



Software citation in ocean sciences: towards the reproducibility of results

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Scientific results are often published in peer-reviewed journals, with the journal articles uniquely identified through *Digital Object Identifiers* (DOIs). Scientists and experts are increasingly identified in a unique and consistent way for instance using the orcid (<http://orcid.org/>). The data employed to obtain the results are stored in public databases and assigned a unique identifier (DOI or internal number), each version of the dataset having its own identification. Finally the results or products are archived and identified, similarly to the data.

By identifying all the constituents of a research result or product, one ensures its reproducibility: anybody that applies the same procedure or method to the same dataset should get the same results. But how do we ensure that the procedure applied to the data is exactly the same? The solution is the software or code citation.

Usually, the procedure to obtain scientific results from data often consists of the application of one or several software tools on the original or transformed datasets. While software tools, modules or codes are often stored via Version Control Systems (VCS) and assigned a version number, it is not always sufficient to make sure they are properly identified. Research platforms such as Figshare, DSpace, CKAN and Zenodo provides a solution where scientists and experts can easily upload a given version of software code and get a DOI, thus paving the way to a fully reproducible research.

We present an application of software citation with the DIVA tool (spatial interpolation in oceanography). The DIVA code, previously developed with Subversion (SVN) was moved to GitHub (<https://github.com/gher-ulg/diva>) and then synchronized with the Zenodo platform (<http://zenodo.org/>), so that any new GitHub release automatically triggers a new DOI on Zenodo.