

WSF 2018 Annual Report # 4164

PROJECT: Nebraska GeoCloud and Airborne Electromagnetic (AEM) Data Integration – WSF Application #4164 (awarded December 2016)

DATE: MARCH 28, 2018
(SECOND ANNUAL REPORT DUE ON OR BEFORE APRIL 1, 2018)

See Application 4164 Section D #2 For Project Scope Summary, Timeline and Acronyms

PROJECT PROGRESS APRIL 2017 TO APRIL 2018:

Following last year's interlocal and pilot project efforts, the Nebraska GeoCloud (NGC) consultant from Denmark (I-GIS) worked in close cooperation with the lead project contact, University of Nebraska-Lincoln (UNL) Assistant Professor Jesse Korus, in the Conservation and Survey Division (CSD), part of the School of Natural Resources (SNR) and his team to upscale and build-out the NGC. Several webcast meetings, presentations (example attached), communications and platform testing activities have been conducted between I-GIS and project members including an August 2017 3-day workshop hosted by SNR in Lincoln, Nebraska. The NGC Workshop was presented by I-GIS and Jesse Korus (with support from team members Chris Hobza lead hydrogeologist of the United States Geological Survey [USGS] Nebraska Water Science Center and Katie Cameron, the Eastern Nebraska Water Resources Assessment [ENWRA] coordinator) and covered the GeoScene 3D software, NGC platform and hypothetical groundwater quantity and quality management exercises using the production results of the pilot project. The 32 attendees primarily included Natural Resources District (NRD) water staff, state agencies, USGS, and consultants. Licensed copies of GeoScene 3D software, including a special Nebraska Viewer designed by I-GIS for the freeware version of GeoScene 3D, have been provided by I-GIS and used by project members for testing and collaboration. I-GIS advanced the development of the upscaled NGC front and backend platforms and associated server work so that the NGC can archive and accept uploads/downloads of Nebraska's Airborne Electromagnetic (AEM) survey data and provide different levels of user access. CSD and USGS worked on existing Nebraska datasets, software integration to develop Nebraska-specific work processes/data types and began assembling datasets for investigation of the Bazile GMA and Platte-Colfax areas. I-GIS also provided a web map service (WMS) for the NGC so that NGC products can be access through ESRI ARC GIS software.

ANTICIPATED ACTIVITIES FROM NOW UNTIL NEXT ANNUAL REPORT DUE APRIL 1, 2019:

Borehole logs, groundwater data, and AEM data will continue to be combined, checked for quality, and interpreted by a team of geologists for the upscaled NGC. The continued advancement of the back end and front end of the NGC tailored to the unique characteristics of Nebraska data and the needs of stakeholders using I-GIS' extended development and software services is planned for the coming year. Project leaders will begin populating the NGC with all available data in the upcoming year. CSD and USGS geologists will use the NGC to conduct hydrogeologic mapping of Bazile Groundwater Management Area and the Platte-Colfax County area. Researchers will investigate methods for interpreting AEM in the context of the regional hydrogeological framework. Successful methods will be documented and applied to those areas, resulting in initial preparation of aquifer maps and hydrogeological frameworks that can be used by the NRDs for groundwater management. Investigators and I-GIS will prepare for the upload/download and access to the resulting maps and models to the Nebraska GeoCloud for review and use by NRD staff. Project partners will continue to provide feedback to CSD and I-GIS through the workshop in Gothenburg, Nebraska planned for August 7 and 8, 2018, relative to both high end technical-based and administrative-based NGC user access needs.

ANTICIPATED CASH FLOW FOR REMAINDER OF THE PROJECT:

Following Claims 1, 2 and 3 previously submitted totaling **\$61,350.49** in WSF reimbursements, three further reimbursement claims (#4, #5, and #6) are anticipated between April 1, 2018 and July 1, 2019 totaling an approximated **\$117,240** additional from WSF (60% of CSD and USGS invoices). The final set of claims anticipated between July 1, 2019 and June 30, 2020 (\$68,847.11 estimated) will satisfy the cash flow total up to the award total of \$247,437.60 from WSF (60% of the \$412,396 project expenses incurred not including USGS coop funds).

LIKELIHOOD THAT BENEFITS PROJECTED IN APPLICATION 4164 WILL BE REALIZED: Based on preliminary collaborations presented by I-GIS, CSD, and USGS, the project is on target for achieving the benefits as described in the application.

NRD Water Programs Conference

March 6, 2018

Holiday Inn, Kearney, NE

MORNING SESSION

8:00 - Program Preview

Daryl Anderson, LPNDRD

8:05 - State Agency Updates

*Marty Link, NDEQ – Becky Schuerman, NDHHS–
Margeaux Carter & Jennifer Schellpeper, NeDNR*

9:15 - Assessing Nebraska's Groundwater and Surface Water Supplies

Chris Hobza, USGS

10:00 - Break

10:15 - Lower Platte River Basin Activities

John Engel, HDR

10:45 - Divots & Pivots

Rod DeBuhr, UBBNRD

11:30 - Lunch/ Legislative Update

AFTERNOON SESSION

12:30 - Demonstration of Nebraska GeoCloud and Related Software Tools for Groundwater Practitioners

Jesse Korus, UNL

1:15 - Drone Provides a Different Perspective

Alex Boyce, MRNRD

2:00 - Break

2:15 - Watershed Science Training: Evaluating a Proof of Concept

Troy Gilmore, UNL

2:45 – Data, Dashboards, and Decision Making

Kate Gibson, Water for Food

3:15 – Central Platte Project Activities

Dean Krull, UNL

SPEAKER INFORMATION

Marty Link is the Water Quality Division Administrator with the Nebraska Department of Environmental Quality.

Becky Schuerman is the M&C Program Manager with the Department of Health and Human Services.

Margeaux Carter is an Integrated Water Management Specialist with the Department of Natural Resources.

Jennifer Schellpeper is the Division Head with the Department of Natural Resources.

Chris Hobza is a Lead Hydrologist with U.S. Geological Survey.

John Engel is a Water Resources Engineer with HDR.

Rod DeBuhr is the Assistant Manager with the Upper Big Blue NRD.

Jesse Korus is an Assistant Professor with UNL-Conservation Survey Division.

Alex Boyce is an Engineer/Hydrologist with the Middle Republican NRD.

Troy Gilmore is an Assistant Professor with UNL-Conservation Survey Division.

Kate Gibson is a Program Coordinator with the Water for Food Global Institute.

Dean Krull is a Research Technologist with UNL.

CEU INFORMATION

The NARD will apply for 5.5 Continuing Education Units (CEUs) for all categories of NDHHS water well licenses and certificates for this conference.

To qualify you must attend the entire day and sign in at the end of the day. Please make sure to scan your card, or if you do not have your card please sign in on the Sign-In sheet!

CEU opportunities are also available at the NARD Annual Conference in September. To check other CEU opportunities throughout the year visit: http://dhhs.ne.gov/publichealth/Pages/enh_wwsindex.aspx

Please take time to thank the following individuals for serving on the organizational committee for the Water Programs Conference:

Dan Clement, Upper Big Blue NRD
Daryl Anderson, Lower Platte North NRD
Dick Ehrman, Lower Platte South NRD
Marie Krausnick, Upper Big Blue NRD
Nolan Little, Tri-Basin NRD
Russell Oakland, Lower Platte North NRD
Wade Ellwanger, Lower Niobrara NRD
Dustin Wilcox, NARD
Jennifer Swanson, NARD