

A new approach for deploying an ocean glider in remote locations

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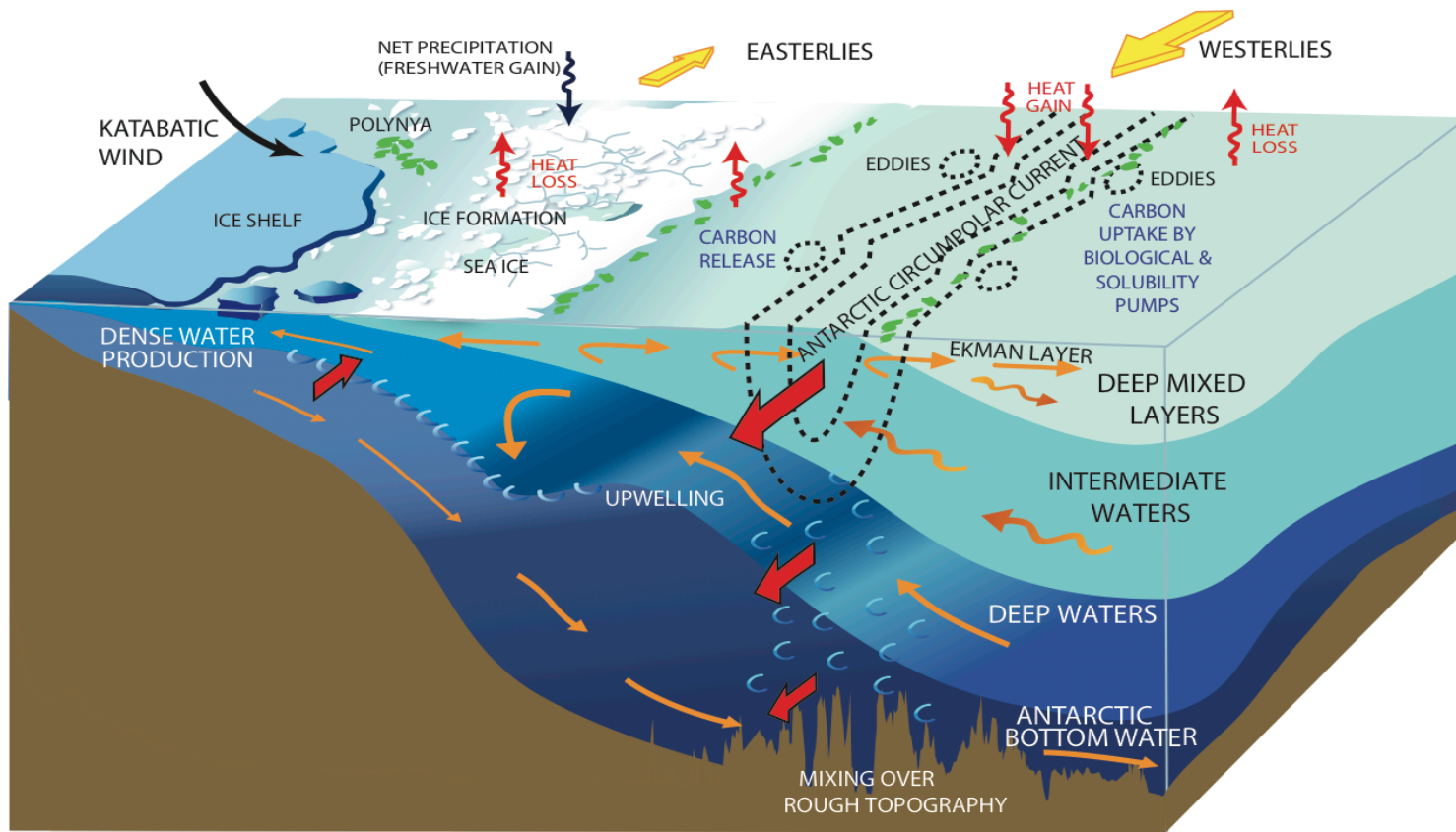


