Airborne observations of changes of ice sheet and sea ice in the Arctic using CryoVEx campaign data

DTU Space have collected surface elevation observations of the Arctic sea ice and land ice since 1998 using laser scanning and radar altimetry from a small fixed-wing Twin-Otter aircraft. The observations provide unique datasets for studying ongoing changes, and support the analysis of satellite measurements of ice sheet changes. The majority of the campaigns have been sponsored by the European Space Agency, ESA, as part of the CryoSat Validation Experiments – CryoVEx. These have been internationally coordinated efforts to collect coincident space-borne, airborne, and in-situ data for pre- and post-launch validation studies, with several aircraft and international in-situ ground teams participating, both in Greenland, Arctic Canada, and Svalbard.

The methods and campaigns are outlined together with examples of results. The campaigns focused on five main validation sites: Devon ice cap (Canada), Austfonna ice cap (Svalbard), the EGIG line crossing the Greenland Ice Sheet, as well as the sea ice north of Alert and sea ice around Svalbard in the Fram Strait. Selected tracks were planned to match CryoSat-2 passes and a few of them were flown in formation flight with the Alfred Wegener Institute (AWI) Polar-5 carrying an EM-bird. The poster will outline the methods and campaigns, as well as show examples of the results.

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Contributors: Hvidegaard, S. M., Skourup, H., Forsberg, R., Nielsen, J. E., Olesen, A. V., Sørensen, L. S., Simonsen, S. B. , Davidson, M., Casal, T.
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