Geophysical Research Abstracts
Vol. 17, EGU2015-7169, 2015
EGU General Assembly 2015

Volcanoes of the World: Reconfiguring a scientific database to meet new goals and expectations

Edward Venzke, Ben Andrews, and Elizabeth Cottrell
Global Volcanism Program, Smithsonian Institution, Washington DC, United States (venzkee@si.edu)

The Smithsonian Global Volcanism Program's (GVP) database of Holocene volcanoes and eruptions, Volcanoes of the World (VOTW), originated in 1971, and was largely populated with content from the IAVCEI Catalog of Volcanoes of Active Volcanoes and some independent datasets. Volcanic activity reported by Smithsonian's Bulletin of the Global Volcanism Network and USGS/SI Weekly Activity Reports (and their predecessors), published research, and other varied sources has expanded the database significantly over the years. Three editions of the VOTW were published in book form, creating a catalog with new ways to display data that included regional directories, a gazetteer, and a 10,000-year chronology of eruptions. The widespread dissemination of the data in electronic media since the first GVP website in 1995 has created new challenges and opportunities for this unique collection of information.

To better meet current and future goals and expectations, we have recently transitioned VOTW into a SQL Server database. This process included significant schema changes to the previous relational database, data auditing, and content review. We replaced a disparate, confusing, and changeable volcano numbering system with unique and permanent volcano numbers. We reconfigured structures for recording eruption data to allow greater flexibility in describing the complexity of observed activity, adding in the ability to distinguish episodes within eruptions (in time and space) and events (including dates) rather than characteristics that take place during an episode. We have added a reference link field in multiple tables to enable attribution of sources at finer levels of detail. We now store and connect synonyms and feature names in a more consistent manner, which will allow for morphological features to be given unique numbers and linked to specific eruptions or samples; if the designated overall volcano name is also a morphological feature, it is then also listed and described as that feature. One especially significant audit involved re-evaluating the categories of evidence used to include a volcano in the Holocene list, and reviewing in detail the entries in low-certainty categories.

Concurrently, we developed a new data entry system that may in the future allow trusted users outside of Smithsonian to input data into VOTW. A redesigned website now provides new search tools and data download options. We are collaborating with organizations that manage volcano and eruption databases, physical sample databases, and geochemical databases to allow real-time connections and complex queries. VOTW serves the volcanological community by providing a clear and consistent core database of distinctly identified volcanoes and eruptions to advance goals in research, civil defense, and public outreach.