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2019 Geothermal Design Challenge™ Overview

Phyllis L. King

May 2019

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Approved by:

Name Title [optional]	Date
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Name Title [optional]	Date

CONTENTS

ACRONYMS

CAES	Center for Advanced Energy Studies
DOE	Department of Energy
EERE	Energy Efficiency & Renewable Energy
EGS	Enhanced geothermal systems
FAQ	Frequently Asked Questions
FORGE	Frontier Observatory for Research in Geothermal Energy
GDR	Geothermal Data Repository
GIS	Geographic Information Systems
GTO	Geothermal Technologies Office
INL	Idaho National Laboratory
Q&A	Question and answers
ROP	Rate of penetration
STEM	Science, technology, engineering and math

FIGURES

TABLES

2019 Geothermal Design Challenge™ Overview

1. Introduction

The U.S. Department of Energy (DOE) Geothermal Technologies Office (GTO), in partnership with the Frontier Observatory for Research in Geothermal Energy (FORGE) and the Idaho National Laboratory (INL), invited high school and university (undergraduate and graduate) teams to explore the future of geothermal energy and visualize the world of geothermal energy by participating in the 2019 Geothermal Design Challenge™.

Teams of 2 or 3 members researched data, interpreted information and created a data visualization portfolio that told a compelling story about geothermal energy by answering the challenge question, *"Where do you target your next production well to maximize geothermal reservoir performance?"*

The purpose of this document is to provide an overview of how the 2019 Geothermal Design Challenge™ was organized and conducted.

2. History of the Geothermal Challenge

The first geothermal challenge, 2013 National Geothermal Student Competition, was sponsored by the U.S. DOE Office of Energy Efficiency and Renewable Energy (EERE), and designed to advance the understanding of geothermal energy as a valued resource by promoting innovation, exploration, and entrepreneurship among the nation's colleges and universities. The Competition sought to engage students in a collaborative exercise to develop a business plan for developing a geothermal enterprise. Applicants were encouraged to consider a candidate resource in their home state/region, though convincing plans for any domestic target were also considered.

In 2014, the 2014 National Geothermal Student Competition, sponsored by the U.S. DOE GTO, sought to engage college and university students with the goal of advancing the development of geothermal as a domestic clean energy resource. The Competition centered on public awareness following the theme of "*GeoEnergy is Beautiful"*. Student teams created concepts for high-quality, high-impact infographics and outreach materials that conveyed the important role of geothermal energy in the nation's clean energy mix. Energy production can be a complex topic to explain to a broad public audience, and describing energy that comes from a subsurface environment—difficult to visualize for many—amplified the challenge of explaining geothermal energy, how it works, and how it can benefit the U.S.

Then in 2016, the 2016 Geothermal Design Challenge sponsored by the U.S. DOE GTO, the Center for Advanced Energy Studies (CAES) and INL welcomed U.S. high school and university teams to design an infographic that told a compelling story about the future of geothermal energy. The challenge theme for the contest asked the question, *"What is the future of geothermal energy and how will it impact you?"*

3. 2019 Geothermal Design Challenge Set-Up

The 2019 Geothermal Design Challenge™ began early in January 2019 and concluded mid-April 2019. The Challenge asked teams to use actual data collected from the FORGE site in Milford, Utah to create data visualization portfolios that answered the challenge question, *"Where do you target your next production well to maximize geothermal reservoir performance?"* Specific data sets located on the Geothermal Data Repository (GDR) were

provided for the Challenge (https://gdr.openei.org/submissions/1111). The data sets provided for the Challenge contained specific information that could be used to create visualizations, such as:

- Well data – locations, depths, lithology, geophysical logs
- Well 58-32 drilling data – rate of penetration (ROP), weight on bit
- Temperature data – Phase 2B temperature modeling point data
- Surface/Contacts – land surface, top of granite
- Reservoir test data – time series pressure data from testing Well 58-32
- Geographic information systems (GIS) Data and Maps – updated geological maps, FORGE site location.

Teams were asked to imagine themselves as members of the FORGE project team tasked with siting a new geothermal well that would help researchers better understand manmade geothermal systems. Through data visualization techniques of their choosing and using the data provided, teams were instructed to communicate an ideal subsurface location within the FORGE footprint to create a sustainable subsurface heat exchanger with minimal environmental consequences.
Teams were allowed to use any data visualization software for their entries. A variety of software packages were used in the Challenge including, but not limited to, Python, ArcScene, ParaView, SimPEG, Stanford Geostatistical Modeling Software, and Tableau.

