Session title: Biodiversity and biogeochemistry of permafrost ecosystems and global change

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Summary: The degradation of permafrost and deepening of the active layer has accelerated in subarctic and arctic regions. Air temperatures and snow depth are predicted to continue to increase in many northern regions, so this trend is expected to persist. This has major consequences for biodiversity and the functioning of subarctic and arctic permafrost ecosystems, as most biogeochemical activity occurs in the active layer. Permafrost is present in 25% of the northern hemisphere, and stores large amounts of soil organic carbon (C). The degradation of permafrost is threatening because it may turn some ecosystems from C sinks to C sources, through the accelerated decomposition of C-rich organic matter, and the emission of greenhouse gases, with major consequences on the global C balance, biodiversity and climate. Moreover, despite recent advances in the inclusion of N and P cycles into ecosystem and climatic models, the coupling with nutrient cycles is still a knowledge gap for permafrost soils. In this session we will discuss the impacts of permafrost thaw on biogeochemical and biodiversity changes, as well as the past, current and future changes associated with global change.