Norwegian-US Antarctic IPY Traverse (TASTE-IDEA)

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Project summary

The objectives will be accomplished through a coordinated program of field observations, remote sensing, and modeling. The core of the work is two overland traverses in Dronning Maud Land (DML), East Antarctica: 1) from Norwegian Troll Station (72º 0? S, 2º 32? E) to Amundsen-Scott South Pole Station (90º S, 0º E) during 2007-2008 season; and 2) returning by a different route from South Pole to Troll during the 2008-2009 season. The two field seasons will be bracketed by an initial year of remote sensing analyses, data mining, and analysis of an existing ice core near Troll, and a final year of interpretation and synthesis. Fieldwork conducted during the two traverses will include: 1) collection of three intermediate-depth (~120 m deep) ice cores and 8 shallow (<40 m) firn cores; 2) near-surface in situ sampling of chemical and isotopic composition; 3) continuous profiling between ice core sites of stratigraphy in the upper ~100 m of the ice sheet using several radar systems; 4) studies of the physical properties of the surface and near-surface firn; 5) the deployment of Automatic Weather Stations (AWS); 6) studies of ice dynamics at ice core sites and along the traverse routes; and 7) physically based modeling of snow-atmosphere processes and interactions. The objectives outlined in this proposal contribute directly to recommendations in the Research Council of Norway's IPY policy plan and in the US National Research Council's "Vision for the IPY" (NRC 2004), by providing an assessment of the polar environmental changes through studies of the past environment and the creation of baseline datasets. Also, it contributes to the study of environmental change and the linked traverses in East Antarctica mentioned in ?International Polar Year 2007-2008: Report of the Implementation Workshop (NRC, 2005). The project is one of the linked traverses in the Trans-Antarctic Scientific Travers Expeditions - Ice Divide of East Antarctica (TASTE-IDEA), endorsed by ICSU-WMO.