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Eliminating Science Friction: A Metadata Quality Framework for the Earth Sciences

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Discovery and access of individual data products requires the provision of content-rich, descriptive metadata that accurately articulates the data's suitability for use. In the library sciences, attempts have been made to define metadata quality assessment frameworks that can be applied to any metadata record, regardless of context or discipline. In the Earth sciences, however, it has become increasingly important that metadata curation to be conducted with both a discipline-specific focus and an eye toward federated search environments. We therefore present a metadata quality evaluation framework for the Earth sciences that seeks to evaluate the consistency, completeness, and correctness of individual Earth observation metadata records. The framework is being actively used by the Analysis and Review of CMR (ARC) team at Marshall Space Flight Center to systematically and collaboratively improve the quality of approximately 7,000 metadata records housed in the NASA Common Metadata Repository (CMR). The effort leverages both automated and manual metadata content reviews to provide actionable recommendations to metadata authors at twelve NASA data centers. In this presentation, we will describe the ARC team's Earth science metadata quality framework in detail, the implementation of the framework in ARC's metadata review workflow, and discuss the successes and challenges of using this metadata curation approach.