

Advances in subsurface data discovery: Introducing the new GBCGE Subsurface Database

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Abstract: In recent years, data science has evolved to apply advances in machine learning, artificial intelligence and other geostatistical tools to evaluate resource potential, using large, complex datasets at inputs. To support the effective use of such approaches, robust data management systems are required. Since 2018, the Great Basin Center for Geothermal Energy (GBCGE) has worked to develop a new Subsurface Database that builds on the efforts of previous GBCGE and Nevada Bureau of Mines and Geology (NBMG) data products. This Subsurface Database is a state-of-the-art relational database developed on a PostgreSQL server that is hosted by NBMG at the University of Nevada, Reno (UNR). The database currently includes over 300,000 well, spring, geothermal power plant, and structural setting features across the Great Basin and neighboring National Geothermal Data System (NGDS) partner states. The database also contains many feature-related datasets, including: geochemistry, scanned and digitized drilling logs, temperature measurements, and fluid injection and production data. The database represents a leap forward in data product assimilation, discoverability, and delivery to the geoscience community. The database also supports NBMG's mission to provide data that are highly-structured, machine-readable, and open-access.