

## 2021 Annual report of the GAPHAZ Scientific Standing Group

(by Marta Chiarle, Michele Koppes, Holger Frey)



At the beginning of year 2021, most of GAPHAZ attention was drawn by the Chamoli disaster that on February 7 has severely affected the Chamoli district in Uttarakhand, India. GAPHAZ realized a timely report (available on the GAPHAZ website), which was forwarded to and appreciated by governmental institutions in India. Further, GAPHAZ activated a Slack working space, where over 70 scientists and practitioners met and exchanged information and analyses. In this way, GAPHAZ fulfilled its mission of facilitating communication within the international scientific community and towards governmental communities, serving as a focal point of information for international media. This rare and complex event offered the opportunity to reflect on process chains and the possible role of climate change. The GAPHAZ community effort on the reconstruction of the Chamoli disaster resulted in a [Science publication](#) with 40+ authors, led by Dan Shugar. The Slack working space has proven to be an effective tool for promoting quick and inclusive interaction, and could therefore be provided by GAPHAZ for future events as well. It enabled the GAPHAZ community to be further expanded, with the involvement of many colleagues from East Asia, a previously underrepresented region.

GAPHAZ has actively contributed to international congresses and workshops. GAPHAZ members have made major contributions to EGU Online (in particular to session CR5.4 "Risks from a changing cryosphere, and mountains under global change", co-sponsored by IACS and IPA), and in the GLOF (Glacial Lake Outburst Floods) conference & workshop on 7– 9 July 2021, organized in Graz and online, with the GAPHAZ's patronage, aimed to address various aspects of GLOFs and global geographical coverage. Finally, a focus session on "Glaciers and permafrost risks in a changing climate" was proposed and accepted for [IMC22 in Innsbruck](#).

To further promote the dissemination of the "Technical Guidance document on the assessment of Glacier and Permafrost Hazards in Mountain Regions", the reference document for GAPHAZ, hard copies of the English version have been printed thanks to IACS financial support, and distributed in the Cryosphere pavilion at COP26 in Glasgow in November. The "Global database of glacier and permafrost hazard events and disasters", managed by GAPHAZ, continues to attract interest, and was an opportunity for new interactions and exchanges (e.g. with GEO-Mountains).

In early 2021, GAPHAZ completed its two-year rotation of Officers, which now includes Marta Chiarle (CNR-IRPI) as Chair, Michele Koppes (University of British Columbia) as vice-Chair, and Holger Frey (University of Zurich) as Secretary. The mailing list has been migrated to a listserv ([listserv@lists.ubc.ca](mailto:listserv@lists.ubc.ca)), making it easier to reach out the GAPHAZ community and for new members to join the standing group. A "GAPHAZ experts list" on the GAPHAZ website was realized, aiming at providing a platform for expert members.

The number of GAPHAZ members increased by more than 50% during 2021, to currently 188 persons signed up to the new listserv by the end of the year. This increase happened mainly due to the promotion for GAPHAZ on the Slack working space for the reconstruction of the Chamoli disaster. Despite the growing number of participants, additional efforts will be done to improve balance in the GAPHAZ community, with regard to gender and geographic representation, and thematic competences. Further, a list of scientific experts on glacier and permafrost related hazardous processes has been elaborated and is available on the GAPHAZ website ([www.gaphaz.org](http://www.gaphaz.org) > Menu "Experts").

GAPHAZ continues to consolidate its role as a reference point for the international community on glacial and permafrost risks in mountains, a topic that is receiving increasing attention due to ongoing climate change and the growing anthropic pressure on high mountain areas.

### **Funding request for 2022**

As mentioned in the annual report, from 7th to 9th July 2021, a GLOF conference & workshop (online) was organized, addressing various aspects and dimensions of glacial lake outburst floods (GLOFs). This conference has been organised under the patronage of GAPHAZ and - in turn - helped to further promote it. Tens of experts from around the globe gathered to identify recent progress and remaining challenges in GLOF research - a rapidly growing research field. As a result, a paper summarizing main findings has been prepared, with Adam Emmer (member of GAPHAZ) as leading author, submitted to and recently accepted in NHSS (<https://doi.org/10.5194/nhess-2022-143>).

Since this activity has not received any funding, as anticipated on the occasion of the last IACS Open Plenary Meeting GAPHAZ asks to use the annual funds made annually available from IACS to working groups to cover APC associated with this paper. Glacial lake outburst floods - the topic of the conference (and the topic of the paper) - are highly relevant for both GAPHAZ and IACS communities and both organisations are acknowledged in the acknowledgment section of the paper.