

Student project/job opportunity



The Sea Ice Physics Section at the Alfred Wegener Institute obtains the key observations required to untangle the uncertainties of the rapid changes of Arctic and Antarctic sea ice. We are developing various sea ice thickness monitoring systems that can be used with helicopters, snowmobiles and ships or autonomously while placed on the ice for months. For different projects, we are looking for capable, independent students that are interested in developing the hardware and software components of such systems and their interfaces. The projects can be carried out as student job (HiWi) or BSc or MSc projects.

Autonomous Lidar to measure sea ice topography

The topography of sea ice contains important information like sea ice deformation, influence on the drift of sea ice and near-surface atmospheric transport of momentum. In order to monitor the sea ice topography, a Lidar (“laser scanner”) will be used to create a Digital Elevation Model (DEM) of the survey area. This student project will be the first step of developing a system that will measure the sea ice topography continuously and create a DEM in real-time.

Tasks:

- Put the Lidar into operation
- Record first datasets for testing using Wireshark and proprietary software
- Research about tools and software to create a DEM from Lidar data
- Write Python software to create a DEM from pre-recorded laser scanner data
- Setup test scenarios and record data
- Validate the software and the created DEM
- Record data from Laser scanner in real-time
- Calculate a DEM in real-time from Laser-scanner data



Further development:

- Research a suitable hardware for the calculation of the DEM to be integrated in an autonomous system
- Build an autonomous data acquisition unit
- Build a first system that can be operated autonomously

For further information, please contact:

Or:

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