

Application for the “Open Research Award”, an initiative by Eurac Research to promote bottom-up adoption of open science practises across all Institutes and Centres.

Who I am

I am Alberto Scotti, a 31 years old early-career researcher who works in the field of freshwater ecology and bioassessment. I have been carrying out my research activities at the Institute for Alpine Environment of Eurac Research since 2014, when I arrived at the Institute to write my M.Sc. thesis on the topic of alpine running waters. Before, I concluded my B.Sc. in Production and Protection of Plants and Green Areas at the “Università degli Studi di Milano” (Milan), and I finished all the curriculum-required courses for the M.Sc. in Nature Management (Landscape, Biodiversity and Planning) at the “Københavns Universitet” (Copenhagen). After the completion of my M.Sc., while sitting at Eurac Research, I obtained my Ph.D. degree at the “Universität Innsbruck” (Innsbruck) in 2020, showing [how aquatic insects may be used as sentinels to detect environmental changes that happen at global level, such as the effects of climate change on high-altitude water habitats.](#)

My idea of open research

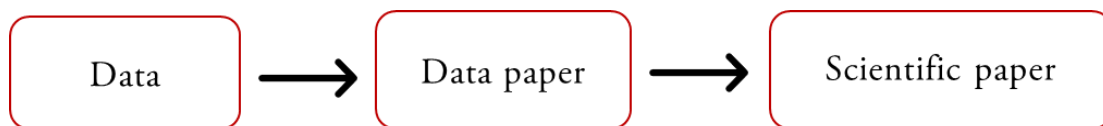
If you click on the link above, you will realise that my Ph.D. thesis is publicly available online – and even offline at the library of the “Universität Innsbruck”. The wish of sharing my scientific work and findings potentially with anybody in the world has led my - so far - short career in science since its early beginning. Thus, it is not a surprise that my [ImpactStory](#) profile summaries some achievements that show how much I cultivated the “open research” culture as soon as I could: out of a total of 9 publications, 100% of my research is free to read online (top 1% of researchers), 37% of which is published under a CC-BY, CC0, or another public domain license (top 3% of researchers).

My strong belief is that the sharing of data, codes, scientific results and so on represent a strong opportunity, much more than a risk: this is particularly true for a relatively small research centre such as Eurac Research, even more if we consider the Institutes and Centres separately. The declared mission of Eurac Research is indeed the one of tackling problems and issues at local level but, at the same time, answering questions that also are “hot-topics” in the worldwide research communities. And what is better to pursue this goal than publicly sharing what we do? In this way, some very specific data and/or knowledge may acquire, in scientific terms, exponentially more value. In my field of studies, for example, we usually gather data concerning the distribution of very specific, tiny, water animals: you can attempt to create a nice map of South Tyrol that reports this distribution and hope that it will be interesting for somebody. Or you can share these data inside a network

and, with dozens of other scientists or citizens who have collected the same tiny animals in other places, look at the distribution of these animals from a new, global perspective. And you can bet that the implications in terms of scientific value will be much more strong! – given that a standard of data quality has been followed, obviously.

Turning ideas into practice

Thus, how my daily life of “open researcher” looks like? My aim is to share everything I do, in each step of the scientific production process: I mainly produce, and share, three “products”: data, data papers and scientific papers.



- Data: are the raw data I collect. Most of the time, they are the abundances of animals my small team and I retrieve during the fieldwork campaigns, and the related environmental conditions such as water temperature or conductivity (examples of the metadata and raw data shared are shown [here](#));
- Data paper: it is a very specific paper where metadata and data are explained thoroughly. However, no interpretation is provided, but data are described in a way that their potential reusability is largely enhanced (compared to the previous step). Examples of publications of mine can be found [here](#) and [here](#);
- Scientific paper: this represents the “climax” of the scientific production process. What is published in the previous steps assumes here a new perspective, given that data and results of their analysis are deeply discussed and interpreted (see examples [here](#) and [here](#)).

Each further step is additive to the previous ones, but this is not a one-way process: indeed, somebody who reads your scientific paper may discover that you released the data behind that study, may use them, and acknowledge your effort in collecting and sharing them.

Currently, following this “pipeline” and sharing my data in this way has involved me in three underway international projects.

Final implications and perspectives

This approach has several positive effects: apart from enhancing the possibility of collaboration in international initiatives, it contributes to the maximum transparency of our work (especially for citizens, who ultimately also pay our wages): in the “post-truth” era we are living within, this is extremely important. To me, the goal is that potentially anybody should be able to check and reproduce my whole research. For this reason, in the last research project I have been involved, we decided also to share on GitHub the codes used for the statistical analyses, the input data for them (directly derived from raw data, but in a “ready-to-go” format), and the R

markdowns through which is possible to follow and reproduce step-by-step the entire analyses ([here](#)). Comments and a brief discussion of the results is also included.

I have always believed that the best way to transmit something is the example. In this case, I am happy to see that more and more colleagues of the Institute are coming to me asking what the better way would be to share data in repositories, how they have to prepare them, if later is still possible to publish them in a data-paper. I feel like I am giving my small contributions to increase the “open research” culture of the place where I am working, as well as the one of my field of research, where this is not the rule. Meanwhile, I’ll do my best to further improve my practices!