

Making arc magma compositional data more accessible: the ArcMetals Database

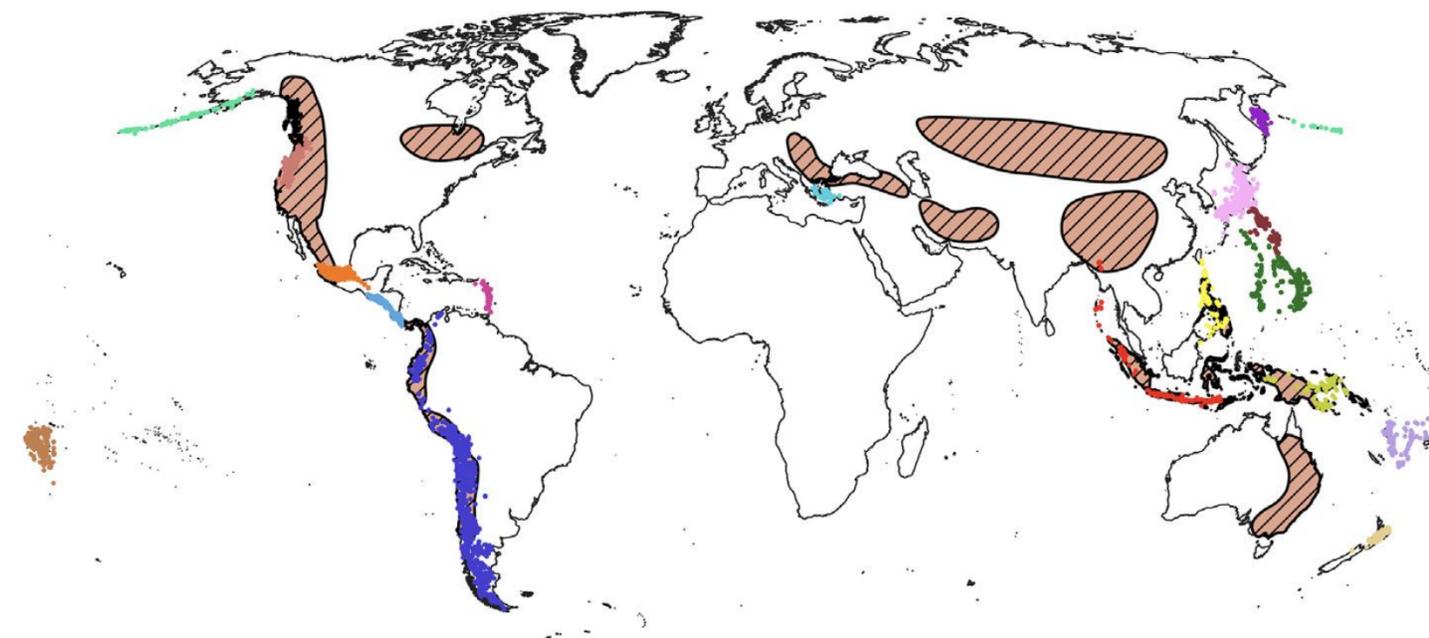
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What is ArcMetals?

- Between GeoRoc, EarthChem, and region-specific databases like GEODIVA, geochemical data has never been so accessible.
- Yet, this availability is not matched by “tidy” structures: *“Tidy datasets are easy to manipulate, model and visualize, and have a specific structure: each variable is a column, each observation is a row, and each type of observational unit is a table.”*
- The other challenge: geochemical data lacks geological/tectonic contexts
- In 2020, I devised a Python-based solution: **ArcMetals**
- The reason? I needed to assess global drivers of porphyry formation



What is ArcMetals?



- Database design criteria;
 - N = 55,000 for volcanoes; 5,000+ for plutons
 - **Easily managed** in spreadsheet software's and/or Python
 - **Flexible** access to different types of data without assumptions about correlations between datasets
 - Fully capture **compositional diversity** of arc magmas
 - Integrates **geophysical, tectonic, and geodynamic** elements in each arc rocks local area
 - Maximize extractable information from a given rock; i.e., **how to combine multiple records of same sample in GEOROC?**
 - **Statistically validated thresholds**; i.e., what is a high [Cu]?
 - Transferrable to other study's

Scan here to access github!



What can ArcMetals do?

- Explore
- Crust
- Relat

