



Capitalizing on global demands for open data access and interoperability – the USGIN story

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U.S. Geoscience Information Network (USGIN – <http://usgin.org>) data integration framework packages data so that it can be accessible through a broad array of open-source software and applications, including GeoServer, QGIS, GrassGIS, uDig, and gvSIG. USGIN data-sharing networks are designed to interact with other data exchange systems and have the ability to connect information on a granular level without jeopardizing data ownership. The system is compliant with international standards and protocols, scalable, extensible, and can be deployed throughout the world for a myriad of applications. Using GeoSciML as its data transfer standard and a collaborative approach to Content Model development and management, much of the architecture is publically available through GitHub.

Initially developed by the USGS and Association of American State Geologists as a distributed, self-maintained platform for sharing geoscience information, USGIN meets all the requirements of the White House Open Data Access Initiative that applies to (almost) all federally-funded research and all federally-maintained data, opening up huge opportunities for further deployment. In December 2015, the USGIN Content Model schema was recommended for adoption by the White House-led US Group on Earth Observations (USGEO) “Draft Common Framework for Earth-Observation Data” for all US earth observation (i.e. satellite) data.

The largest USGIN node is the U.S. National Geothermal Data System (NGDS – www.geothermaldata.org). NGDS provides free open access to ~ 10 million data records, maps, and reports, sharing relevant geoscience and land use data to propel geothermal development and production in the U.S. NGDS currently serves information from hundreds of the U.S. Department of Energy’s sponsored projects and geologic data feeds from 60+ data providers in all 50 states, using free and open source software, in a federated system where data owners maintain control of their data. This interactive online system is opening new exploration opportunities and shortening project development by making data easily discoverable, accessible, and interoperable at no cost to users. USGIN Foundation, Inc. was established in 2014 as a not-for-profit company to deploy the USGIN data integration framework for other natural resource (energy, water, and minerals), natural hazards, and geoscience investigations applications, nationally and worldwide. The USGIN vision is that as each data node adds to its data repositories, the system-wide USGIN functions become increasingly valuable to it. The long term goal is that the data network reach a ‘tipping point’ at which it becomes like a data equivalent to the World Wide Web – where everyone will maintain the function because it is expected by its clientele and it fills critical needs.