

WAPSA Regional Working
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Brazilian activities in the northern Antarctic
Peninsula: current projects and priorities



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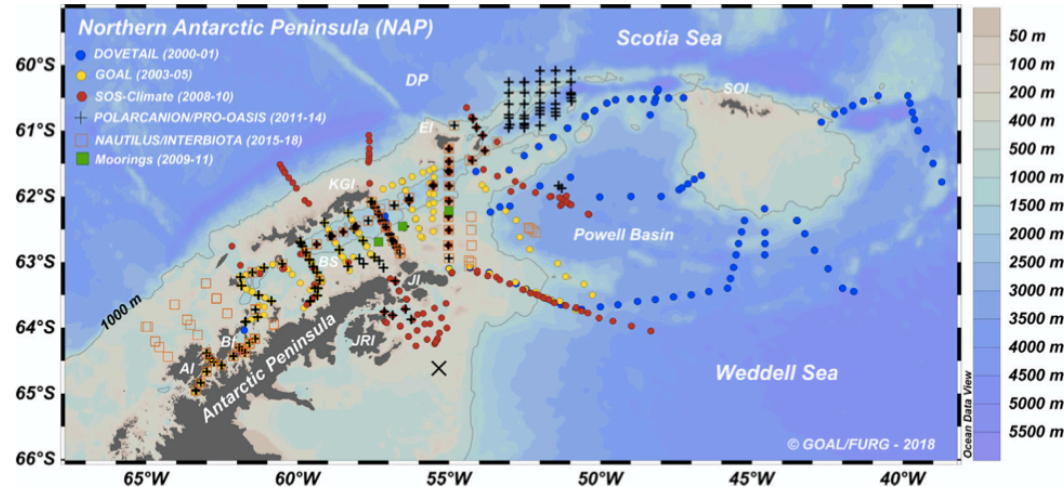
INSTITUTO DE
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Grupo de Oceanografia de Altas Latitudes

Brazilian High Latitude Oceanography Group (GOAL)

- ❑ Multi- and interdisciplinary group: ocean physics, biogeochemistry and biology (primary producers to top predators)
- ❑ Established since 2002
- ❑ Cooperation with UEA, UPVD, AWI, SHN, UL, among others.
- ❑ Special Issue on DSR-2 – vol. 149, 2018 – 15 years



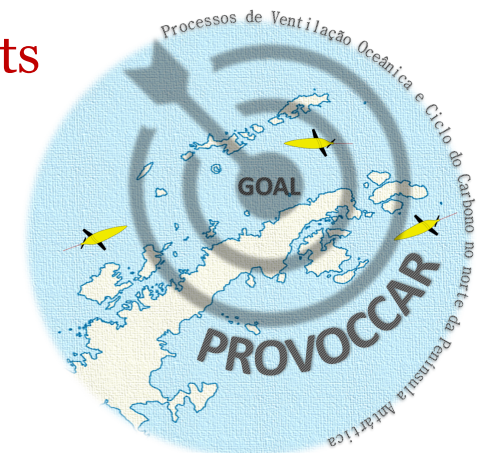
Dataset (2000-2018, Mata et al. 2018)

- ❑ Unique occupation around the NAP
- ❑ Available at PANGAEA (GOAL, Mata, Garcia, Kerr)

Current projects



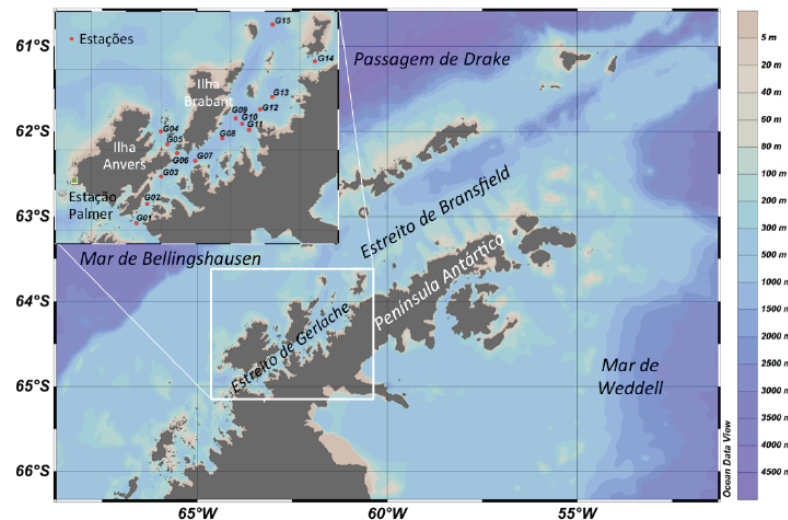
Response of the pelagic ecosystem to climate change