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We need better understanding and representation of Antarctic processes of air-sea-ice interaction, dense water formation and ice shelf mass loss but these are challenging to observe



**ERC funded project
COMPASS
studies the
Antarctic
continental
shelf and
slope using
gliders**



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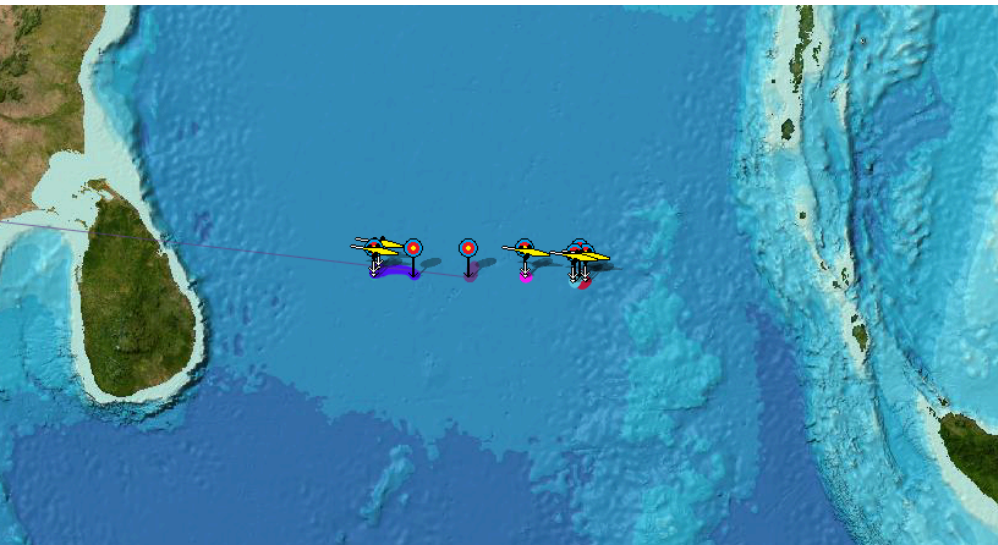
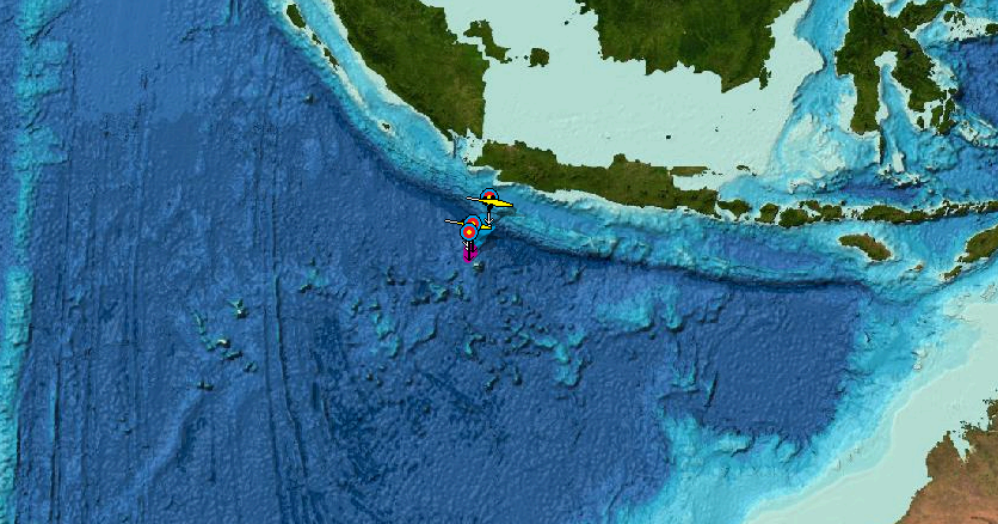
ERC funded project COMPASS

- ✦ devising a way of delivering a profiling ocean glider to remote or risky locations such as:
 - ✦ Antarctic polynyas
 - ✦ ice shelves



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ERC funded project **COMPASS**

✦ Deploying in remote or risky locations such as:

