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Air-Ice Chemical Interactions (AICI) – IPY coordinated studies

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The polar atmosphere is often considered both pristine and simple. However, there is a strong dynamic between the lower atmosphere and ice surfaces. Over the polar plateau, production in the snowpack controls the chemistry of the lower atmosphere. Halogen chemistry over the sea ice zone depletes boundary layer ozone, and causes mercury deposition. Persistent organic compounds undergo a distillation which leads to their deposition in polar regions.

The IGBP projects, IGAC and SOLAS, have jointly endorsed a task, "Air-Ice Chemical Interactions", to determine the importance of these processes, and assess how they would alter with a warming climate and shrinking cryosphere. IPY offers a unique opportunity to determine the spatio-temporal pattern of boundary layer chemistry and processes, by linking various field activities carried out in the same year. AICI-IPY will provide an overall framework, arrange supporting laboratory and modelling studies and integration of remote sensing data, and organise synthesis meetings. This work will support and link these more focussed field activities on the polar plateau (including GeoSummit activities in Greenland), in the sea ice zone (notably OASIS project), from aircraft (notably the ITCT-Arctic), and across both polar regions. Many of these activities are the subject of separate IPY submissions: the role of AICI will be to coordinate them to give the maximum science output.