Webinars (pre-recorded and live) were conducted to help participants understand the Challenge concepts and data provided for the contest. A preview to the Challenge, a look at data analytics and a data visualization overview were provided as an introduction to the contest. The introduction webinar provided a brief explanation of data analytics, a look at the data analytics workflow, some software tool examples, visualization examples and best practices when considering creation of data visualizations.

The first live webinar gave participants the opportunity to listen to a data analytics expert provide information on cleaning and inferring insights on data. An emphasis on the importance of storytelling with data was also provided. This webinar also allowed participants to have their questions answered in real-time.

The second, and final, live webinar provided participants the opportunity to listen to a geothermal expert provide information about the FORGE site and give a brief overview of the data used in the Challenge. Participants in the webinar had an opportunity to have specific questions about the data set and competition answered by the geothermal expert.
As one of the resources provided to the Challenge participants, recordings of all of the webinars were made available on the 2019 Geothermal Design Challenge™ website (https://utahforge.com/studentcomp/) as well as the questions and responses provided during the live webinars.

A number of resources were provided to the Challenge participants to facilitate a successful submission entry including:

- Webinars
- Presentations
- Information on Utah FORGE
- Information on Enhanced Geothermal Systems (EGS)
- Data visualization articles
- Software information

- Access to the Geothermal Design Challenge™ team for questions
- FAQs page showing questions sent from Challenge participants and the answers provided from the Challenge team.

3.1 Judges and Judging

Geothermal, data analytic and design experts were recruited as part of the judging panel for the Challenge to provide a complete evaluation of the entries. Representatives from DOE, national laboratories, universities and industry rounded out the experts on the panel.

3.1.1 Rubric

Teams were judged based on creativity and innovation, analytical depth, design and communication. For creativity and innovation, judges scored the entries based on the uniqueness and impact of the product and if the entry was compelling to a broad audience. For analytical depth, the judges looked for a logical and clear analysis of the entries. Additionally, judges considered the entries for geologically and economically reasonableness for implementation.

Aesthetics and design elements were also scored on each entry. Design elements considered included use of color, fonts, arrangement of components, uniqueness and innovative design concepts.

One of the most critical elements of the Challenge product was communication. Did the entry tell a clear and compelling story? This was the question asked of each entry. The objective of the data visualizations was to tell a story with data.

The top three winning teams were awarded monetary prizes; $5,000 for the first place team, $3,500 for the runner-up, and $2,500 for the third place team.

4. Metrics and Demographics

Registration for the Geothermal Design Challenge™ opened on January 7th and submissions were due on April 10th.

- Registrants: 125
- Teams: 79
- Schools: 37 University / 7 High School
- Cities: 65
- States: 20 states plus Washington, DC

A list and map of schools participating in the Challenge is provided in the Appendix.

Social Media. A social media campaign ran from January through April to announce and promote the Challenge. Social media posts were also used to announce the winning teams. The original social media posts were initiated from INL's social media accounts. Figure 1 illustrates a Facebook post announcing the kick-off of the 2019 Challenge.

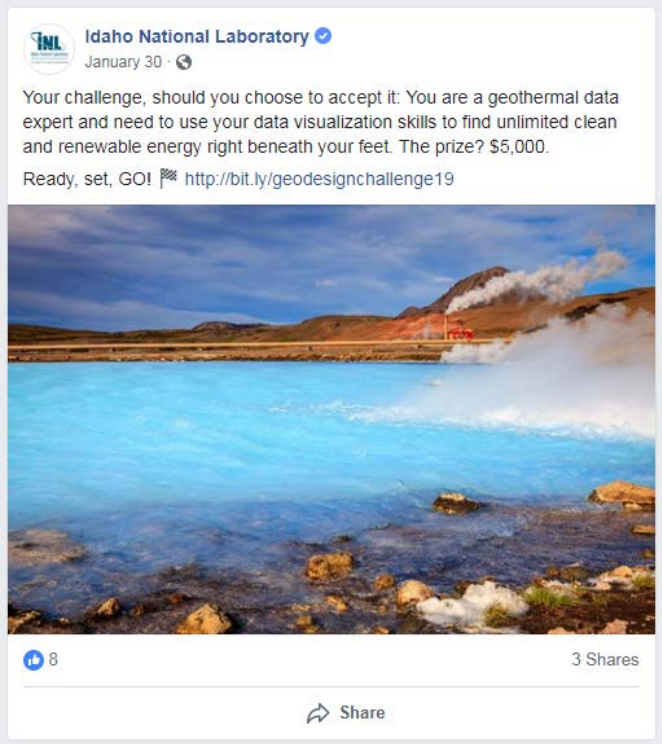

Figure 1. Facebook post announcing 2019 Geothermal Design Challenge™.