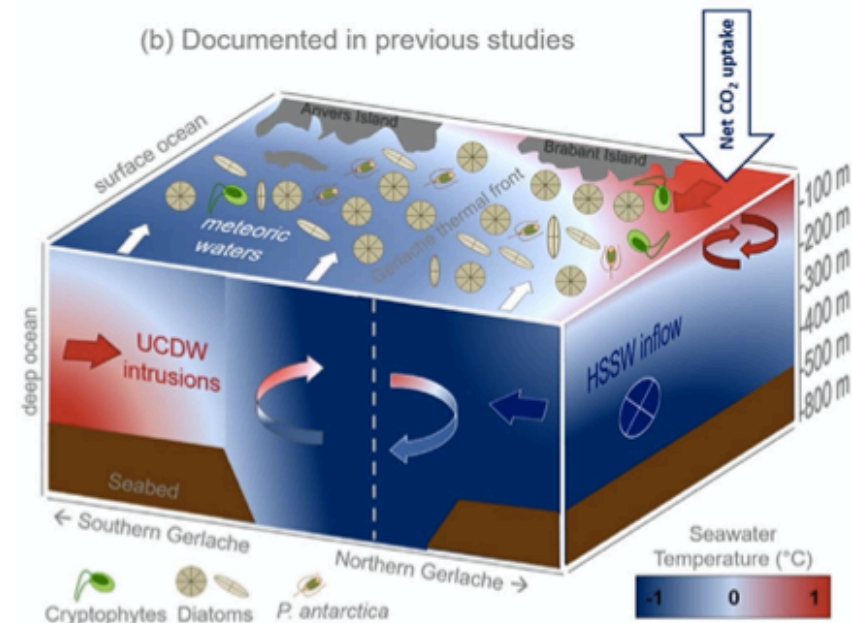
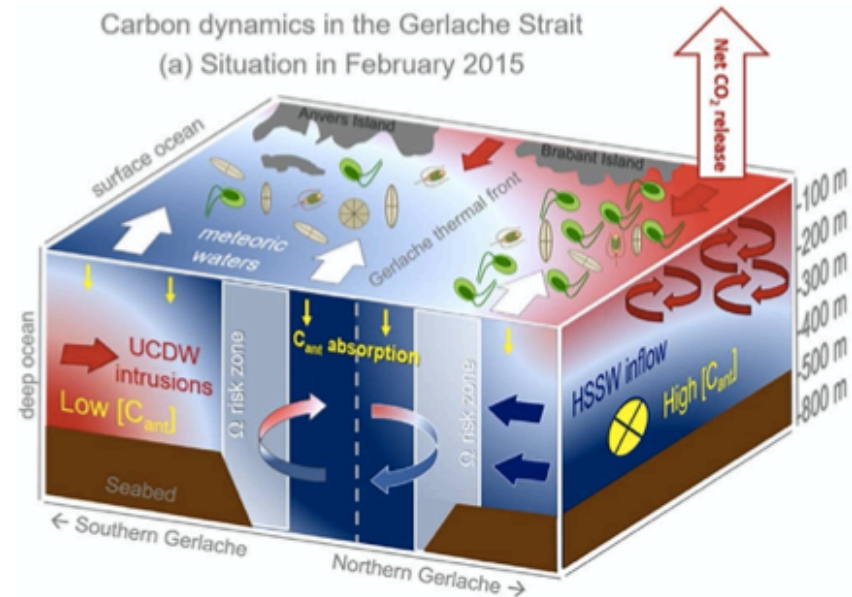
Ocean ventilation & carbon cycle issues

The Gerlache Strait

- ❑ Southern extreme of the NAP. Between the Anvers and Brabant Islands/AP
- ❑ General ocean circulation: *northwards surface circulation and sub-surface CDW intrusions from the S, and shelf waters from the N*
- ❑ Meltwater input from the continent
- ❑ Has been intensively studied by GOAL
- ❑ Input of **anthropogenic carbon** from the N
- ❑ **Dominance of cryptophytes** at certain hydrographic conditions
- ❑ Specific situation of CO₂ outgassing in 2015

