

## C02-O06

### THE FUTURE OF PERMAFROST RESEARCH; CONTRIBUTIONS OF EARLY CAREER RESEARCHERS FROM THE EUROPEAN CONFERENCE ON PERMAFROST TO ICARPIII

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The Permafrost Young Researchers' Workshop 2014, held during the latest European Conference on Permafrost in Évora, Portugal (June 2014) gathered 100 early career researchers from 20 countries to discuss and elaborate on the future of permafrost research. The event was a joint initiative of the two major early career researcher associations Permafrost Young Researchers' Network (PYRN) and the Association of Polar Early career Scientists (APECS), as well as the regional research projects PAGE21 (EU) and ADAPT (Canada).

Early career permafrost researchers worldwide were invited to submit important questions for permafrost research in the coming decade through an online survey. In total, 71 questions were submitted by 31 people from 15 countries, including males (54 %) and females (46 %), ranging from undergraduate students (19 %) to PhD students (35 %) and post docs (42 %).

During the workshop, small groups of participants reviewed sets of submitted questions, grouped by topic, in an elaborate discussion exercise. The questions were evaluated using a series of predefined criteria to provide realistic and sound research questions. In each discussion group, questions were criticized, merged and re-written until each group produced a comprehensive question to submit to the rest of the participants. The participants then voted to elect questions that best represented the most important research avenues for permafrost research for the next decade. The top five questions that emerged from this process are:

*How does permafrost degradation affect landscape dynamics at different spatio-temporal scales and which are the most important processes controlling these dynamics?*

*How can ground temperature models be improved to better represent factors affecting degradation, preservation, and aggradation of permafrost at high spatial resolutions?*

*In what ways can traditional knowledge be quantified and used in permafrost research?*

*What is the spatial distribution and the thaw susceptibility of massive ground ice, syngenetic ground ice, and epigenetic ground ice?*

*What is the influence of different types of infrastructure on the permafrost thermal regime and stability in different environmental settings?*

These questions relate to many disciplinary areas of research, including landscape dynamics, modeling, traditional knowledge, geocryology, and engineering. This effort engaged early career permafrost researchers in a constructive discussion, and reflection on the future directions of their field of research. These participants represent a new generation of permafrost researchers and offer a fresh insight into permafrost science, an important area within Arctic research. As such, the results of this effort provide an important perspective to consider in the future research agendas that are about to be redefined at international level.