

*Taller Bilateral Chile - Perú

Avances en Oceanografía en sistemas Sub- antártico y Antártica 2016 - 2018

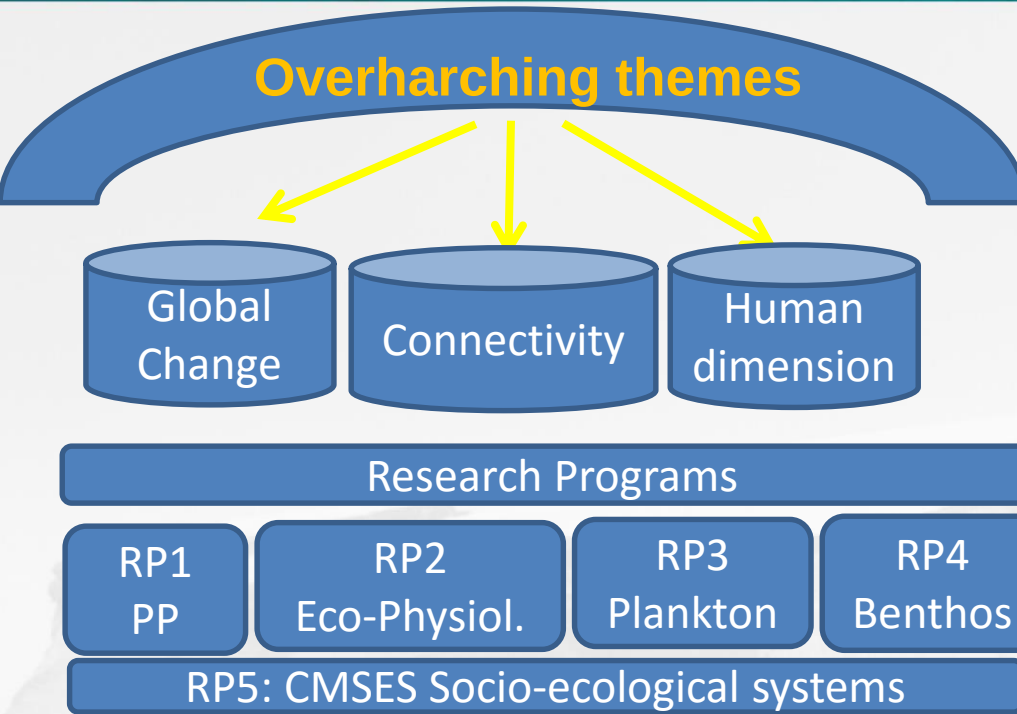
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Centro de Investigación
Dinámica de Ecosistemas Marinos
de Altas Latitudes



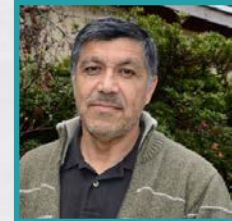
RP1 Marine
Productivity



RP2 Physiology and
Adaptation on marine
organisms



RP3 Plankton



RP4 Benthos



RP5 Human dimension.
Coastal and marine socio-
ecological systems



Sistema Ecológico



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Social System

Social

- Aquaculture expansion
- Human wellbeing loss
- Benefits of integrating natural and social sciences. i. e. a livelihood perspective helps to strengthen resilience thinking by placing greater emphasis on human needs and their agency, empowerment and human rights.

