Our Mission

The Conservation and Survey Division (Nebraska Geological Survey), the natural resource survey component of the School of Natural Resources, is a unique, multi-disciplinary research, service and data-collection organization established by state statute in 1921.

The Division's mission is to investigate and record information about Nebraska's geologic history, its rock and mineral resources, the quantity and quality of its water resources, land cover and other aspects of its geography, as well as the nature, distribution and uses of its soils.
CSD 2019 Accomplishments at a Glance

Extension contacts by CSD personnel in 2019: 3,082

Requests for data and analysis served by CSD personnel in 2019: 660

Footage of test holes drilled and/or logged by CSD personnel in 2019: 16,058 ft

Automated groundwater-data entries overseen by CSD personnel in 2019: 489,216

Groundwater quality results processed by CSD personnel in 2019: 6,977

Teaching contribution of CSD personnel in 2019: CSD faculty taught ten (10) different courses in four (4) different programs, producing 831 student credit hours

Students advised by CSD personnel in 2019: 21 graduate students and 3 undergraduate research students, including 2 UCARE students

Continuing education units for professionals (CEUs) generated by CSD personnel in 2019: 525

Total grant funding with which CSD personnel were associated: $3.35 million

Total scientific publications of all kinds authored or coauthored by CSD personnel: 44

Peer-reviewed scientific journal articles: 18

Comments on scientific journal articles: 3

Survey reports, bulletins, and field guides: 4

Geologic maps: 2

Major field trips run or co-run by CSD personnel in 2019: 2

Presentations by CSD personnel in 2019: 45

Media interviews by CSD personnel in 2019: 4

Social media involving CSD in 2019: 108 tweets and 91,000 impressions

Total page views of CSD website in 2019: 86,298 page views from 67 countries
Aslan, A., Karlstrom, K., Kirby, E., Heizler, M., Granger, D., Feathers, J., Hanson, P.R., Mahan, S., 2019. Resolving time-space histories of Cenozoic bedrock incision along the Upper Colorado River, USA. Geomorphology 347, article no. 106855.


Hanson, P.R., and Howard, L.M., 2019. Surficial geology of the Monroe 7.5 Minute Quadrangle, Nebraska. USGS STATEMAP


Mahoney, G., Hanson, P.R., Bringelson, D., 2019. Understanding archaeology in the dunes: OSL dating of the Tolleston Beach at Indiana Dunes National Lakeshore and its implications for interpreting the archaeological record. 84th Annual Society for American Archaeology Meeting, p. 504.

Miao, X., Hanson, P.R., Stohr, C., and Wang, H., 2019. Evidence supporting Holocene loess in Illinois with new proxy data and historical, regional perspectives on loess deposition in the
upper Mississippi River Valley. *Quaternary Science Reviews* 216: 119-123.


Presentations by CSD Personnel and their Students in 2019


Aquifers of Nebraska and Surrounding States. Countryside Community Church, Omaha, NE, October 9, 2019 (Divine, D.P.).


Characterizing Aquifer Properties in the Vicinity of a Groundwater Mound in the High Plains Aquifer, South-Central Nebraska. Joint Meeting of North-Central, South-Central, and Rocky Mountain Sections, Geological Society of America, Manhattan, KS, March 26, 2019 (Divine, D.P.).

ENWRA Annual Update. ENWRA Annual Meeting at NRD Legislative Conference, Lincoln, NE, January 29, 2019 (Cameron, K.A.).

ENWRA Update. NRD Managers, York, NE, August 27, 2019 (Cameron, K.A.).


First report of widespread polygonal ground in Nebraska and its association with eolian landforms. Joint Meeting of North-Central, South-Central, and Rocky Mountain Sections, Geological Society of America, Manhattan, KS, March 26, 2019 (Joeckel, R.M.).


