

Overview of cryospheric science in Belgium

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Abstract

The cryosphere is one of the most dynamic spheres on the Earth's surface on almost any time scale owing to the Earth's temperatures being around the freezing point of water. Recent interest in cryospheric research is fueled by its sensitive role in the Earth's climate system and by the threat of substantial sea level rise if land ice starts to melt in a warmer greenhouse world. Belgium harbours a very active cryospheric research community despite the fact that Belgium has no ice on its soil or that it was covered by large ice sheets during the Quaternary ice ages. Among other reasons, this is rooted in Belgium's historic presence in Antarctica and by theoretical palaeoclimatic research on the origin of the ice ages since the seventies. Cryospheric research groups at Belgian universities are currently involved in glacier studies in Alaska, the Alps, and the Himalaya and participate in glaciological field activities in Greenland and Antarctica, as well as on Arctic islands. Several groups play an important role in large international programmes for ice coring in Antarctica and Greenland. Moreover, Belgian research groups are deeply involved in sea-ice and ice-sheet modeling and in the modeling of the surface mass balance of the large polar ice sheets. As such, Belgian scientists have co-authored subsequent IPCC assessment report chapters dealing with the cryosphere, the modeling of ice-climate interactions, and the projection of sea-level changes. This presentation intends to give a (selective) overview of Belgian cryospheric science and its role in international scientific activities.