An Earth System Science Data Publishing Journal
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The Problem:

Scientific primary data are less thoroughly treated than the interpretations based on them. Journals, e.g., Nature, see themselves unfit to subject data to their peer-review process[1]. Data repositories judge metadata quality and other technical parameters only, and generally do not have a recognized procedure for quality control of data content.

The bulk of scientific primary data is not made available for reuse - however valuable it may be - and not even preserved in too many cases. There are two main reasons for this behaviour:

1. Scientists, who collected the data in arduous work, expect others not to recognize their "authorship" of data.
2. Thoroughly publishing data for reuse needs additional work, which is not rewarded like the regular journal article in personal or institutional evaluations.

There is no "cultural norm" in science for publishing and recognizing the value of primary data.


Embedding Data Publishing in the Science Workflow

Conclusions

The build-up of a sound, global, multidisciplinary data infrastructure is needed as the foundation of data driven science, i.e.: reuse and new combinations of existing data. This is especially true of the Earth System Science, where it is needed, e.g. to keep track of Global Change or to find correlations between (geo-)physical and ecological or economic dynamics.

Peer review of data by a journal, analogous to review of traditional articles, as an element of a science data infrastructure, will establish

- a baseline of quality, credibility and useability for the growing legacy of primary data,
- a basis for a measureable impact of published data
- a traditional means of recognition and reputation for the contributing scientist and thus, incentive to publish

„Earth System Science Data and Methods“ will hopefully trigger more new developments and be just the first data publishing journal, providing a solution for the needs of science.