

UPGRADING METBASE TO BECOMING FULLY FAIR AND AN INTEGRAL PART OF INTERNATIONAL GEOCHEMICAL INITIATIVES. D. C. Hezel^{1,*}, H. R. Marschall¹, M. Klöcking², K. A. Lehnert³ ¹Goethe-Universität Frankfurt, Altenhöferallee 1, 60438 Frankfurt am Main, Germany. *dominik.hezel@em.uni-frankfurt.de; ²Universität Göttingen; ³Columbia University

Introduction: MetBase is the world's largest database for meteorite compositions [1], currently hosted in Germany. MetBase started more than 20 years ago with collecting cosmochemical data by a private collector. Among others, the database consists of more than 500.000 individual data of, for instance, bulk and component chemical, isotopic and physical properties. Further, the database holds more than 90,000 references from 1492 until today. In 2006, the high value of the database was acknowledged by the Meteoritical Society with its Service Award.

Current Developments: MetBase has seen substantial transitions in the past years from a purely commercial to a donation, free-of-charge database. The technical foundation has been completely modernised. A tentpole feature of MetBase is its intuitive, web-based graphical user interface that allows complex data selection, visualisation, and report of the respective literature references. This makes the MetBase data findable, and to a certain extend accessible and reusable.

We are currently starting a new one-year project to make MetBase data fully FAIR (findable, accessible, interoperable and reusable, [2]) and implementing a new database schema. A key part of this project is to integrate MetBase into an international network of initiatives and data management frameworks: We will adopt the data schema of the recently established Astromaterials database [3], which is based on the EarthChem data model, and work on new solutions for a long term and centralised hosting for MetBase and data input backbone. MetBase will also participate in the OneGeochemistry initiative. Our cooperative approach ensures the long-term availability and expansion of MetBase, and is a sensible way forward for a long-tail database.

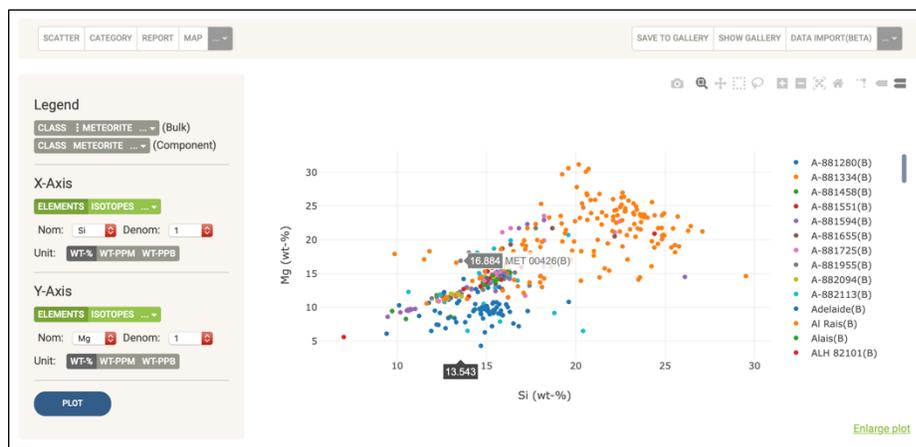
Potential additional cooperations with e.g., the European Open Science Cloud [4], Research Data Alliance [5], or the IGSN Consortium [6] are surveyed.

The project is in part a collaboration with the GeoROC DIGIS project [7]. We work towards common tools to interact online with both databases, for which the current MetBase interface serves as the template.

An integral part of MetBase are comprehensive teaching resources. The tight integration of the database with teaching material allows seamless transition from research to teaching tools, thereby allowing to directly integrate the database into teaching [8, 9].

Germany recently initiated the ›National Data Infrastructure Initiative‹ (NFDI), covering all scientific areas [10]. Although called ›national‹, this initiative has a clear international character. Its goal is to provide a central 'one-stop shop' for research data management related to the German scientific community. In Frankfurt, we participate as Co-Applicant of the NFDI4Earth [11] and are responsible for the 'Commons', i.e., we will communicate developments from other initiatives into the NFDI4Earth and vice versa to facilitate for example, common standards, tools, or schemata.

References: [1] <http://www.metbase.org>. [2] Stall et al. 2019. Make scientific data FAIR. *Nature* 570(7759): 27-29. [3] <https://www.astromat.org> [4] <https://www.eosc.eu> [5] <https://rd-alliance.org>. [6] <https://www.igsn.org> [7] <http://digis.geo.uni-goettingen.de> [8] Hezel DC (2020) MetBase.org as a research and learning tool for cosmochemistry. *Elements* 16:73-75. [9] <https://www.metbase.org> → Resources [10] https://www.dfg.de/en/research_funding/programmes/nfdi/index.htm [11] <https://www.nfdi4earth.de>



Part of the MetBase Web GUI that allows direct and quick data visualisation to get a first idea of the selected data.