

O-buoy measurements of ozone, carbon dioxide, bromine monoxide over the ice of Hudson bay and the Arctic ocean

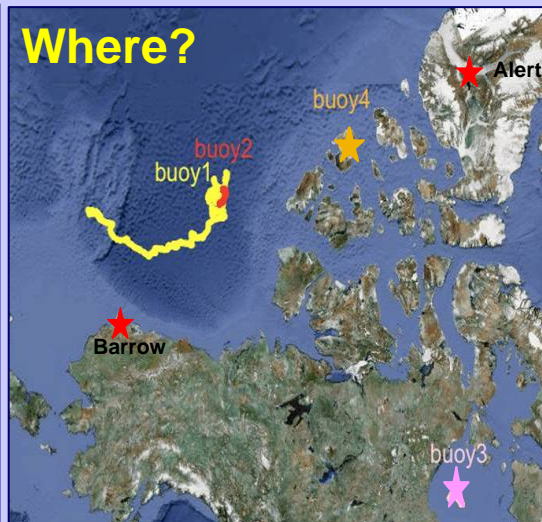


Why?

High levels of carbon dioxide and other greenhouse gases contribute to the changing weather patterns, water and ice conditions observed in the Arctic. Spring time episodes when the Arctic is completely or partially depleted of ozone have been linked to increased bromine monoxide concentrations shortly after forming of sea ice. Ozone is the source of the main cleaning reagent in the Arctic atmosphere and its decrease and absence affects when and how pollutants emitted in the South and transported North will be removed. Conditions that lead to larger areas of melting ice over the Arctic and its refreezing might result in more extensive periods of ozone loss. Our goal is to provide input and validation information on carbon dioxide, ozone and bromine monoxide current levels and meteorology over large areas of the Arctic Ocean and Hudson Bay over long periods of time to satellite instruments, chemistry, weather and climate models. Their current levels in the atmosphere, processes and mechanisms that control and impact them are poorly known at a time of fast changes in the Arctic. More data are required to improve our understanding on what is happening in the air in order to develop capability to forecast future developments and understand how they might impact the climate and human life.

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Where?



How?



O-buoy:

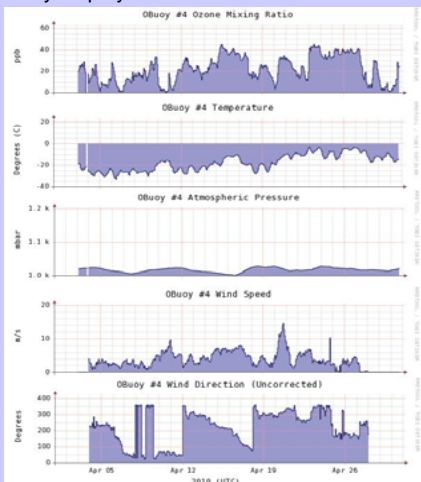
runs on power source built on Li and lead-acid batteries charged by solar panels; measures: ozone, carbon dioxide and bromine oxide in the air; metrological parameters; records buoy/ice drift (GPS) and sky and ice conditions (web camera); transfers information via satellite to our laboratory displayed in 6-24 hours interval at <http://obuoy.datatransport.org/monitor>



camera



Drift/GPS



assembly



test



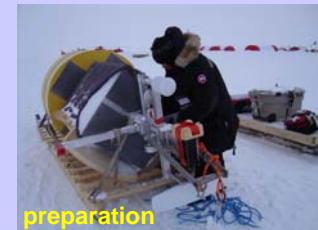
test



ice conditions update



transport



preparation



logistics



drilling a hole



deployment hole