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# Closing the gap between related databases: MetBase and the Astromaterials Data System (Astromat) plan for a common future

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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. 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.

More recently, the Astromaterials Data System (AstroMat) has been developed as a data infrastructure to store, curate, and provide access to laboratory data acquired on samples curated in NASA's Astromaterials Collections. AstroMat is intended to host data from past, present, and future studies. AstroMat is developed and operated by a team that has long-term experiences in the development and operation of data systems for geochemical, petrological, mineralogical, and geochronological laboratory data acquired on physical samples – EarthChem and PetDB.

Astromat and MetBase are two initiatives with two very different histories – but a shared goal. Astromat and MetBase therefore plan a common future. As a part of this, we are currently starting a project to make MetBase data fully FAIR (findable, accessible, interoperable and reusable, [2]), thereby implementing the recently established Astromat database schema [3], which is based on the EarthChem data model. Astromat and MetBase currently also work on new solutions for a long term and centralized hosting of both databases and a data input backbone.

Both MetBase and Astromat participate in the OneGeochemistry initiative, to contribute to the development of community endorsed and governed standards for FAIR lab analytical data that will allow seamless data exchange and integration. Data access to the MetBase content will be provided both through Astromat and via a front-end that is part of the recently initiated ›National Data Infrastructure Initiative‹ (NFDI), covering all scientific areas [4].

**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.dfg.de/en/research_funding/programmes/nfdi/index.htm

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