- ✦ inaccessible locations
- ✦ war/piracy zones

✦ Initiating glider campaign at a key time, e.g. before spring bloom or hurricane arrival

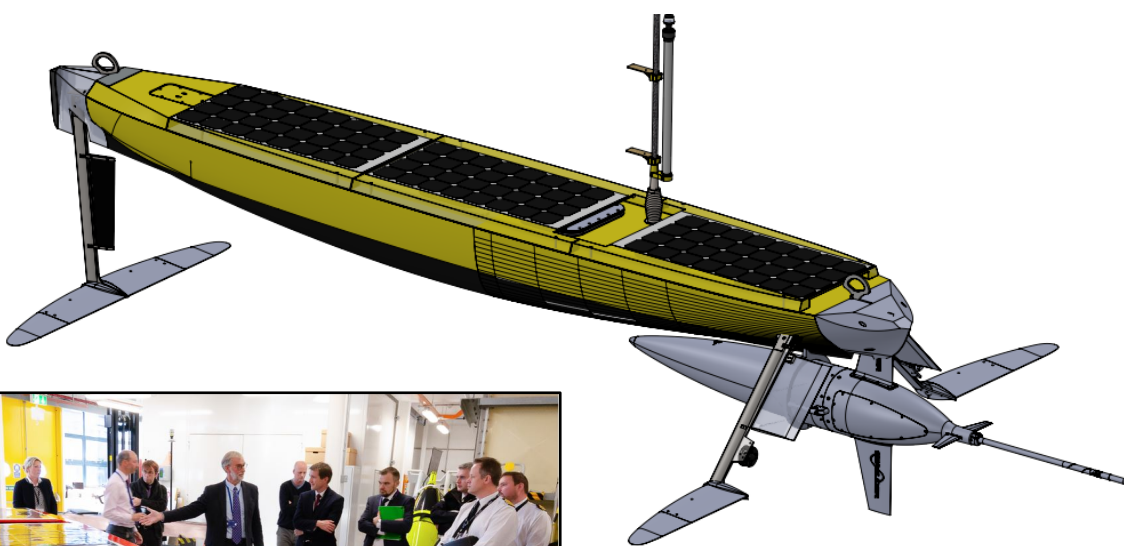
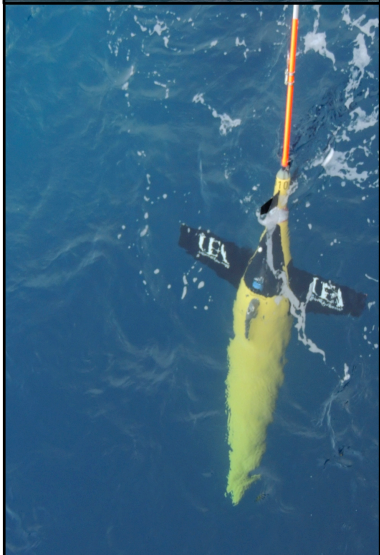
✦ ELO glider campaign, off Indonesia 2019

✦ BoBBLE glider campaign, Bay of Bengal 2016

AutoNaut surface vehicle

- ✦ autonomous, wave-propelled surface vehicle, speed ~1-3 knots
- ✦ shallow draft, easily transported and deployed from beach or ship
- ✦ carries solar-powered sensors for meteorology and/or oceanography
- ✦ designed to withstand heavy seas, self-righting, piloted using iridium
- ✦ collision avoidance via AIS
- ✦ COMPASS vehicle, *Caravela*, is 5 m long.