Scientific / Environmental

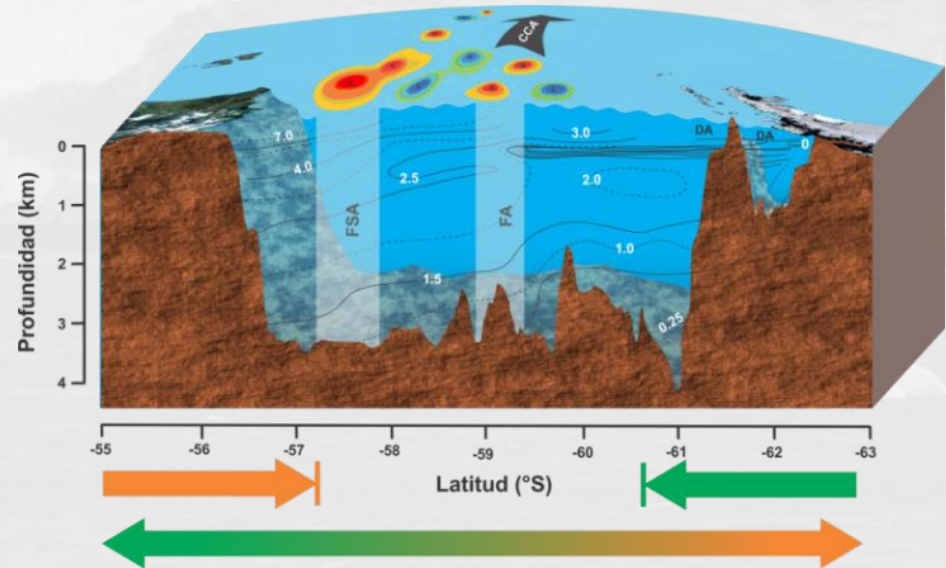
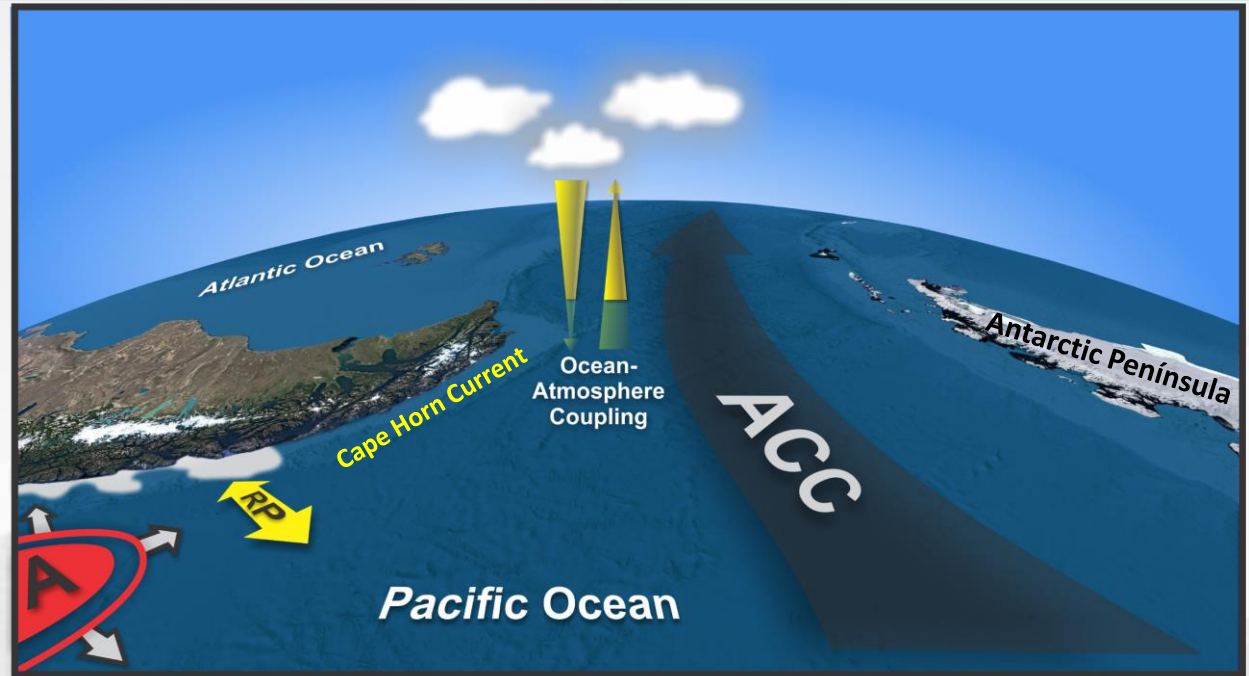
- Global change natural & anthropogenic (multiple stressors)
- Connectivity between WAP and SCP
- Habitat/biodiversity loss/change
- Scientific significance of “hot spots”
- Key species and functional groups.
- Ecosystem services

Knowledge transfer

- Science bounded to society
- Awareness and engagement of stakeholders on Subantarctic and Antarctic issues

1.-Sub-Antarctic (coastal & oceanic)

2.-Antarctic (coastal & oceanic)



