LETTERS

The eruption of Mauna Loa could disrupt data collection that has taken place daily for decades.

PHOTO: ANDREW RICHARD HARA/GETTY IMAGES

Edited by **Jennifer Sills**

Editorial Expression of Concern

On 15 September, *Science* published the Research Article "Structural basis for strychnine activation of human bitter taste receptor TAS2R46" by Weixiu Xu *et al.* (*1*). The editors have been made aware that the examination of data provided after publication revealed potential discrepancies with fig. S10D. This figure was used to support a proposal of precoupling between TAS2R46 and the G protein gustducin. We are alerting readers to these concerns while the authors' institution investigates further.

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Give long-term datasets World Heritage status

Throughout history, people motivated by ritual or curiosity have routinely recorded their observations of the world around them. The resulting datasets document our changing planet and provide clear evidence of our role in altering the biosphere [e.g., (*1*–*7*)]. However, despite their importance, the future of many such datasets remains uncertain; one chance event or funding decision could lead to their termination. These datasets merit international recognition and support.

Some environmental datasets are so integral to our understanding of the world around us and our place in it that leaving their continuation to the vagaries of fate or government funding cycles is illogical and irresponsible. Instead, an international organization should designate universally valuable long-term environmental datasets as "World Heritage datasets," in a process similar to the one used by the United Nations Educational, Scientific, and Cultural Organization to designate World Heritage sites. Such a designation would acknowledge that high-impact, long-term datasets that document our changing environment are a part of our cultural heritage.

World Heritage datasets should be high impact, consistent, sustained, available, and accessible. The Keeling curve data on daily atmospheric CO_2 concentrations at Mauna Loa in Hawaii, for example, has documented the impact of fossil fuel combustion on the atmosphere for 64 years (*4*, *5*). The record of cherry blossom dates in Kyoto—recorded across the centuries by imperial courts, newspapers, and scientists (*6*)—strikingly illustrates the effects of climate change on the biosphere (*1*, *2*). Data on the chemistry of precipitation and stream water at Hubbard Brook in New Hampshire (*7*), collected weekly since 1963, led to the discovery of acid rain and the passage of legislation to control it, and now documents the effectiveness of that legislation (*3*). Crucial long-term datasets like these are fragile and face threats ranging from shifts in funding priorities to volcanic eruptions (*8*).

An international organization such as the UN Environment Programme could develop the criteria and process through which World Heritage status can be awarded to environmental datasets. By establishing the value of long-term environmental records, World Heritage designation would help secure funds, ensure data longevity and accessibility, and encourage the creation of new datasets of significance for understanding global change.

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Support for climate policy researchers

In the past 2 years, the European Union and the United States announced plans to spend $573 and $391 billion, respectively, through 2030 on climate actions (*1*) and passed landmark legislation such as the US Inflation Reduction Act (*2*). Although unprecedented in size and scope, these combined investments of $964 billion pale in comparison to the more than $4 trillion in global clean energy investment needed annually by 2030 to stay on track for net zero greenhouse gas emissions by 2050 (*3*). To maximize the impact of this public money, efficient policies informed by independent, objective analysis will be needed. Yet scientists who commit to policy-relevant research face unique challenges that must be addressed.

Beyond infrastructure, meeting climate goals requires investing in researchers, many of whom will likely spend their entire careers analyzing clean energy technology and policy rollouts (*4*), assessing their impacts on society, and advising on needed course corrections. This community must include early-career scholars who are essential to tackling the protracted, multi-decadal challenges posed by climate change. Academia can be the wellspring for this research community, but institutions must recognize the barriers they impose on interdisciplinary, applied, policy-focused research.

Policy-relevant energy research combines a broad knowledge base, spanning engineering, social science, and physical science (*5*, *6*). Such research faces well-documented challenges in finding funding, collaborators, and knowledgeable peer reviewers and editors (*7*, *8*). It also takes time, effort, and skill to disseminate research findings to policymakers and journalists. Effectiveness usually requires deep engagement with communities and policy circles, which can introduce new risks, such as backlash from colleagues, students, and legislators.

Academic institutions can support policy-relevant researchers by providing consistency and incentives. Ensuring that funding for early-career researchers is stable should be a priority. With dependable funding, scholars can focus on activities that maximize their research's impact and advance their careers. Broadening career incentives to reflect the nature of policy-relevant research—e.g., by adding (but not mandating) policy outreach metrics alongside the usual success criteria for tenure and promotion cases—would further remove barriers.

Institutions can also facilitate connections for scientists working in these fields. Policy-focused workshops (*9*) would enhance networking and allow scholars to interact with government officials and senior researchers, fostering ideation, sharpening research questions, and providing new opportunities for collaboration. Media engagement training would better prepare them to communicate their findings. Fact-based public discourse is more important than ever, but researchers often lack the network, skills, and resources to engage effectively with journalists.

These reforms aren't without implementation challenges. Academia will need a fresh debate about how (or whether) to measure and grade policy engagement and impact and how to overcome skepticism about policy-relevant research in more traditional departments. But the gravity of the climate crisis merits a rethink. Now is the time to reevaluate academia's role.

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ERRATA

Erratum for the Report "Ultrahard magnetism from mixed-valence dilanthanide complexes with metal-metal bonding," by C. A. Gould *et al.*, *Science* **378**, eadf5804 (2022). Published online 11 November 2022; 10.1126/science.adf5804

Erratum for the Research Article "Structural basis of ribosomal frameshifting during translation of the SARS-CoV-2 RNA genome," by P. R. Bhatt *et al.*, *Science* **378**, eadf3953 (2022). Published online 21 October 2022; 10.1126/science.adf3953

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