

# Integrated initiative on extreme events and risk assessment

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**Figure 1:** Example of a past extreme event: the Christmas flood, which killed approximately 14,000 people in the Netherlands, Germany and Scandinavia, was the result of a major storm on Christmas night 1717. Author unknown, Wikipedia, public domain.

In 2016, PAGES launched a new integrated initiative with the goal to improve the coordination between different communities working on past extreme events such as hurricanes, storms, droughts and floods. The initiative wants to stimulate new lines of research and facilitate the transfer of relevant information, in particular to the users and stakeholders dealing, up to now, mainly with more recent events. A lunchtime session took place during the PAGES 5th Open Science Meeting in Zaragoza to receive the inputs of the community on the proposed activities, to suggest additional ones and discuss a timeline for the implementation of the first actions.

The group reiterated the large interest of studying past extreme events: they are important elements of the climate system whose dynamics need to be better understood; they have a large impact on environment and societies, and thus attract strong attention from many stakeholders, including the general public; and paleoscience offers the only possibility to analyze a wide range of observed realizations of those generally rare events.

Despite the larger number of activities on past extreme events, establishing links between them did not appear straightforward. As a first step, it was proposed to prepare a

short glossary, giving a common definition of the main terms, such as what each of us mean by extremes, probability compared to possibility, etc., in order to facilitate the discussions. To gather input from the whole community, this will take the form of a Wiki page, on the web page of the Extremes Integrative Activity (<http://pastglobalchanges.org/ini/int-act/extremes>). A second action is to prepare a document on the PAGES website describing existing research on past extremes and presenting a few key results, with a specific link to the PAGES working groups active in the domain.

Another important point that was raised during the meeting and in subsequent discussions is that strong links need to be maintained and developed between communities working on past extremes and on more recent ones. In this framework, the World Climate Research Program (WCRP) Extremes Grand Challenge (<https://www.wcrp-climate.org/grand-challenges/gc-extreme-events>) and the Future Earth KAN on emergent risks and extreme events, the follow up to the Future Earth initiative on “Extreme events and environments – from climate to society (E3S)” (<http://futureearth.org/extreme-events-and-environments-climate-society-e3s>) are two clear opportunities of collaboration that will be actively pursued.

After those initial steps, a workshop will be organized in the first half of 2018, likely in collaboration with some WCRP and Future Earth partners, with the objective to determine the best way to synthesize the existing work on past extremes and, in particular, to contribute to assessments such as those proposed in the framework of the Intergovernmental Panel on Climate Change (IPCC).

The plans are still very open at this stage. If you are interested in this subject, you can join the mailing list of the Integrative Activity (<https://listserv.unibe.ch/mailman/listinfo/extremes.pages>), contribute to the Wiki page and send information to the activity coordinators, describing results that can be included on the web page or any suggestions that you consider useful to move the activity forward.

## AFFILIATIONS

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