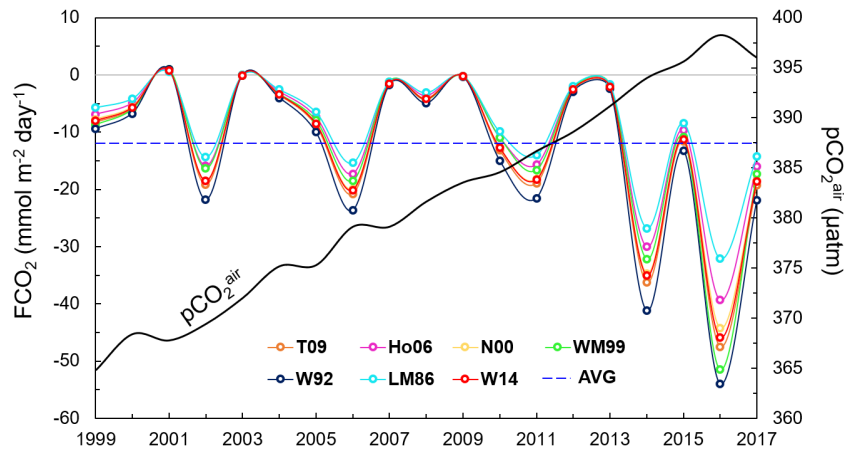


Kerr et al. 2018, Mendes et al. 2018, DSR-II

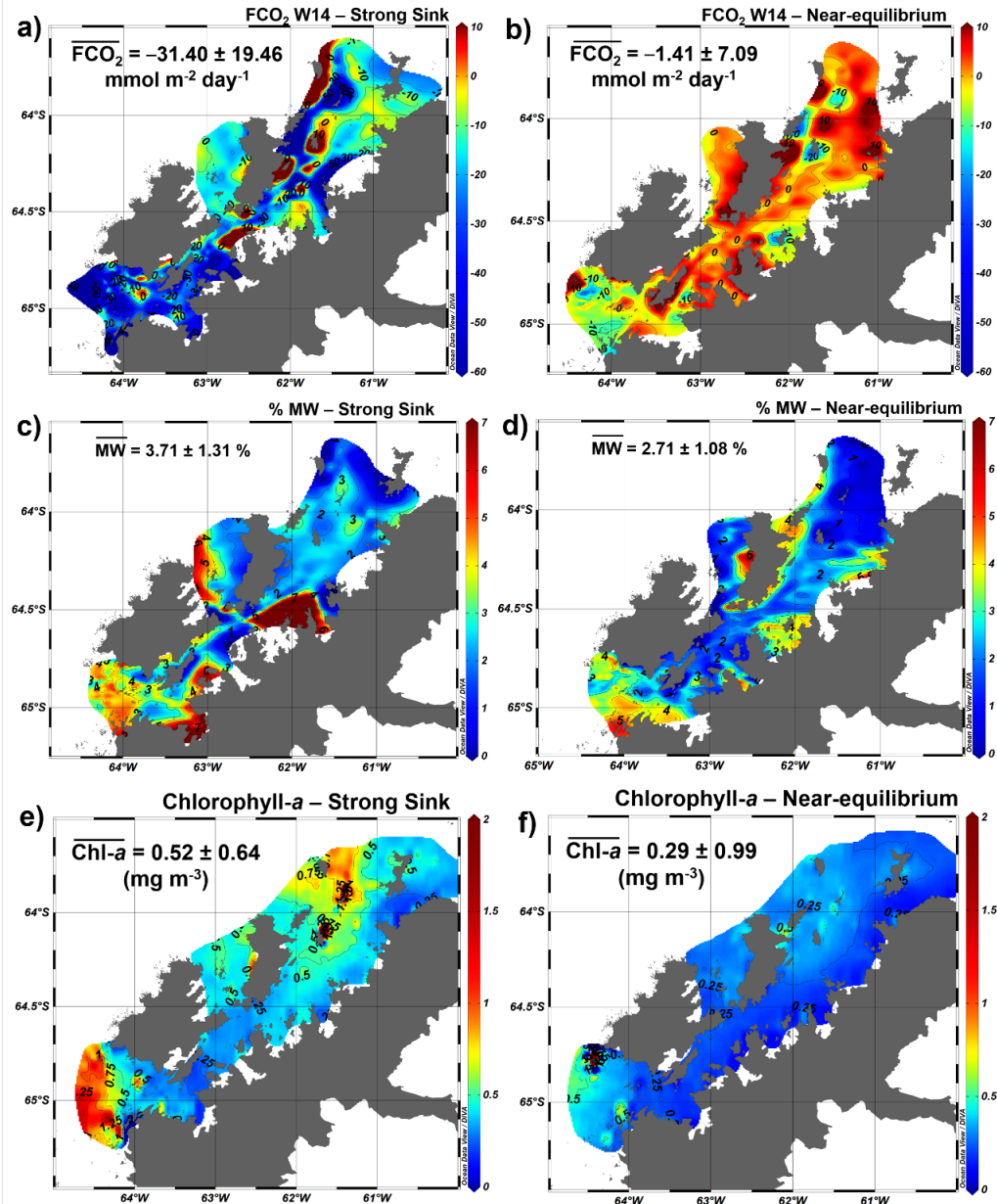


Gerlache Strait

- ❑ The Gerlache Strait acts as a stronger CO₂ sink than nearby open ocean areas during the austral summer
- ❑ We identified both strong and near-equilibrium sink scenarios for FCO₂.
- ❑ The pattern of variability of FCO₂ has changed since 2012 to a higher frequency of years with a strong CO₂ sink