The INL accounts used were Facebook and Twitter and the reach for each was:
Facebook – 17,579 people reached Twitter – 51,337 impressions

5. Marketing and Promotion

Marketing support was provided by Skild, a private marketing company headquartered in Pasadena, CA. Support included identifying and making contact with key people from the target databases, creating a brand identity, designing a promotional toolkit, setting up an outreach campaign, and creating social media posts for promoting the Challenge.
Several groups were targeted for outreach activities.

Groups included:

- Graduate Studies Communications Leads
- Graduate Studies Department Leads and Front Offices
- Environmental Sciences University Faculty
- Science, technology, engineering, and math (STEM) 200-top Principals
- STEM 200-top Teachers
- Renewable Energy Media
- Alternative and Renewable Energy Non-government Organizations
- University Engineering Departments
- Community Colleges STEM Faculty
- University Computer Science Departments
- University Marketing/Communications
- 2017 Geothermal Design Challenge Winning and Finalist Schools

- INL External University Contacts
- INL Internal VIP Contacts
- University Data Visualization Programs and Design Schools
- Chemical/Civil/Petroleum Engineering Programs
- Top 25 STEM High Schools

Throughout the Challenge emails were sent to the targeted groups to inform them of the challenge. The introduction email at the start of the Challenge (January 7) was sent to 1,431 people with 524 people opening the original email. Reminder emails were sent weekly through the end of March to people who did not open the original email or follow-up reminders.

A brand identity for the 2019 Geothermal Design Challenge™ was created. A unique color palette, fonts, logo and banner, slogan, imagery and graphic treatments were created as part of the branding. These items were used throughout the duration of the competition on the competition website, social media posts, outreach materials and the promotional toolkit. Below is an illustration of the brand identity used for the Challenge.

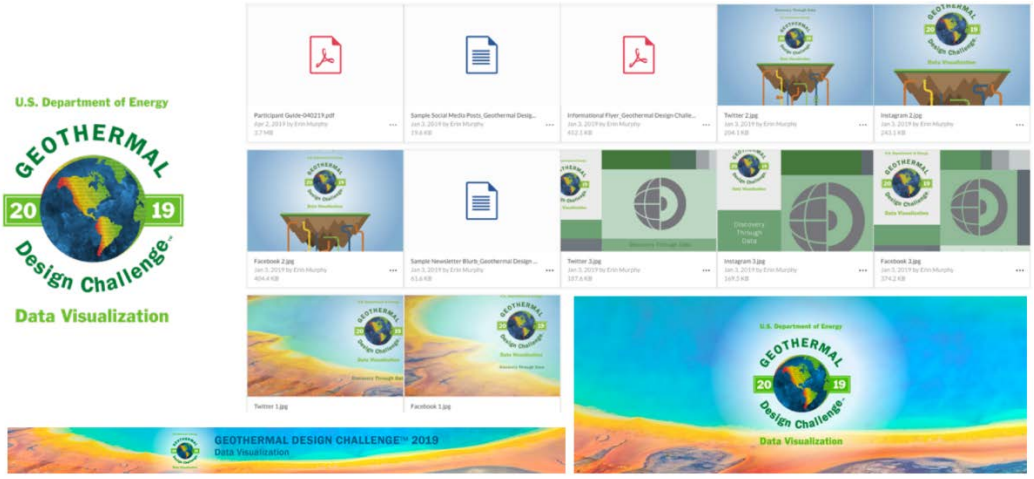

Figure 2. 2019 Geothermal Design Challenge brand identity.

As a partner in the Challenge, Utah FORGE hosted the Challenge website. The website contained all of the information needed for the Challenge (https://utahforge.com/studentcomp/). Figure 3 provides a screenshot of the FORGE landing page. From this website, students interested in participating in the Challenge could access the Skild registration page, read about FORGE, access the data from the Geothermal Data Repository (GDR) and view resources and Q&A's from participants, among other information.

Figure 3. Screenshot of Utah FORGE landing page.

A promotional toolkit was created to provide partners and organizations tools to facilitate publicizing the Challenge. Items in the toolkit include a printable flyer to advertise the Challenge; sample newsletter detailing Challenge information; sample social media posts with corresponding images; and a Participant Guide with details and information about the competition.

5.1.1 Promotional Partners

Promotional Partners assisted in spreading the word about the Challenge through email, social media, and other channels. Some of the partners had teams participating in the Challenge.