Sistemas autónomos mares australes

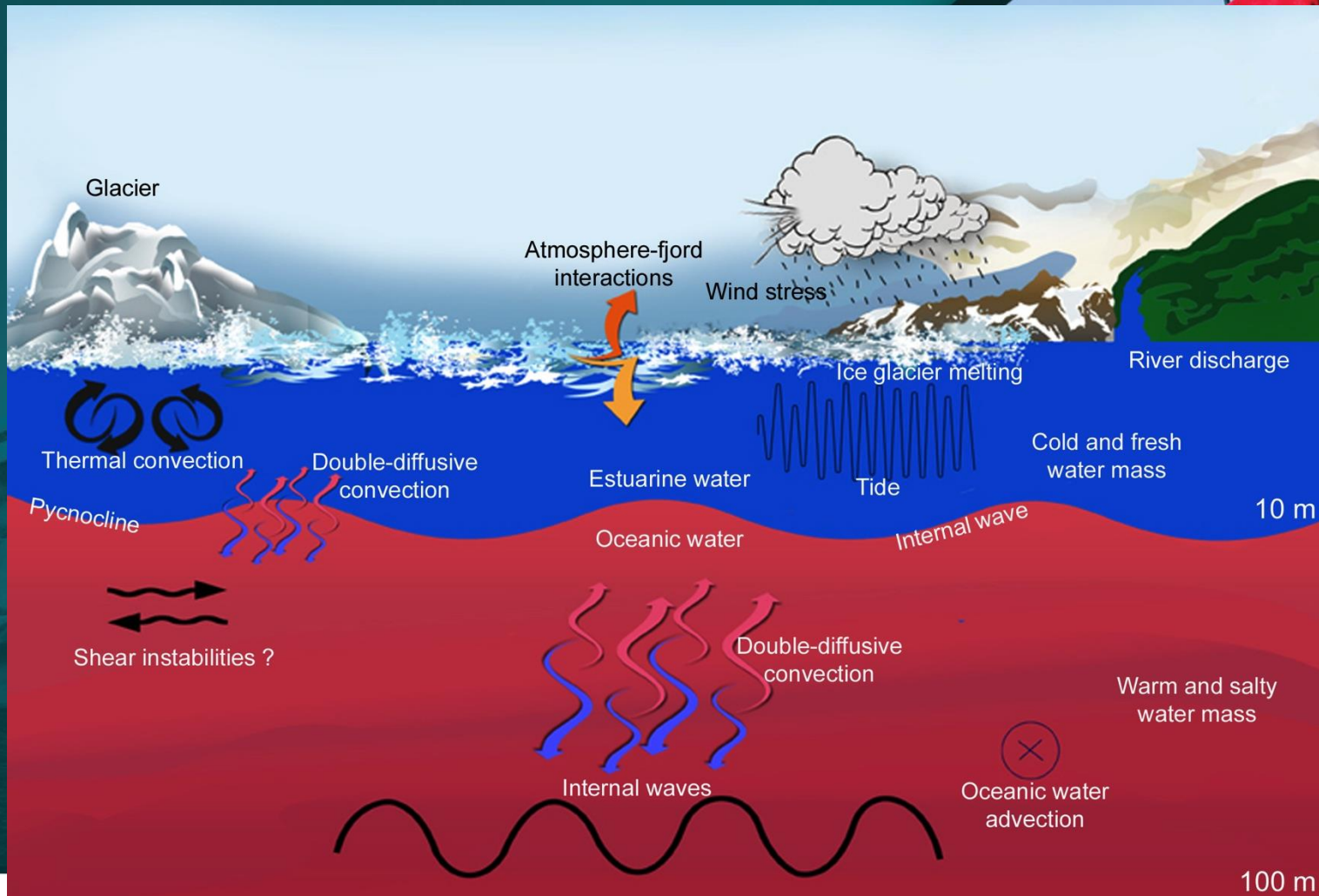
Logística bajo condiciones extremas – calidad de datos



