

# Collaborative Solutions to Advancing Open, FAIR, and Sustainable Data Infrastructure in the Earth Sciences

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Integrity of research is a vital ethical concern shared by researchers, publishers, and funders across national, disciplinary, and organizational boundaries. A critical aspect of integrity of research is to make data, samples, and software openly accessible and reusable so that published research can be reproduced and repeated and research results can be reused in future scientific endeavours. While there is broad support and buy-in for the principles of open science, implementation of leading practices for open data sharing and the development and sustainable operation of research data infrastructure remain a challenge for all stakeholders. The complexity of technical, organizational, and cultural issues that need to be solved require new levels of coordination and collaboration among stakeholders. The ‘Enabling FAIR Data’ project, which is lead by the American Geophysical Union and supported by a grant from the Laura and John Arnold Foundation, is an example for a collaborative solution that is bringing together researchers, repositories and journals internationally to evolve the Earth science publication process to include not just the publication, but all research inputs into that publication (datasets, physical samples, images, video, software, etc.). It will develop a unified process that is efficient and standardised for researchers and supports their work from grant application through to publishing. This presentation will showcase other existing collaborative solutions such as the International Geo Sample Number and explore further collaborative approaches that may enhance the sustainability of the research data ecosystem.

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