The Promotional Partners were:

- Bannock Development
- Berkeley College
- Cincinnati Public Schools
- Clarion Events Ltd
- **Columbia University
- **Dallas Independent School District
- *DePaul University
- Fairfax County Public Schools
- **Georgetown University
- Geothermal Resources Council
- Institute of Electrical and Electronics Engineers
- Innovation Collective
- Mercer Island School District
- Midwest Renewable Energy Association
- *Colorado School of Mines

- Massachusetts Institute of Technology
- North Carolina State University
- **Northwestern University
- New York University
- Penn State University
- Pratt Institute
- Palos Verdes Peninsula Unified School District
- San Diego Union High School District
- *Stanford University
- Texas Tech University
- The New School
- **University of Oklahoma
- **University of Utah
- **Tufts University
- University of California, Davis
- University of Colorado Boulder
- **University of Houston
- University of Michigan
- University of Pennsylvania
- University of Portland
- University of Washington
- **University of Wisconsin-Madison
- West Virginia University
- Western Alliance

** Winning Schools*
***Participating Schools*

5.1.2 Social Media Campaign

Original social media posts were pushed through INL and used throughout the Challenge to promote the contest. Social media was also used to announce the winning teams. Analytics for each platform were tracked throughout the Challenge. Refer to Table 1 for the platform analytics.

Table 1. Social media analytic statistics during the 2019 Geothermal Design Challenge™.

January	February	March	April
Facebook 5 Posts 9,985 People Reached 90 Engagements	**Facebook** 1 Post 1,157 People Reached 12 Engagements	**Facebook** 1 Post 2,491 People Reached 14 Engagements	**Facebook** 3 Posts 3,247 People Reached 19 Engagements
Twitter 6 Tweets 28,582 Impressions 87 Engagements	**Twitter** 2 Tweets 2,799 Impressions 3 Engagements	**Twitter** 3 Tweets 7,520 Impressions 13 Engagements	**Twitter** 3 Tweets 7,928 Impressions 12 Engagements

Registration for the Challenge opened on January 7, 2019. Students continued to register throughout the Challenge. A spike in registrations at the beginning of April was from a group of high school students attending the Science and Engineering Magnet High School in the Yvonne A. Ewell Townview Magnet Center in the Dallas Independent School District. See Figure 4.

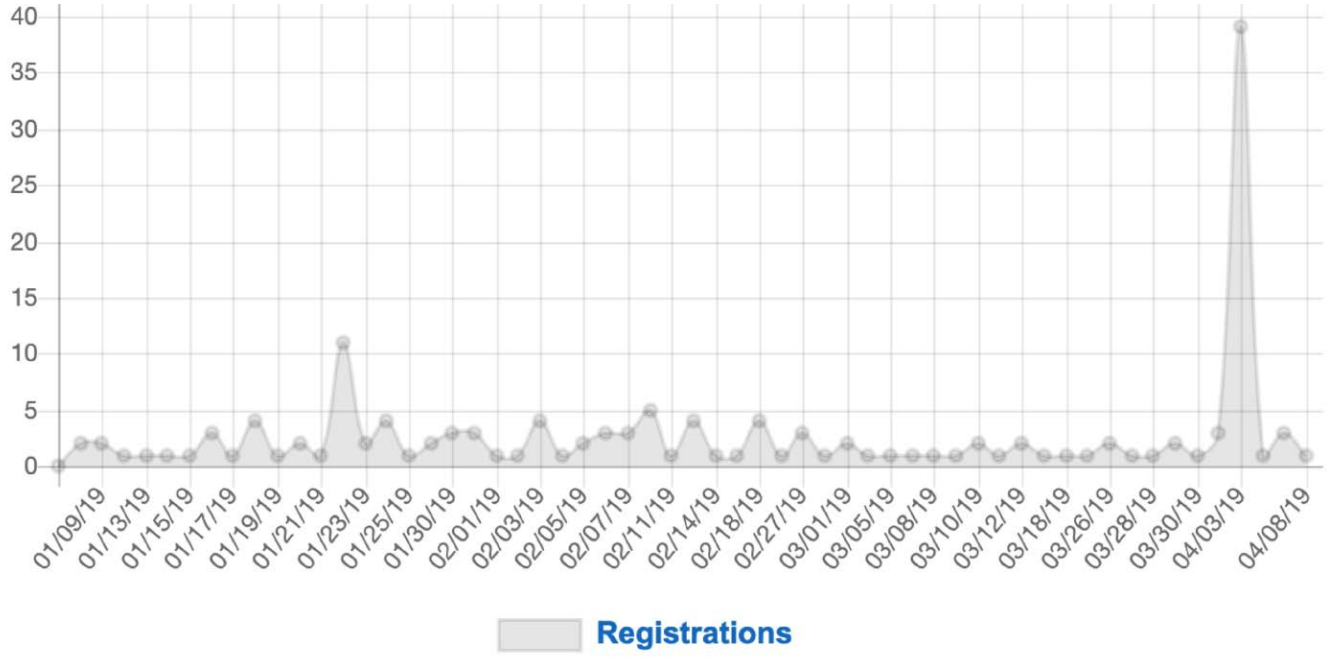

Figure 4. 2019 Geothermal Design Challenge™ registration tracking.

