[EE] Evening Poster | M (Multidisciplinary and Interdisciplinary) | M-GI General Geosciences, Information Geosciences & Simulations

[M-GI23]Open Science as a New Paradigm: Research Data Sharing, Infrastructure, Scientific Communications, and Beyond

convener:Yasuhiro Murayama(Strategic Program Produce Office, National Institute of Information and Communications Technology), Yasuhisa Kondo(Research Institute for Humanity and Nature), Baptiste Cecconi(LESIA, Observatoire de Paris, CNRS, PSL Research University, 共同), Sean Toczko(Japan Agency for Marine-Earth Science and Technology)

Wed. May 23, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

Open Science is growing as a new research paradigm to accelerate scientific innovation. Deployed by ICSU-WDS (2008), G8 Open Data Charter (2013), Research Data Alliance (2013), OECD Global Science Forum's research projects (2016), and G7 Science Ministers' Communique (2017), it commonly refers to the top-down policies to make results of publicly-funded research freely available and accessible. On the other hand, this term also refers to the participatory bottom-up approaches such as citizen science, crowdfunding, and transdisciplinary research (Kitamoto 2016). It is noted that both approaches envision the transformation of research process to more findable, accessible, interoperable, and inclusive one. As a follow-up of the Great Debate "Role of open data and open science in Geoscience", this session reviews the current broad spectrum of Open Science, by welcoming a wide range of oral presentations and posters covering (but not limited to) open research data, open source licenses, data papers and journals, data repository, data sharing infrastructures and platforms, citizen science, crowdsourcing, crowdfunding, transdisciplinary research, capacity building, international networking, and deployment in earth and planetary sciences.

[MGI23-P06]Return on publication (RoP): “DOI return button” for networking data creators and users with pay-back and pay-forward incentives

*Asanobu Kitamoto[1,2] (1.National Institute of Informatics, 2.Center for Open Data in the Humanities, Joint Support-Center for Data Science Research, Research Organization of Information and Systems)

Keywords:DOI, DOI return button, data citation, data publication, pay-back incentive, pay-forward incentive

One of the issues in open science is to widen the concept of “publication” with proper design of incentive mechanisms for the sustainable development of research communities. In the age of data-driven science, data creators and infrastructure should be awarded by credit from research communities, and a promising direction is considered to be data publication and citation. This idea is promising because we can piggyback on existing scholarly publication systems, such as DOI (Digital Object Identifier), without inventing new infrastructure. This idea, however, also have drawbacks. First, it takes long time for the culture of data publication and citation to become a standard practice in research communities. Second, even when the culture becomes standard, the entire analysis of citation network requires huge infrastructure and world-wide data access, which is expected to be dominated by giant commercial information services. We believe that it is better to have alternative lightweight solutions to promote and analyze citation network to quickly reward data creators and connect data users.

To solve this problem, we propose the idea of “DOI return button,” which is a button like

“Facebook like button” so that people can install the button on any pages to realize communication with the visitor of the page. A typical use case of “DOI return button” is to install on the landing page of DOI, especially for data DOI, so that a user of the data pushes this button to express “I like this data!” but the problem of “like button” is in the lack of context about how users liked the data. On the other hand, the idea of “return button” is that a data user returns the DOI of their work, which may be a paper publication or another dataset enabled by the data. By giving user’s DOI to creators, users can express gratitude to the effort of the creators, and creators can see the list of work that they made possible. This direct communication between data creators and users is based on “pay-back incentive” which is mainly motivated by ethical norms in research communities educated as the practice of citation.

DOI return button, however, is not limited to communication between data creators and users, but is open to third parties who may become data users in the future. This is because the list of DOIs given from data users represent the list of real use cases of the data. The list can be used not only for learning how to use data, but also for identifying what have not been done in the past. If DOI return button can serve as the hub of data creators and users, the network of research around the data can expand as new research can be performed on the shoulders of others’ work. This suggests that DOI return button is not only for data creators but also for communities, which in turn will be beneficial to data users themselves. This “pay-forward incentive” is based not only on ethical norms but also on market mechanisms, where the growth of network is the reward of both data creators and users.

An important concern of this idea is resilience to spam. Social network plug-in systems such as like button are always the target of spammers, and countermeasures to spam are required in the design. We admit that the success of DOI return button depends not on technical solutions for spamming but on the operation of DOI to block spammers to invade. In addition, even if DOI is free from spammers, a researcher may behave like a little spammer by submitting non-related DOIs to famous landing pages to increase the exposure of their DOIs. This vulnerability may be partially solved by a distributed checking mechanism, in which data creators (or publishers) decide the acceptance or rejection of DOI submission to their landing pages.

Upon the success of DOI return button, this will become an alternative lightweight solution for a data creator to check the “return on publication” measured by the number of DOIs submitted from data users and the impact of their work.