

The Past4Future project: outreach and dissemination of results

Dorthe Dahl-Jensen

Climate change is not only of concern to scientists but also to the public, media, and policymakers. Therefore, it is critical that EU projects dedicate effort to reaching out to these groups. This article describes the approaches taken by Past4Future.

The Past4Future project was a five-year project combining the expertise of 22 European and associated international project partners (Fig. 1). The project's core objective was to inform our knowledge about future climate and possible abrupt changes by researching similar conditions in the past and share the findings widely. Therefore, a substantial part of efforts and resources went into communicating the project results to a broad audience, including scientists both within and external to the climate science community, as well as policymakers and the public (Fig. 2A). This article provides an overview of the efforts undertaken and describes some of the achievements and barriers encountered along the way.

Communicating with stakeholders

Early in the project, a stakeholder survey was carried out to identify the method of dissemination that would be of most value to the main user groups, including scientists, policymakers, and the public. While the survey confirmed a general demand for scientific information, demands also extended to the clarity of communication. Scientific issues need to be presented in a clear way, which includes that robust results are identified and distinguished from more speculative scenarios and

unlikely developments. Due to the complexity of the scientific issues involved in climate change, many misconceptions and contradictory statements appear to exist, particularly among the public.

Getting feedback from the stakeholders turned out to be a major difficulty. Accordingly, we only received complete information from 13 of the 141 contacted (Thing 2013). This might illustrate that stakeholders are busy people and that a science survey has a low priority for them. Communication must therefore be particularly targeted and brief.

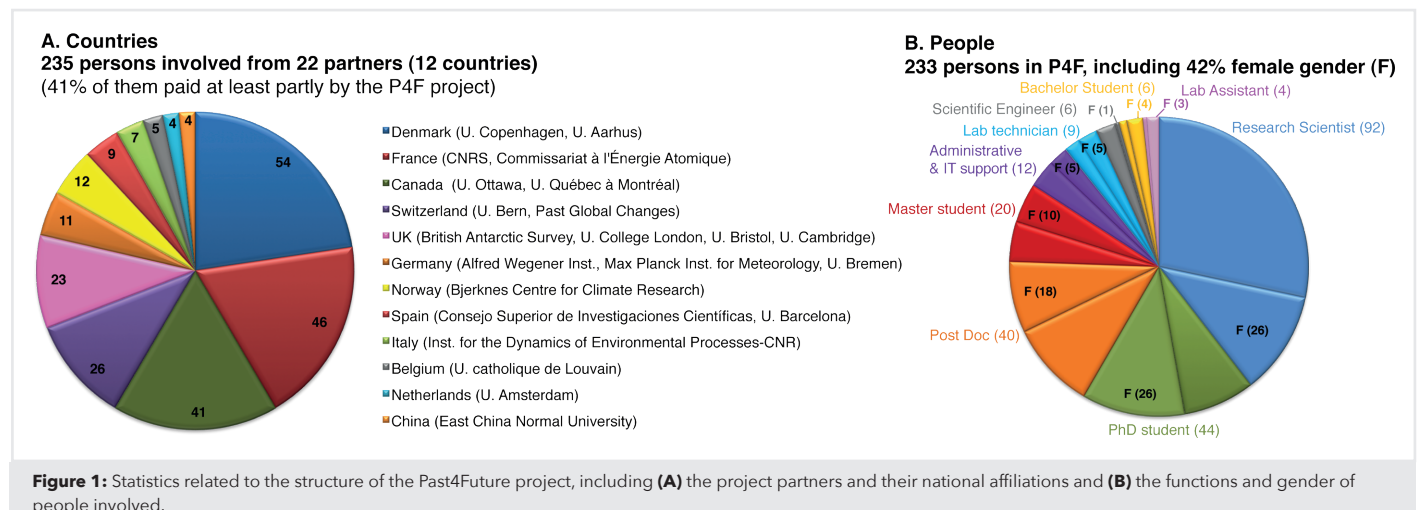
From the feedback we had received, it became very clear that stakeholders do not want information to be presented in the form of glossy brochures, and that information using the Intergovernmental Panel on Climate Change (IPCC) way of communicating uncertainty in text and graphs is preferred. Stakeholders preferred that shorter timescales of climate change impacts (10-100 years, within human lifetimes) were reported, although longer timescales were also acknowledged to be relevant. Information on most aspects of the climate system was considered important, with temperature and sea level considered top priorities.