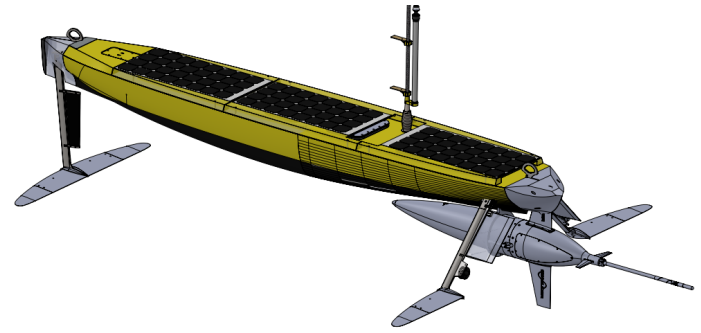


Caravela
now being
trialled



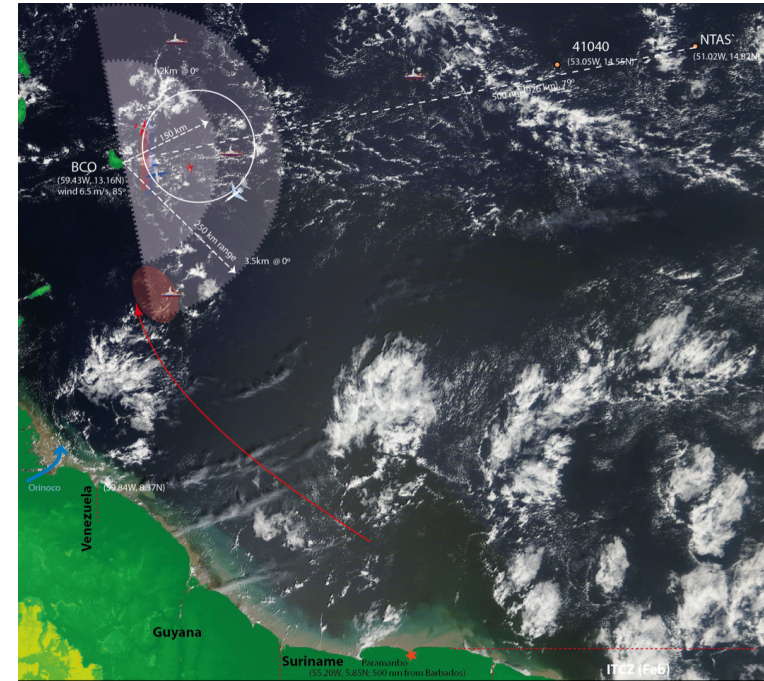
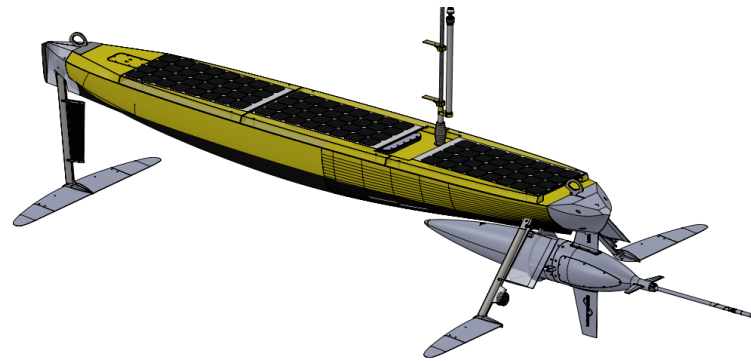
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- ✦ Glider is carried beneath AutoNaut
- ✦ Seaglider will be in transit slightly positively buoyant ready for sealaunch
- ✦ Triggered remotely by pilot to release Seaglider
- ✦ Glider bobs up to surface and calls home
- ✦ Glider is not recovered by AutoNaut



AutoNaut

- ✦ *Caravela*'s first science mission planned in January-February 2020 in conjunction with major French-German programme Eurec4a
- ✦ Launch *Caravela* from Barbados
- ✦ Carries glider to study site about 200 km east of Barbados
- ✦ Releases Seaglider
- ✦ *Caravela* and Seaglider occupy time series site for about one month
- ✦ Seaglider recovered by *Meteor*
- ✦ *Caravela* travels back to Barbados
- ✦ Provide simultaneous atmospheric and oceanographic measurements
- ✦ Study air-sea fluxes & heat budgets



Caravela will enable glider deployment in inaccessible locations

- ✦ First science mission in 2020 in Eurec⁴a
- ✦ Second science mission in 2021 on continental shelf near ice shelves in Amundsen Sea
- ✦ Provide simultaneous atmospheric and oceanographic measurements

