Session proposal for Oslo 2010

Chemical exchange between ice, atmosphere and ocean in the polar regions (OASIS and AICI)

Conveners:

Harry Beine, UCDavis
Paul Shepson, Purdue U.
Eric Wolff, British Antarctic Survey

Until recently, it was generally assumed that the main biogeochemical role of ice was that it restricted exchanges between the more active ocean and land surfaces and the atmosphere. However, a number of field programs, principally in the Arctic and Antarctic, have revealed many unexpected and interesting phenomena, and shown that the chemistry of the ice may control aspects of boundary layer chemistry over large regions of the world, rather than the other way round. In addition, for some species the exchanges between snow and the atmosphere, and the postdepositional processing have a decisive impact on the famous palaeoclimatic signal that is retrieved from ice cores. This session welcomes studies on all aspects of the chemistry of the polar lower troposphere, especially those involving exchanges with the surface. Of particular interest are phenomena associated with halogen, VOC and NO_x releases and associated effects on ozone and mercury, and processes of snow photochemistry. The session should include observations from IPY field studies, laboratory studies providing underpinning data, and modeling studies that aim to understand the field data. Assessments of the effects on these processes of a changing climate and cryosphere are also welcome. The projects OASIS (Ocean-Atmosphere-Sea Ice-Snow) and AICI (Air-Ice Chemical Interactions) (both supported by the IGBP SOLAS and IGAC projects) are expected to provide the bulk of input to the session.

Anticipated target group

Atmospheric chemists, ice physicists and chemists, ice core scientists, Biogeochemists.