Based on the feedback from the survey, we focused Past4Future communication efforts on participation in and contribution to the Fifth Assessment Report of IPCC's Working Group 1 (IPCC 2013), on press material related to publications by Past4Future researchers, and on press sessions at the EGU meetings in 2013 and 2014. Furthermore, final Past4Future findings were presented in three summary papers during a lunch meeting for decision makers in Brussels.

Communicating results to the scientific community

The scientific communication in Past4Future focused on peer-reviewed publications. A total of 207 papers in peer-reviewed journals, 97 of them open access, have acknowledged the Past4Future grant from the EU's Seventh Framework Programme (Fig. 2B, and full list at www.past4future.eu). These papers have been cited at least 777 times (as of Nov 2014), resulting in an overall h-index of 13.

The publications present major results on the behavior of the climate system in the last and the present interglacial periods. The systematic study of changes in these periods in the framework of Past4Future



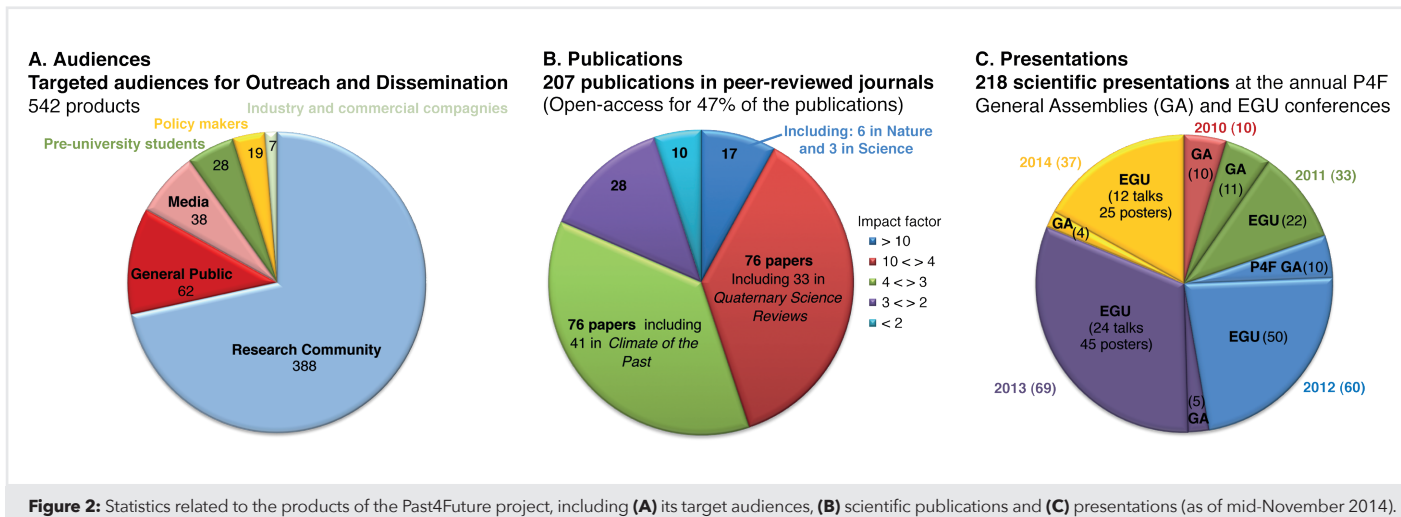


Figure 2: Statistics related to the products of the Past4Future project, including (A) its target audiences, (B) scientific publications and (C) presentations (as of mid-November 2014).

allows us to improve our understanding of the causes and risks of abrupt changes by aligning the timescales of paleoclimate records and using transient model simulations. And in line with one of the key project ambitions, a significant number of the papers were cited in the Fifth Assessment Report of the Working Group 1 of the IPCC.

