, South Dakota Association of Conservation Districts and the East Dakota Water Development District. The selection of the pre-proposals that are invited to submit a full proposal is based solely on the recommendations of this four-member review panel.

- *Nutrient Removal from Agricultural Subsurface Drainage Using Denitrification Bioreactors and Phosphate Adsorbents (Year 2)* Lead PI: Dr. G. Hua, South Dakota State University.
- *Controlling Harmful Algal Blooms in Eutrophic Lakes by Combined Phosphorus Precipitation and Sediment Capping.* Lead PI: Dr. K. Min, South Dakota State University.
- *Establishing Gene Fingerprints of Pathogenic Bacteria Along Selected Reaches of Rapid Creek.* Lead PI: Dr. DeVeaux, South Dakota School of Mines and Technology.

## 2014 Eastern South Dakota Water Conference Held October 29, 2014—SDSU

Abstracts & Presentations available at:

<http://www.sdstate.edu/abe/wri/activities/ESDWC/2014-presentations.cfm>



**Keynote Speaker Matt Helmers**  
Associate Professor, Iowa State University  
Title: Iowa Nutrient Reduction Strategy Science Assessment: One Farm Many Practices



**Keynote Speaker Tony Willardson**  
Executive Director, Western States Water Council  
Title: The Future of Water Management in Western US

### New Monitoring Equipment at Research Site

New monitoring and sampling equipment has been installed at the winter manure application and runoff monitoring site. The site has been active for many years. In fact, the project now has its third principal investigator, having outlasted the first two.

The site consists of three discrete watersheds. One watershed will get a manure application during the late winter on the upper half of the watershed. Another watershed will get manure applied at the same rate to the bottom half of the watershed. The third watershed is the control and will receive commercial fertilizer but no manure. The manure application rate and commercial fertilizer application rate are based on the same yield goal.


At the establishment of the project, a permanent flume was installed at the outlet of each watershed (Fig 1). The runoff rate was monitored continuously with floats and charts recorders. Samples had to be collected manually. The system operated adequately but was labor-intensive and required a person at the site to manually collect any samples while runoff was occurring. In addition, the researchers had to estimate if runoff would occur prior to making the trip to the site.

Late in 2014, automated monitoring and sampling equipment was installed (Fig 2). An ultrasonic sensor senses the depth of water in the flume. The depth is directly related to the flow rate of water through the flume. When water is sensed in the flume, an autosampler is enabled and collects water samples at programmed intervals. The samples are stored in the autosampler until a researcher can physically visit the site. Data are transmitted back to the SDSU campus via cellular link so the researchers know exactly when samples have been collected, eliminating unnecessary trips but also assuring that any samples get collected in a timely manner. The system is powered by a 12V battery that is charged with a solar panel.

Research results thus far have been erratic and inconclusive. This automated equipment will help us collect more and better data to provide better results and recommendations.

The project is currently funded by an EPA Section 319 grant via DENR and cash and in-kind contributions from the South Dakota Cattlemen's Association and South Dakota Farm Bureau.





## South Dakota Statewide Geospatial Conference

## South Dakota Statewide Geospatial Conference Held In Mitchell, SD

The Water Resources Institute played a major role in the planning and implementation of the South Dakota Statewide Geospatial Conference that was held October 14-15, 2014, at the Career and Technical Education Academy in Mitchell, SD. A total of 112 individuals attended the conference, including 29 students from Mitchell Technical Institute and SDSU. The general purpose of the conference was to share information related to Geographic Information Systems (GIS), Remote Sensing, and Global Positioning Systems (GPS). Conference attendees learned about the latest advances in these geospatial technologies, met folks from around the state and region who use them, identified opportunities for collaboration, found out how geospatial technologies can be used in all levels of education, and became acquainted with various data processing tools and sources of geospatial data.

The conference format included presentations, vendor displays, and poster displays. Featured speakers included:

-Dr. Bruce Quirk - USGS, Reston, VA

“Unmanned Aircraft Systems (UAS) Applications in the Dept. of the Interior”

-Shane Swedlund - Raven Industries

“Geospatial Technologies in Precision Agriculture”

-Dr. Tom Loveland – USGS/EROS

“EROS and a Changing Earth”



A complete conference agenda can be found at <http://www.sdstate.edu/abe/SDView/conference/agenda.cfm>.

The conference Planning Team consisted of individuals from the following organizations:

-SDSU Water Resources Institute

-SD Department of Environment and Natural Resources – Geological Survey  
USGS

-Earth Resources Observation and Science (EROS) Center

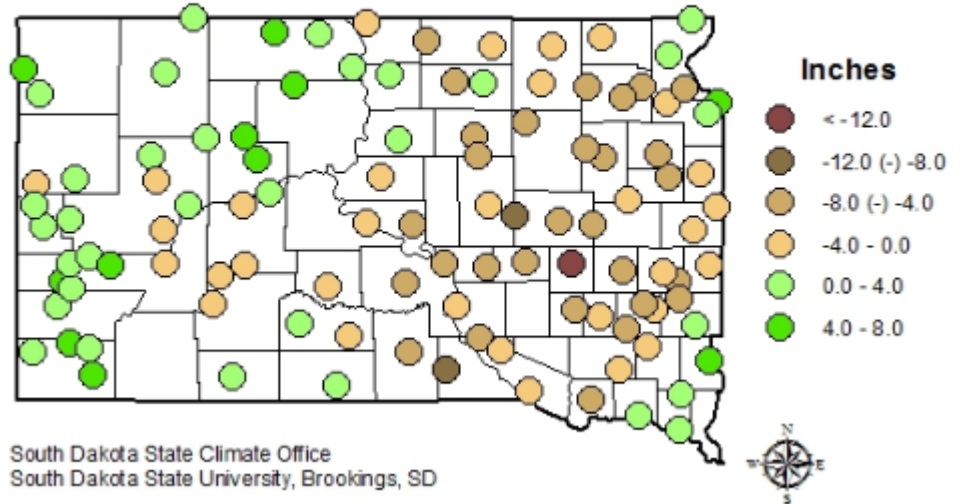
-SDSU Extension (STEM)

-SD Department of Education

-SD Bureau of Information and

# Annual Departure from Average Precipitation Across South Dakota

## Precipitation 2014 Departure from Average



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**Kevin Dalsted**

*Assistant Director*

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Water News features water-related topics, including SDWRI activities. **View and subscribe to our newsletter NOW online!**

<http://www.sdstate.edu/abe/wri/newsletters/index.cfm>

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