Giant, Bouldery Fluvial Bars in an Exhumed Miocene Paleovalley, Nebraska Panhandle. Joint Meeting of North-Central, South-Central, and Rocky Mountain Sections, Geological Society of America, Manhattan, KS, March 26, 2019 (Korus, J.T.).

GIS Modeling to Locate the Lone Star Ranch Spring. Nebraska GIS/LIS Symposium, LaVista, NE, April 25, 2019 (Hallum, D.R.).


Hydrogeologic Framework of Eastern Nebraska—Recent Deeper (Early Cretaceous to Cenomanian) Exploration. Joint Meeting of North-Central, South-Central, and Rocky Mountain Sections, Geological Society of America, Manhattan, KS, March 27, 2019 (Cameron, K.A.).


LiDAR Applications. UENRD Board of Directors, O’Neill, NE, November 25, 2019 (Hallum, D.R.).


Nebraska GeoCloud Update. Nebraska Water Industries and Nebraska Well Drillers Association, Kearney, NE, February 12, 2019 (Korus, J.T.).

Nebraska’s Groundwater Resources. Nebraska Chapter AFS Rivers and Streams Technical Committee Conference, Aurora, NE, December 3, 2019 (Young, A.R.).

Nebraska Spotlight: On-going Maintenance Needs for Phragmites in the Platte River. USDA Water for Food Project Meeting, Lincoln, NE, September 26, 2019 (Burbach, M.E.).

Northeast Nebraska Geology and Hydrogeology Overview. Nebraska Water Conference, Norfolk, NE, October 9, 2019 (Lackey, S.O.).


Observations of Stream-Groundwater Interaction at Parcel, Ranch, and Reach Scale, West-Central Nebraska. Joint Meeting of North-Central, South-Central, and Rocky Mountain Sections, Geological Society of America, Manhattan, KS, March 25, 2019 (Hallum, D.R.).


Paleosols as Source Rocks for Uranium Deposits in Wyoming and Nebraska. 2019 Rocky Mountain AAPG, Cheyenne, WY, September 16, 2019 (Sibray, S.S. and Hallum, D.R.).
Personal Empowerment – Continuing to Develop Your Leadership Capacity. Nebraska Water Leaders Academy, Nebraska City, NE, November 21, 2019 (Burbach, M.E.).

Precision Water Management. Microsoft/University of Nebraska Marquee Partnership, Conversation, Lincoln, NE, January 22, 2019 (Korus, J.T.).


Sustainability of Groundwater Resources: Myths and Realities of Water Balance. Nebraska Water Leaders Academy, Lincoln, NE, January 25, 2019 (Korus, J.T.).

Tapping into Your Motivation to Serve and Inspiring Others in Their Service. Nebraska Water Leaders Academy, Nebraska City, NE, November 21, 2019 (Burbach, M.E.).


The Surface Water and Groundwater of Nebraska. Nebraska Youth Range Camp, NCTA, Curtis, NE, June 11, 2019 (Hallum, D.R.).


Untangling Geological and Hydrogeological Complexity in Northeastern Nebraska Using Multiple Methods. Nebraska Department of Natural Resources Brownbag Seminar, Lincoln, NE, May 24, 2019 (Korus, J.T.).

Water for Ag Project Update. Water for Ag Annual Meeting, Mesa, AZ, October 15, 2019 (Burbach, M.E.).

Water for Agriculture and Local Leadership Teams. Central Platte Region Local Leadership Team, Wood River, NE, February 5, 2019 (Burbach, M.E.).


Awards Attained by CSD Personnel and Students in 2019

UN-L Soil Judging Team: 1st in Group Judging and 3rd Overall in National Contest at San Luis Obispo; 1st overall at the Region V Contest for the third year in a row (Turk, J.K.)

University of Nebraska Board of Regents Kudos award: (Joeckel, R M., co-recipient for work on “Cherish Nebraska exhibit at University of Nebraska State Museum).

