

EarthChem – A geochemistry data network

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EarthChem is a collaborative effort to create an advanced and integrated network of geochemical data collections, to make a greatly expanded range and number of data collections discoverable and accessible for the broad Earth Science community through a single portal ('One-stop-Shop for Geochemical Data'), and facilitate the analysis and integration of geochemical data with other geological, geochronological, geophysical, and geodetic information, and incorporate new legacy and future data. Current partners of the EarthChem project include SedDB, PaleoStrat, EarthRef, MetPetDB, CZEN (Critical Zone Experiment Network), MexDB (Mexican Volcanic database), the IODP US, the USGS, and GEON. EarthChem focuses on three areas:

1. Operation of a data portal ('One-stop-shop for geochemical data') that provides search capabilities across federated databases and tools for data quality assessment, data analysis, and visualization including plotting methods and an information-rich map interface. As part of the portal development, EarthChem has created an XML schema for geochemical data that allows all partner databases to communicate their data in a common format.

2. Expansion of available digital data collections for geochemistry. EarthChem is building tools to facilitate data submission from users, and contribution of focused projects, and compiles new critical datasets as identified by the community. Over the past year, a new data collection for the Petrology of the Deep Lithosphere has been created. A new geochronological data collection is being developed to provide a home for EarthTime and GeoEarthScope geochronology data.

3. EarthChem addresses user concerns, and responds to broad scientific and educational needs. EarthChem hosts workshops, holds exhibits, and works with scientific societies to address community issues related to data management and data use such as citation of original data contributors/authors versus citation of databases or standards for reporting data and analytical metadata in publications. Examples include: (a) Implementation of a 'Data Usage Index' on the EarthChem portal to track the number of times that data from a specific publication has been downloaded by users of the EarthChem portal. Ensuring credit to the author(s) of original data publications is fundamental for the broad geochemical community to support digital data collections. (b) Through

community to support robust data assessment. Through several community workshops, EarthChem has defined recommendations for the reporting of analytical and sample information in geochemistry data publications.