

Preface

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The cryosphere collectively describes elements of the Earth System containing water in its seasonally and perennially frozen state. The cryospheric components of the Arctic represent a globally unique system, parts of which are inextricably linked with each other, with the landscapes, seascapes, ecosystems and humans in the Arctic, and with the global climate and ecological systems. Consequently, shifts in the Arctic cryosphere have great significance, not just regionally within the Arctic but across the planet as a whole.

As a follow up to the 2004/2005 “Arctic Climate Impact Assessment” (ACIA), the Arctic Council in 2008 requested the Arctic Council Working Group, Arctic Monitoring and Assessment Programme (AMAPWG) to facilitate the synthesis of the latest scientific knowledge on changes in the Arctic cryosphere and to assess the effects of these changes. In doing so the AMAPWG has partnered with the International Polar Year (IPY) project office, IASC (International Arctic Science Committee), IASSA (International Arctic Social Sciences Association), WCRP/CliC (World Climate Research Programme/Climate and the Cryosphere) in the “Snow, Water, Ice and Permafrost in the Arctic” (SWIPA) project.

The objectives of the SWIPA Project are to provide timely, up-to-date, and synthesized scientific knowledge about the present status, processes, trends in Arctic sea ice, snow cover, permafrost, mountain glaciers and ice caps, the Greenland Ice Sheet, and related hydrological conditions, and to assess the consequences of these changes on arctic biological systems, and human societies and lifestyles.

The SWIPA assessment was produced by more than 200 scientists and experts from the arctic and non-arctic countries. The experts were charged with compiling and evaluating information from Arctic monitoring networks

and recent national and international research activities, such as those carried out during the International Polar Year (IPY; 2007–2008), focusing on new information

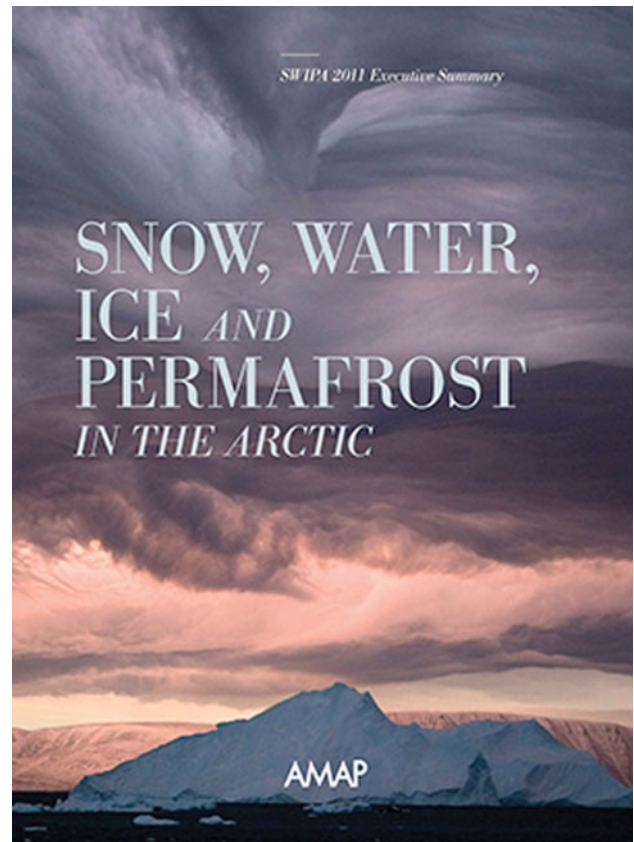


Fig. 1 The full SWIPA report can be downloaded from www.amap.no/swipa

gathered since the ACIA assessment, which serves as the benchmark of the study.

The project has been guided by an integration team consisting of coordinating lead authors of the different modules and representatives of participating organizations. A strict and independent peer-review process was established by the AMAP working Group to secure and document the integrity of the process.

Preliminary results of some of the SWIPA work were first presented at the 15th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC CoP 15) in 2009, where the report “The Greenland Ice Sheet in a Changing Climate” was released. Based on the scientific SWIPA report (Fig. 1), a range of SWIPA products have been produced in 2011. These include an executive summary, an overview report, and three short films conveying the findings of SWIPA. This Special Issue of the journal *Ambio* is another. All SWIPA products are posted at the AMAP web-site: www.amap.no/swipa, and are available through the AMAP secretariat.

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