6. Winning Data Visualizations

6.1 "EGS Site Selection Using GIS and Machine Learning"

The first place team, BALO Data Science Team, was a collaboration between DePaul University and Georgia Institute of technology and included team members: Sierra Sellman and Michelle Rodrigue. The winning team, comprised of data science students with backgrounds in geographic information systems, submitted data visualizations targeting an audience unfamiliar with enhanced geothermal systems (EGS) and machine learning. Figure 5 is a screenshot from the team's submission. Their final portfolio suitability map and proposed well location was based upon robust analyses using Python and ESRI's ArcMap, ArcScene and strong understanding of the FORGE data. The BALO Data Science team submission can be found at the following link: https://www.arcgis.com/apps/Cascade/index.html?appid=debfa94962434873abb39fd17aa6e6ba

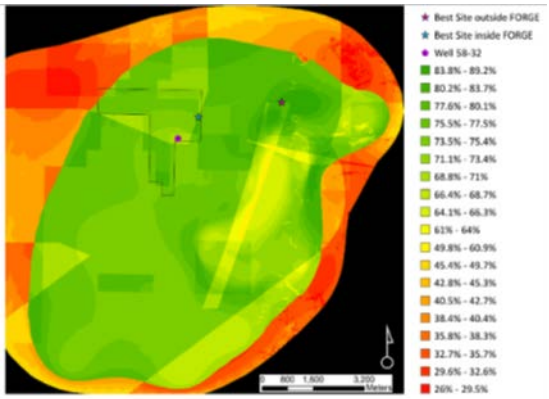

Figure 5. Screenshot from "EGS Site Selection Using GIS and Machine Learning" site.

6.2 "Open-Source Approach to 3-D Communication"

The second place team, W-Team, was from the Colorado School of Mines and included team members Bane Sullivan and Adam Kinard. This team created a suite of open-source Python packages, enabling available datasets to be incrementally integrated into a 3D scene. Tools used included The Open Mining Format, ParaView, SGeMS, and SimPEG, along with additional tools made by the team itself. Figure 6 is a screenshot from the team's submission. Three-dimensional (3D) visualizations such as this submission could enable researchers and scientists to rapidly explore data, communicate findings, and facilitate the reproducibility of results. The W-Team submission can be found at the following link:
https://vimeo.com/329706722

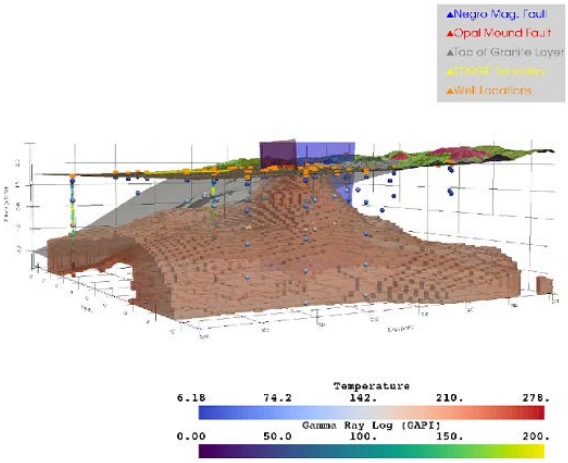

Figure 6. Screenshot of "Open-Source Approach to 3-D Communication" visualization.

6.3 "Want to Explore FORGE Data?"