In each of the five years of the project, Past4Future scientists planned and organized a session at the general assembly of the European Geosciences Union (EGU) where ongoing research and major results were communicated through oral presentations, traditional posters, and in the new format of interactive two-minute presentations. The sessions were among the biggest and most attended in the climate section of EGU, featuring between 22 and 69 presentations and attracting hundreds of attendees each year (Fig. 2C).

Global visibility of Past4Future was increased through the involvement of the global organization PAGES. Two special sections of the PAGES magazine (including the one at hand) were dedicated to Past4Future. They highlight key project results in an accessible format. The global distribution of the magazine and the project website, also hosted by PAGES, generated international synergies and brought the goals and outcomes of Past4Future to the attention of the paleoscience and wider scientific community well beyond Europe.

Data compilation and provision

As one of the dissemination and integration goals, Past4Future has produced a database of paleodata from a range of proxy archives available for the last two interglacial periods. In 2012, it was decided to use the PANGAEA database for the proxy records so they would be available for the entire scientific community. At present, 457 datasets directly related to Past4Future are in the database at www.pangaea.de. In addition to the proxy metadatabase, a modeling database has been created on the www.past4future.eu website as a portal for the project's model output.

Providing open access to Past4Future products was a key goal that was very successfully met, providing a valuable platform for ongoing research. Leveraging and building communication and archival resources using the structures of PAGES and PANGAEA also ensures that the information produced by Past4Future will exist and remain accessible after the project has come to an end.

The data compilation was complemented by a review of the dating methods of paleoclimatic archives and the alignment strategies of paleoclimatic records, with the goal of producing a protocol that enabled us to correctly and consistently compare paleoclimatic records from different archive types and between remote regions. As a result, a dating and synchronization guideline report was delivered in 2012, presented in the form of a PAGES magazine article (Capron et al. 2013) and prepared for submission to a peer-reviewed journal (Govin et al. in prep). These guidelines have been used throughout the project.

Internal project communication

Past4Future brought together an interdisciplinary team of skilled experts to advance the understanding of interglacial climate from global paleorecords. Among the 22 partner institutions of Past4Future, 197 scientists were directly involved in the project. Amongst them, 110 (i.e. 56%) were early-career scientists, including 40 PhD students (Fig. 1D). Of these, 19 were directly funded through the Past4Future grant, the others were funded mainly through national grants that linked to the Past4Future project.

Note also that the project has a gender ratio of 42% women (Fig. 1D). This is very high for paleoclimate science which has traditionally been dominated by male researchers.

Encouraging young researchers to be mobile and to expand their network was an important goal for Past4Future. To facilitate educational benefit for students in the project we maintained a roster of relevant laboratory and field courses available

for PhD and MSc students. This meant that Past4Future's researchers-in-training could choose to attend courses offered in other institutes from other nations.

A General Assembly for project participants was organized in each year of the project (Fig. 2B), during which the team could meet and exchange information about their latest results and plan and coordinate activities. Besides reports and presentations by the working groups, we organized special sessions for young scientists and a discussion session with decision makers, in which the EU Commissioner for Climate Action, Connie Hedegaard, participated.

Outlook

A final goal of the project is the dissemination of products targeting decision makers. To this end, a lunch meeting was held in Brussels where the major results generated by Past4Future are presented to policy and decision makers. Through an integrative approach combining information from climate model simulations and paleoclimate records, Past4Future reached far and accomplished a lot in understanding the processes that controlled the climate during the last two interglacial periods. The results have been published and presented at big meetings as the EGU. In addition the results have influenced the IPCC Fifth Assessment Report. I am pleased to conclude that Past4Future has lived up to its vision and fulfilled its mission to play an important role in applying knowledge of the past for the benefit of our common future.

AFFILIATIONS

Centre for Ice and Climate, Niels Bohr Institute, University of Copenhagen, Denmark
Coordinator of Past4Future.

CONTACT

Dorthe Dahl-Jensen: ddj@nbi.ku.dk

REFERENCES

- Capron E et al. (2013) PAGES news 21(1): 26
IPCC (2013) Climate Change 2013: The Physical Science Basis. Stocker TF et al. (Eds) Cambridge University Press, 1535 pp
Thing H (2013) PAGES news 21(1): 4