Organizations for which CSD Personnel Fulfilled Requests for Information, Consultation or Services in 2019

Adaptive Resources, Inc.
Alfs Well Drilling
American Association of Petroleum Geologists
American Geophysical Union
AmeriCorps
APEC Climate Center, South Korea
AquaGeo Frameworks
Atarah Management Holdings LLC, Long Pine, Nebraska
Battelle Memorial Institute
California State University-Long Beach
Canadian Centre for Meteorological and Environmental Prediction, Dorval, Canada
Central Platte NRD
China Science and Technology Network
Chinese Academy of Sciences
City of Omaha, Nebraska
Clerk of Nebraska Legislature
College of Architecture, UN-L
Countryside Community Church (Omaha)
Dougherty Water for Food Global Institute
Duck Creek Ranch
EA Engineering
Eastern Nebraska Water Resources Assessment
Groundwater and surface water levels/temperatures along the South Platte River
Groundwater-surface water interaction on Duck Creek Ranch, Nebraska Hyannis High School, Nebraska
HDR, Inc.
I2M Consulting, LLC (Houston, TX and Seattle, WA)
IANR Education Abroad Program
Institute of Geomatics and Civil Engineering, University of West Hungary
Institute of Technology, Bombay, India
Jacobs Engineering Group
Lewis and Clark NRD
Little Blue NRD
Lower Elkhorn NRD
Lower Loup NRD
Lower Niobrara NRD
Lower Platte North NRD
Lower Platte South NRD
Met European Research Observatory, Italy
Middle Niobrara NRD
Nanjing University, China
National Association of Boards of Geologists
National Association of State Boards of Geology
National Parks Service
Nebraska Association of Resource Districts
Nebraska CarbonSAFE
Nebraska Department of Environment and Energy
Nebraska Department of Health and Human Services
Nebraska Department of Natural Resources
Nebraska Environmental Trust
Nebraska Extension Flood Response Team
Selected Objectives for 2020

- Two geologic mapping projects will be completed for the U.S. Geological Survey STATEMAP Cooperative Geologic Mapping Program
- Continue improvements of Nebraska GeoCloud, Oil and Gas Database and Test Hole Database; contribute to upgrade of Agrichemical Database
- Eastern Nebraska Water Resources Assessment (ENWRA)
- Identification of irrigation-precipitation feedback mechanisms in Nebraska
- Meteorological-data based estimation of evapotranspiration rates and their long-term trends across the coterminous US
- Characterizing the geologic and hydrogeologic frameworks of eastern Nebraska using AEM
- Investigation and characterization of aquifer-bearing Cenozoic fluvial sediments of the High Plains
- Investigation and characterization of Pennsylvanian bedrock in Omaha area (Omaha CSO Project)
- Evaluation of watershed-scale groundwater transit-time distributions from field sampling and numerical modeling
- Groundwater transit times and nitrate delivery to Bazile Creek, Nebraska
- Hydrologic monitoring and groundwater age-dating in the upper Little Blue River Basin
- Watershed Science Education: Multi-Agency Collaboration
- Installation of sampling network for stable isotopes in precipitation
- Development of programming, facilitation of sessions, and evaluation of the Nebraska Water Leaders Academy
CONSERVATION AND SURVEY DIVISION
2019

$3.35 million of ongoing external funding

Supervised 21 graduate students, 3 undergraduate research students, including 2 UCARE

3,000+ STAKEHOLDERS served by extension & outreach activities

44 Publications, including 18 peer-reviewed journal articles

45 Local, national and international PRESENTATIONS

108 TWEETS
91,000 impressions

489,216 Groundwater level data entries

6,977 Groundwater quality results processed

831 CREDIT HOURS
Taught 10 different courses in 4 programs

525 CONTINUING EDUCATION UNITS (CEUs) generated for professionals

86,298 PAGE VIEWS related to CSD

4 Media interviews

16,058 feet of test holes drilled and/or logged

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CONSERVATION AND SURVEY DIVISION
School of Natural Resources
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