The third place team, Stanford Geothermal Gals, was from Stanford University and included team members Ahinoam Pollack and Ayaka Abe. This team's submission was geared toward an audience with little knowledge of geothermal and laid out the basic concepts of geothermal exploration and well siting using lithology and subsurface temperatures. Figure 7 is a screenshot from the team's submission. The visualization portfolio was created in Tableau, and can be easily integrated into a classroom curriculum. The Stanford Geothermal Gals' submission can be found at the following link: https://public.tableau.com/profile/ahinoam.pollack#!/vizhome/WanttoExploreFORGEData/Dashboard1

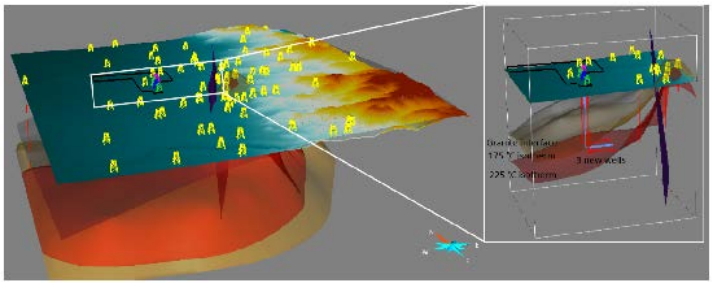

Figure 7. Screenshot from "Want to Explore FORGE Data?" Tableau dashboard.

6.4 Winner Announcements

Blog posts announcing the winning teams for the Challenge were published on the DOE EERE website and Think Geoenergy websites. Below are the links to the announcements. Figure 8 captures posts of the winner announcements.

- EERE Blog Post (https://www.energy.gov/eere/articles/and-winners-2019-geothermal-student-competition-are)

- [Think GeoEnergy (http://www.thinkgeoenergy.com/winning-teams-announced-in-student-geothermal-design-challenge/)](http://www.thinkgeoenergy.com/winning-teams-announced-in-student-geothermal-design-challenge/)

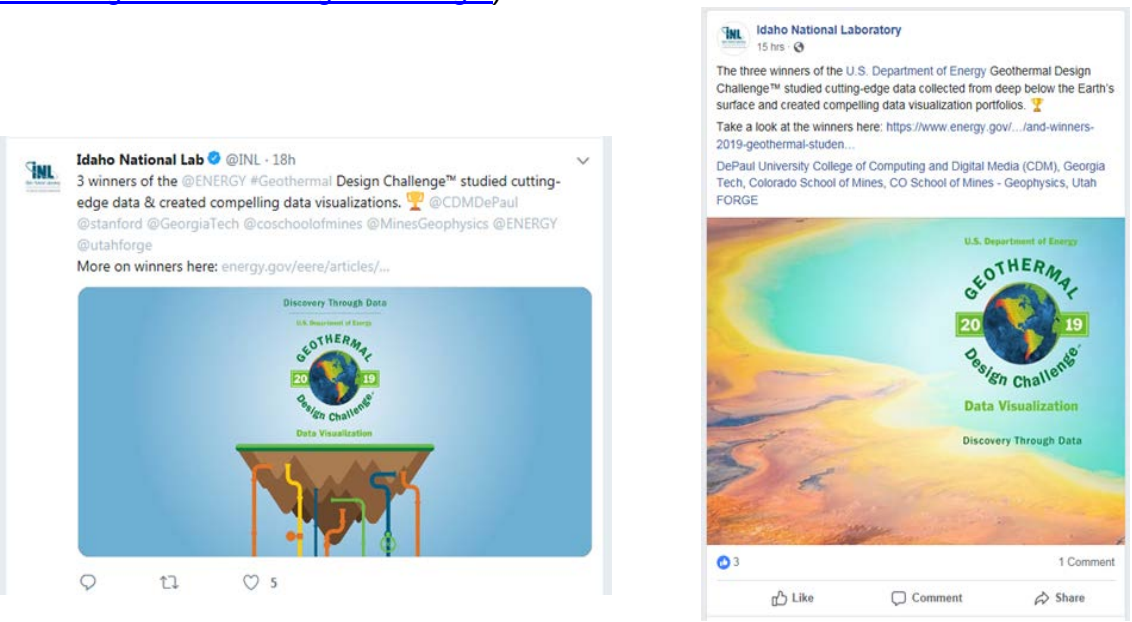

Figure 8. Facebook and Twitter post announcing winners of the 2019 Geothermal Design Challenge™.

7. Surveys

In an effort to improve future competitions, groups participating in the 2019 Geothermal Design Challenge™ - registrants who did not submit a portfolio, non-winners, winners, judges, and promotional partners – were surveyed about their experience. Feedback from these groups will be considered when designing and implementing future contests.

8. Conclusion

The 2019 Geothermal Design Challenge™ ran from January through April 2019. During this period the challenge generated great interest and participation from teams and promotional partners across the country. The challenge met the overall objective of promoting geothermal technologies and creating greater visibility of the FORGE project. University and high school students' engagement and skills grew in varying data visualization techniques and storytelling through data. Competitions like the Geothermal Design Challenge™ will actively promote knowledge of geothermal technologies while ensuring interest from students and educators in the future.

