

Subproject: AUV Measurements

Actual field dates: 9 – 27 August

Field site: Villum Research Station, Station Nord, Greenland

Number of man-days in the field: 5

Summary:

Measurements of near-ice hydrography are challenging because of the difficulty of working at the margin of glaciers. This can be potentially dangerous as icebergs can rotate and the glacier terminus can break off producing significant wave action. The use of an automated underwater vehicle (AUV), a drone for in the water, brings us close to the ice front. Our first field test in the high Arctic was promising. We positioned ourselves at a safe distance, while the AUV was mapping the near glacier hydrography with unprecedented areal resolution. We mapped three locations along the glacier's wall and achieved to measure temperature, salinity and current velocities around a melting iceberg. Our newly developed OptoCOPH, which optically measures Oxygen, CO₂ and pH was tested in the cold waters of North East Greenland. Further progress in sensor development will improve the use of these sensors on our AUV, which will enable us to map the plumes of glacial meltwater that impact the carbon chemistry of the ocean.

Photos:

Fig.1: Location of the AUV measurement sites, background Radarsat image of 15 02 2015 (source background DMI). Credit: Wieter Boone/DMI

Fig. 2: Preparation of the AUV Deployment with Søren Rysgaard, Yubin Hu and Wieter Boone. Credit: Søren Rysgaard

Fig. 3: The AUV during a measurement mission close to an iceberg in the proximity of the Flade Isblink ice tongue. Credit: Jørgen Bendtsen

Participants:

Søren Rysgaard, Wieter Boone. Other : Morten Larsen

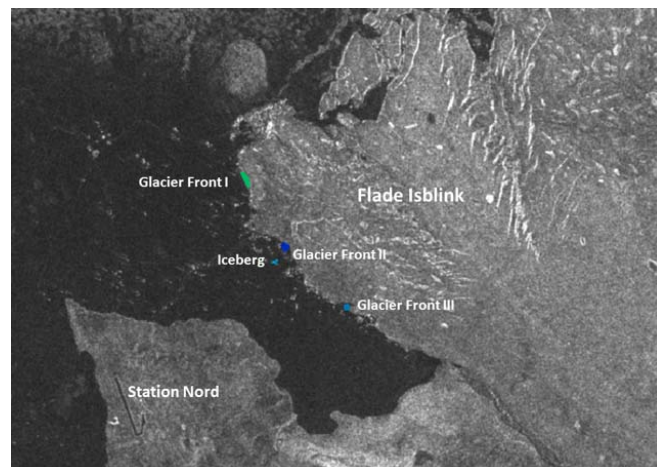


Figure 1



Figure 2



Figure 3

Acknowledgements:

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