Sub-Antarctic

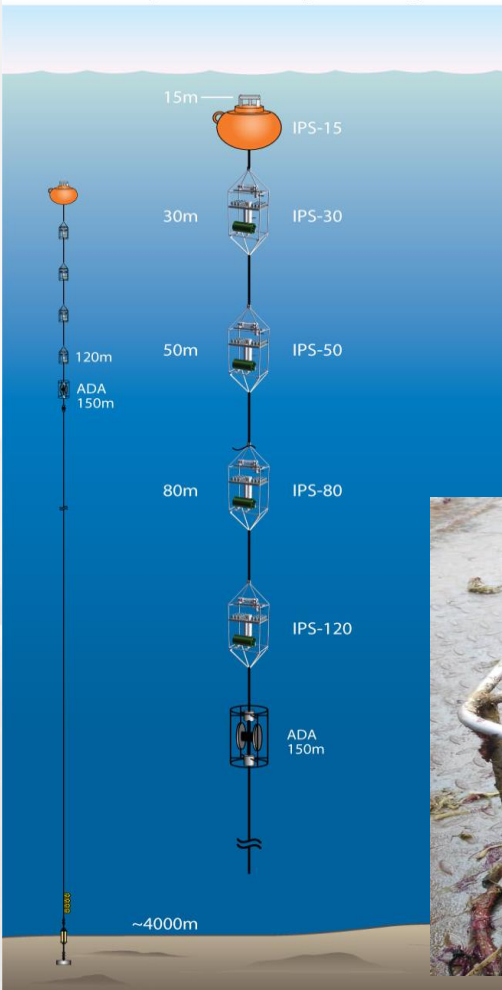
On-going research and future
scientific challenges

Sistema modulado por procesos Climáticos - Hidrológicos

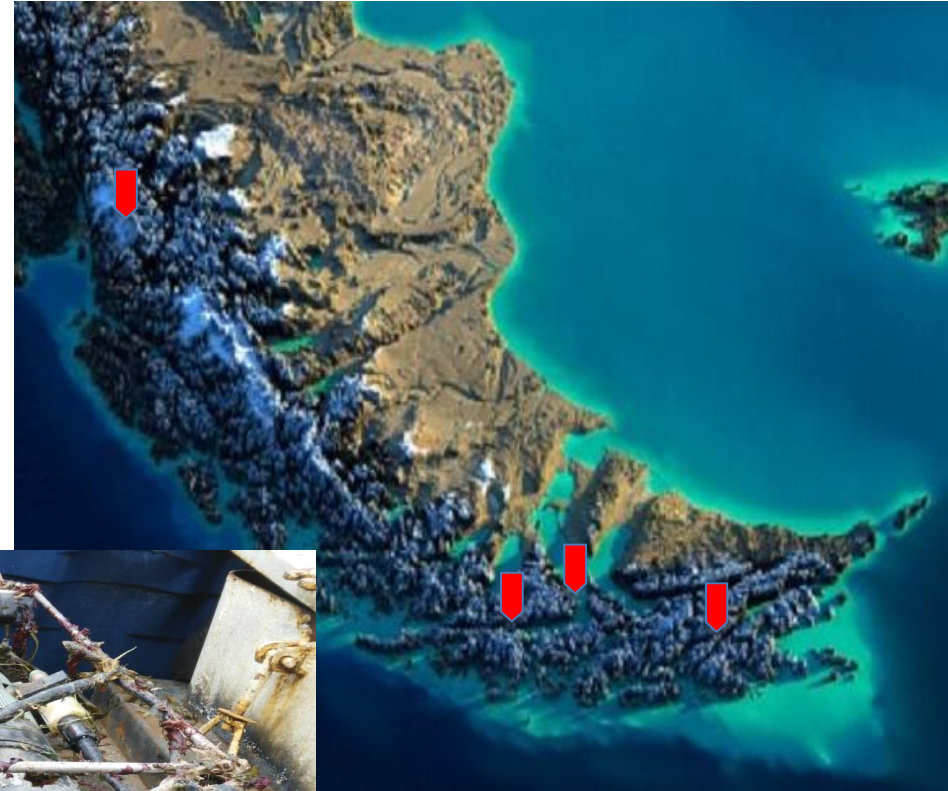


Scientific cruises and mooring deployments in target areas (series de tiempo).