9. Appendix

Social Media Posts

Instagram

January

- https://www.instagram.com/p/BsV0ym2gCLJ/

Facebook

April

- https://www.facebook.com/IdahoNationalLaboratory/photos/a.173213197685/10156411942237686/?type=3&theater
- https://www.facebook.com/IdahoNationalLaboratory/photos/a.173213197685/10156379573417686/?type=3&theater
- https://www.facebook.com/IdahoNationalLaboratory/photos/a.173213197685/10156363555767686/?type=3&theater

March

- https://www.facebook.com/IdahoNationalLaboratory/posts/10156332434922686?__xts__[0]=68.ARA-6EVJzmQUFGabl_mHHaFWTDrfUxDoQOANg6O1EguLgGXAIQ7k8HOYIlUQ1ptLllS_EaEbGlgr1KSuH8ZNhUXzEMt3HqmesLf1gbC176ACSsfm2n170jPzt9mIgkdGenCjH-TFFa4a2JvazGHzHfwLUl1veW_CfEJk2UHHZj1VSOBeJhXemzvZrfPNqM9OfgaAiQZwkZMoGJ0JLvR1bNIyoq2kG9zx47o9gWPa8r1f0ftbB1mHesYKmEhKTtZ_G_7iv5-OCWg1eorvfbJElttPupvheX_NXtWbYJJsapkREty38uh3L98abCjNAsfQ925NWeut64ndVQ9PtA&__tn__=-R

February

- https://www.facebook.com/IdahoNationalLaboratory/posts/10156287659257686?__xts__[0]=68.ARBb1-v07sxu-jinD4fCzkVabMtw6mFtJ7A70ShGP3Epj8s3UhqN4DXIPV34NFoEoX_1u2wluKupU-B2PMGMN33iT1Jgmaqh-cVAyri3BrgkL6jSNyGVHvaVbNbwi1ay7wVaRVXLXT5R7AdHtrW4RM2a7Ofhph14wHdfWYtnp8_av3-SQcmkcqIgwM64R3lkMaWgakBp3eFC-qYH0r8hV2bTu-8Cwy0kM0ucjMrPlWtqOhZlLoPyJTZkrs3mKfhb1uvA8S6PfER6NvUMGq9qjp6-WrFKZoHwuMHT7FCl-EWxbkGLzpvYUfPHHisGgH9gj7SmR8mT74WIKlHQRw&__tn__=-R

January

- https://www.facebook.com/IdahoNationalLaboratory/photos/a.173213197685/10156224988647686/?type=3&__xts__%5B0%5D=68.ARCvM0U3PimLz0sPE4MlTiP2s0j5Wfv5fw5jmDexc8Yaaq7wxiaitDI-FbSLQuqziQliR05RxU_odP8x8SCID_kYgByMSYHzlBjowM8coDAwE-f_mOLWelKJptc8Pd8g6pMDDpNpc03aHUOVlviNr2DFmWbe-uPpXg-jxTYZKpvp4eCEs_fkg1tsI4AcZ8Gp2AIS5L5fDeIls-

NOxkzRP6mUJ1lyMYXI9VHad0P8KDzBgD13xVdpZx60a2wlH6fq7te-CfCA32zSMN8i-QOeTm036oB0cc7AJaznVLpEE4cEYJC-bJchDIE-I9B_WYQ03EFZIYom9aSSYcGmuw&__tn__=-R

