EDITORIAL

Data, eternal

uring 2014, Science worked with members of the research community, other publishers, and representatives of funding agencies on many initiatives to increase transparency and promote reproducibility in the published research literature. Those efforts will continue in 2015. Connected to that progress, and an essential element to its success, an additional focus will be on

making data more open, easier to access, more discoverable, and more thoroughly documented. My own commitment to these goals is deeply held, for I learned early in my career that interpretations come and go, but data are forever.

During my qualifying exam to advance to Ph.D. candidacy, I drew a chalkboard cartoon of a then-new concept: that the weight of recently erupted oceanic volcanoes could elastically deform the surrounding seafloor, creating a deep depression and surrounding flexural arch. Afterward, H. W. Menard, the great marine geologist and a member of my exam committee, spread out a map of the Pacific. He pointed out places where there were older



"...interpretations come and go, but data are forever."

coral atolls (which marked former stands of sea level) that were either now uplifted or drowned in the vicinity of younger volcanoes. Using the distance from the young volcano to the atoll and the amount of uplift or depression, we were able to calibrate the long-term flexural strength of the Pacific seafloor under the weight of the volcanic loading. It was of no matter that Menard had published a paper years earlier using a subset of the uplifted atolls to argue for another hypothesis, which he now happily discarded in favor of the flexural warping one. It occurred to me that there was no database of "drowned and uplifted atolls" that one could access. Menard's prior publication provided only a biased sampling of all occurrences. Had he not been on my exam committee, that unique set of observations to constrain the flexural rigidity might never have presented itself.

Data, particularly those collected with public funding, should be used so that they do the most good. When the greatest number of creative and insightful minds can find, access, and understand the essential features that led to the collection of a data set, the data reach their highest potential. Although the situation has improved some four decades after my student days in terms of the number of public data repositories, requirements for

making data available, and

metadata standards, there

is still a long way to go. So

what can Science do to help

in this regard, given that it

covers many disciplines but

is not deeply embedded in

There are many publicly and privately funded data

repositories worldwide, not

all of which are being used

to their full potential. In

2015, we want to work with authors and readers to iden-

tify which of those reposito-

ries Science should promote

because they are well man-

aged, have long-term sup-

port, and are responsive to

community needs. For data

that do not neatly fit into

large-scale repositories, we

any one field?

will explore other available options. We also will evaluate different ways to tag data sets and integrate such tagging into our peer-review process. For example, one might associate a digital identifier for a data set with a figure in a paper. A reviewer could use such an identifier to find the particular data that are related to the figure. The hope is to work with repositories that allow bidirectional tagging so that it is easy for someone-a reviewer or reader-to identify the data

used in a *Science* paper. Along with improving the "discoverability" of data sets, Science hopes to inspire creative ways to visualize data sets to improve the communication of information and concepts and even facilitate the discoverability of new phenomena. What happens when you bring together those who collect large data sets with those who develop the tools to analyze and view them? Stay tuned! - Marcia McNutt



Marcia McNutt Editor-in-Chief Science Journals



Data, eternal

Marcia McNutt

Science **347** (6217), 7. DOI: 10.1126/science.aaa5057

ARTICLE TOOLS

http://science.sciencemag.org/content/347/6217/7

PERMISSIONS

http://www.sciencemag.org/help/reprints-and-permissions

Use of this article is subject to the Terms of Service

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. 2017 © The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works. The title *Science* is a registered trademark of AAAS.