A. Primary Productivity Mooring



1.- Beagle Channel
2.- Magellan Strait:
Glacier-fjords



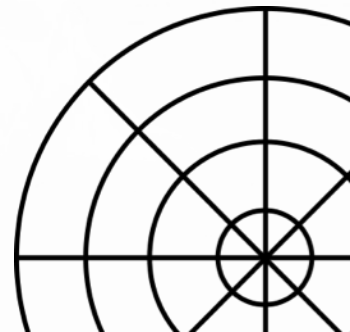
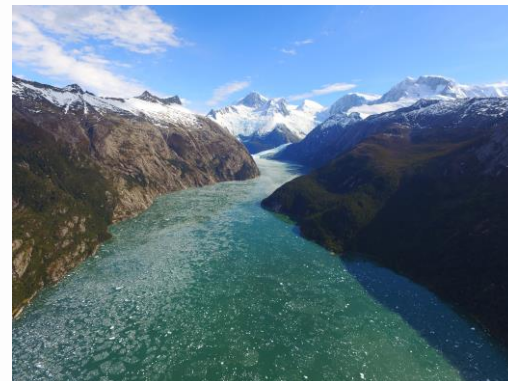
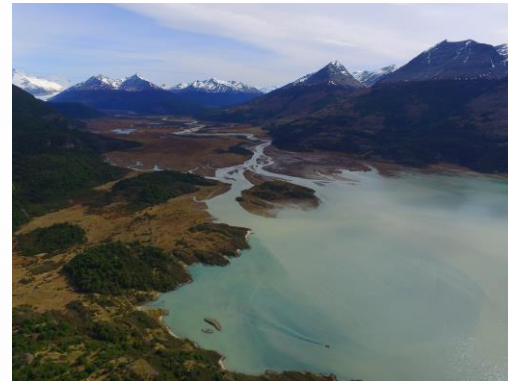
Canal Beagle: 2016 - 2018

Expediciones IDEAL

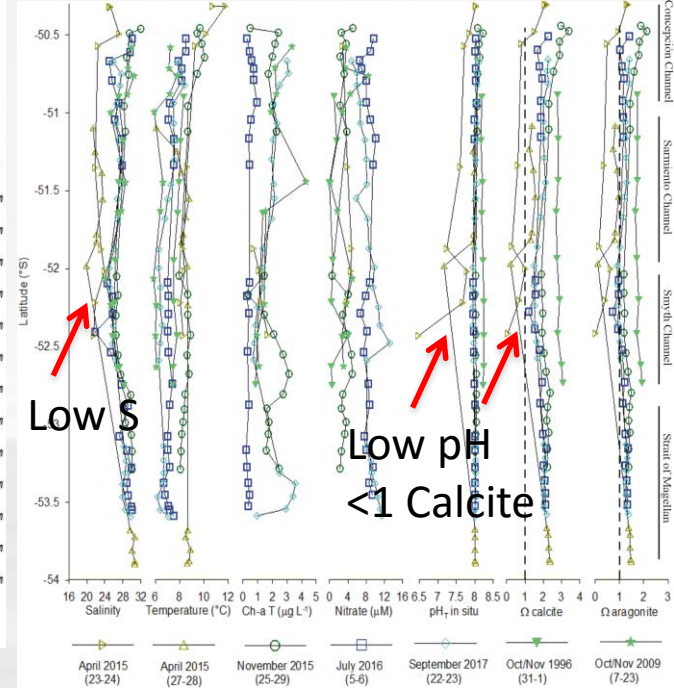
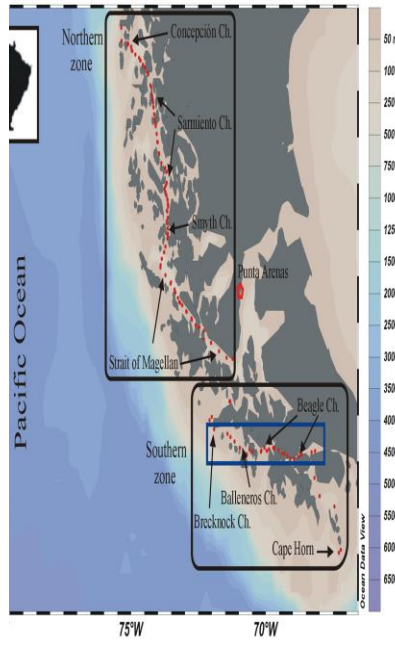
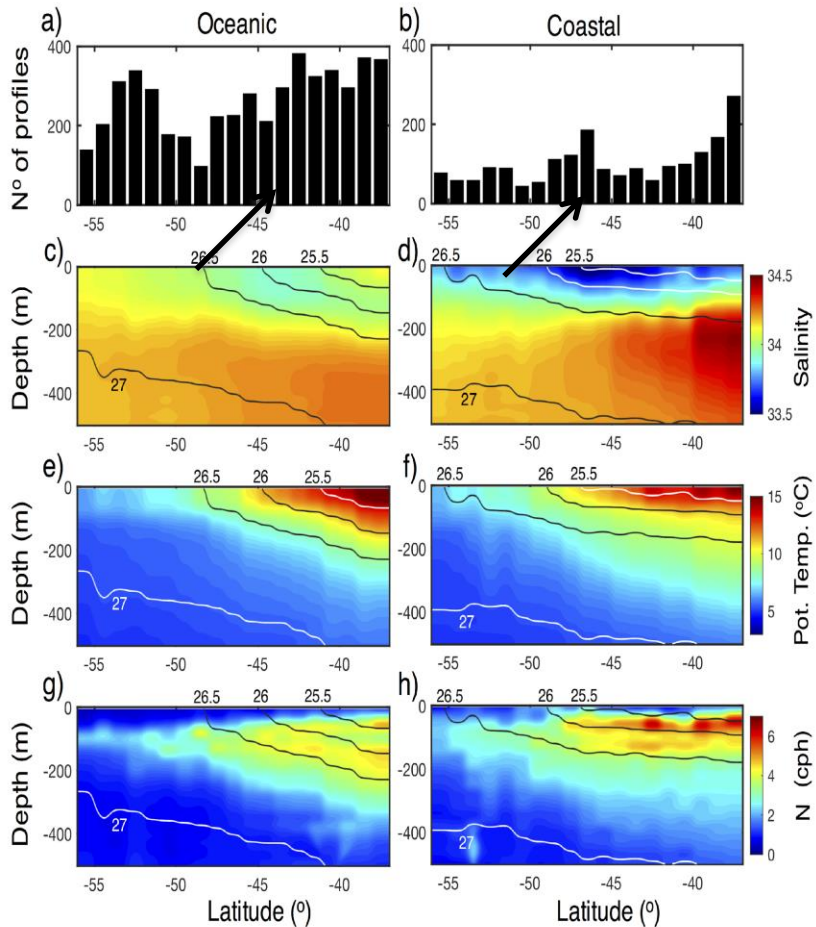