- https://www.facebook.com/IdahoNationalLaboratory/photos/a.173213197685/10156205654282686/?type=3&__xts__%5B0%5D=68.ARCEqOAKDUfNr5VNCp1Ti2EqXaHzF9a1xDV2WOeefWEzvCqDl7lGajAb_F0DrMzMEAexae4IyyxLnTNMYDrraeDozuUcHP42y9fqMyGCdwkDNvVt570hNkXhr0IsFmQqsmGaNyW6kRlOeeF0XP1DG9eeiD9DZsPge83Hs5MIwp1d_WryLZQu0MGa4VgzxVoy1UYP2col45sAxRGba1HS1PvF8d9Cse_jS7Tmg35RynniWtu0pC1i1CFCQl8992zBnZFBCf5nNZ-HYmkbdonf5lN8zsunDHdH_FSZiqa0c6NIUxpq4nS6WoCWsCoumKiAZNTdWHHHWhJGHPCzAA&__tn__=-R
- https://www.facebook.com/IdahoNationalLaboratory/photos/a.173213197685/10156191026277686/?type=3&__xts__%5B0%5D=68.ARAghTWqH8mFqMYWScrx1FjueWRBOedlWh4T_ECUcAmap6d94vl0cRUDtA35kUwY6PGT-jpLiKQWBEDuTOdRC1S8b-91_B9Lds3dN_DDD9pBXkpeGCID9779RFG-RWzFFkK82AAP9967QlOZz2O4GCBhSQ8dm9CZojBl8zD4XtPG3RaFkb4D4txCBJXGFWhpqcUSLg-GIlfU-1nenx03OQLdk4mPFqKndcVreX6qOdnR3FFGCLQBv9KYStrKYyuK9h1UG8I7Ow0FJvSWLeKtvz5o8r2071jOFrxKS1QSxj1CX6BnwIThqlpBE-EZQ25q3PfABoJkfTBMw8T_Pw&__tn__=-R
- https://www.facebook.com/IdahoNationalLaboratory/photos/a.173213197685/10156181030892686/?type=3&__xts__%5B0%5D=68.ARD7mBf58vlgdfb0YOA67sJb2jlIxhEexxQf0HsOik62xlp2v6maa4MUub-dIYTda3FVXphS4za8OZ1ygiJcjCV2jEgkVrIEbRpC9C855CnOZ6woSbkxsD7RhOSzeYrNXWI2f2Wi-rZcCR8FqXNRcUqOrcCf5xz3iLMCLVp_U1Td2yboebu3407eEZCwde39y74QkQNU8GaqbESTzuUSVLjtuE-0Hbvn6WDk7yneqxg_lRkPs3SQlQfiyp-m2xSBZH7L3vW5s39-FuR-wNxL-Kv_5Hcu9yQM_WfcjT9xU9fD200dKv53vo9AiDwm3516_Ki2Gzr7yKalISi5Cg&__tn__=-R
- https://www.facebook.com/IdahoNationalLaboratory/photos/a.173213197685/10156176548412686/?type=3&__xts__%5B0%5D=68.ARCDajrJE9K6YlUSijFO_YnC7THpwagoQdhtEBCNkQNKuQaU_vu0EWx6_qWdCbtCYCm9stNoCIk0PSODd4zrFJKYuqWk0gbp9su5NYBsLN-3maJ-_fm6vGjI1D8xsxof2UfSAACNRQo21x1FDxkUzscfkWczhZjJJQtDuP3iG_8GNHA8_Htr5o5telYUkW1fAVueZB_l3_Gc-onui7n5Gkq4-MYkN-jZllGIjB21KxHKdOerVmLaAxywRaHsc9ELRCCVWU61kFX470NN9IUmgc7MndnYUxXGrSzYVHNb9nSPYxE618Sr5CwyWW0ly_Z0p65p3rLsIqpn0uRlTQ&__tn__=-R

Twitter

April

- https://twitter.com/INL/status/1121117686048575488
- https://twitter.com/INL/status/1116002049210982402
- https://twitter.com/INL/status/1113457209248165889

March

- https://twitter.com/INL/status/1110551947864469504
- https://twitter.com/INL/status/1108406021251227649
- https://twitter.com/INL/status/1104148938498535424

February

- https://twitter.com/INL/status/1100815392937656320
- https://twitter.com/INL/status/1095810624121012225

January

- https://twitter.com/INL/status/1090717054716436480
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- https://twitter.com/INL/status/1084866167443881985
- https://twitter.com/INL/status/1083131049045938176
- https://twitter.com/INL/status/1082321219461046272

Participating Schools

- Adrian High School
- Allegheny College
- Angelo State University
- Biotechnology High School
- Brigham Young University - Idaho
- Brigham Young University - Provo
- California Polytechnic State University
- Colorado School of Mines
- Columbia University
- Cornell University
- DePaul University
- Georgetown University
- Georgia Institute of Technology
- Granada Hills Charter High School
- Harvard Division of Continuing Education
- Idaho State University
- Los Angeles Pierce College
- Michigan Technological University
- Northwestern University
- Oklahoma State University
- Palos Verdes Peninsula High School
- Parsons School of Design
- Portland State University
- Rochester Institute of Technology
- San Diego State University
- School of Science and Engineering at Yvonne A. Ewell Townview Center
- South Dakota School of Mines and Technology
- Stanford University
- Thunder Ridge High School
- Tufts University
- University of Alabama
- University of California Berkeley
- University of California San Diego
- University of Central Florida
- University of Houston
- University of Illinois in Urbana-Champaign
- University of North Dakota
- University of Oklahoma
- University of Utah
- University of Wisconsin - Madison
- University of Wyoming
- Virginia Polytechnic Institute & State University
- Watersprings School
- Windsor High School

Map of Participating Schools