



MagIC's Migration to a Simplified Data Model and Updated Open Source Technologies Improves Community Engagement, Website Responsiveness, and Development Times

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The Magnetism Information Consortium (MagIC) supports an online database for the paleo, geo, and rock magnetic communities (<https://earthref.org/MagIC>) and has recently completed the transition from an Oracle backed, Perl based, server oriented website to an Elasticsearch backed, Meteor based thick client website technology stack. On-the-fly data validation, column header suggestion, and spreadsheet online editing are some new features available with the new system. As with the previous system, researchers can upload data into the archive, provide a private link to unpublished data to editors and reviewers, make private data public with a single click, and download data selected with a sophisticated search system. The 3.0 data model has been reduced in complexity with the number of tables decreased from 31 to 9. It is now organized in a hierarchical system of 6 levels from the raw measurements up to the publication meta-data. This data model, along with method codes and vocabulary lists, can be browsed via the MagIC website and easily updated by the MagIC team via email or a GitHub pull request. The source code for MagIC is publicly available on GitHub (<https://github.com/earthref/MagIC>). The MagIC file format is natively compatible with the PmagPy (<https://github.com/PmagPy/PmagPy>) paleomagnetic analysis software so data downloaded from MagIC can be easily looked at with PmagPy.

The rate of new contributions to the database has been increasing and many labs have contributed measurement level data for the first time in the last year. Over a dozen file format conversion scripts are available for translating non-MagIC measurement data files into the MagIC format for easy uploading. We will continue to work with labs that desire to contribute measurement level data. MagIC will continue to provide a global repository for archiving and retrieving paleomagnetic and rock magnetic data and, with the new system in place, be able to more quickly respond to the community's requests for changes and improvements