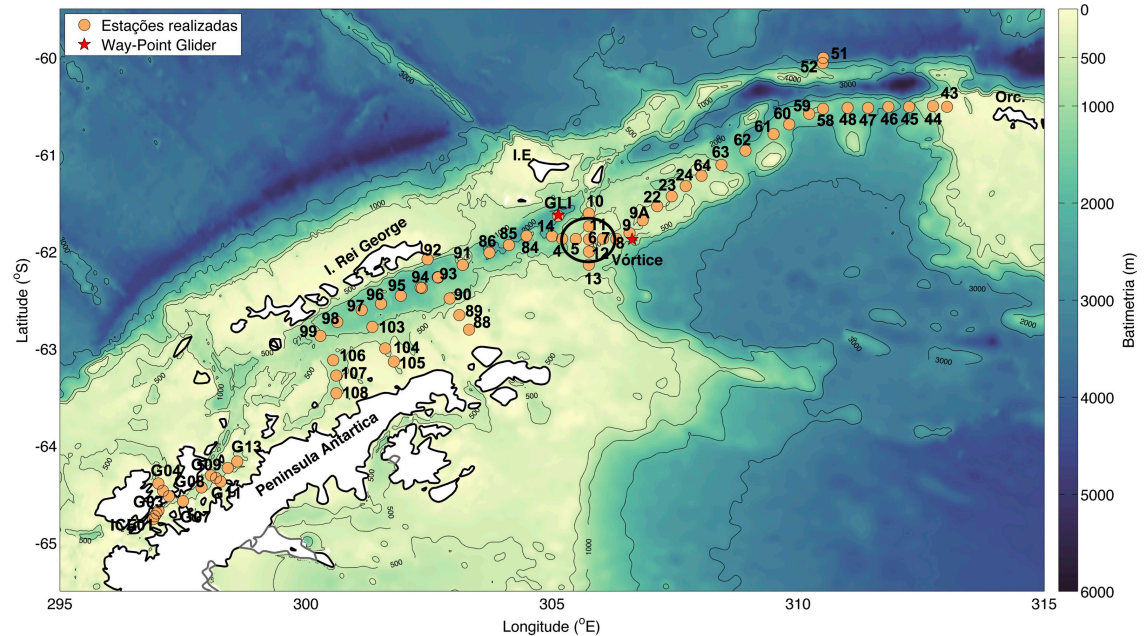
Monteiro et al. 2020, PiO



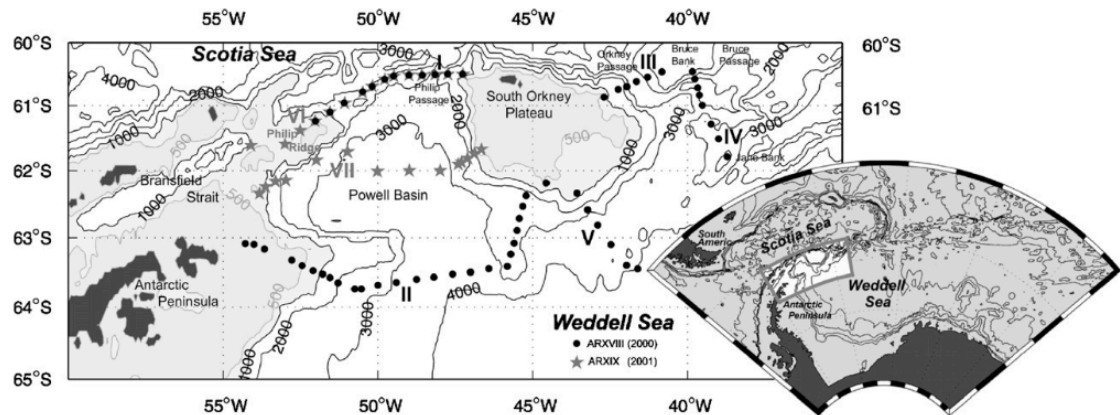
Reoccupation of Powell Basin northern section (Feb 2020)

- ❑ Repeated section 20 years after the DOVETAIL program
- ❑ Physics, biology and carbon studies of the stationary eddy next to the Elephant and Clarence Islands
- ❑ Keep the summertime monitoring of the Gerlache and Bransfield straits
- ❑ Several studies are in progress to better understanding the ocean dynamics, CO₂ fluxes and drivers, phytoplankton dynamics (e.g. Costa et al. 2020, L&O), carbon export, and carbonate system variability on the NAP environments.

GOAL/PROVOCCAR 2020 – OPERANTAR XXXVIII



PROVOCCAR/ECOPELAGOS report, 2020

DOVETAIL sections
Franco et al. 2007, DSR-I



Thank you!
Obrigado!

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