Canal Beagle, Fiordo Pía y Bahía Yendegaia

Estudio del efecto de la entrada de agua dulce sobre la estructura de los sistemas de fiordos y canales y sobre los organismos clave como el langostino (*Munida gregaria*) y krill patagónico (*Euphausia vallentini*).



1.- The freshwater in a band next to the coast is predominant in the central region (45 – 48S) off Gulf of Pena



2.- Strong anomalies in carbonate system during El Niño 2015

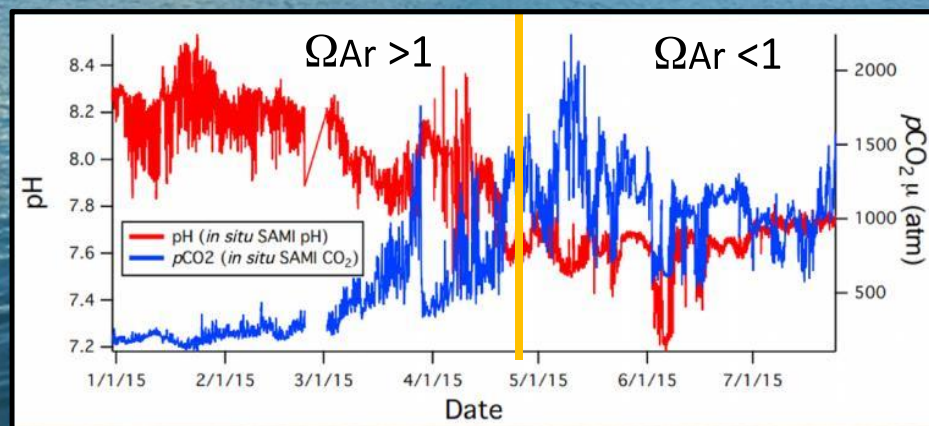
Torres et al.

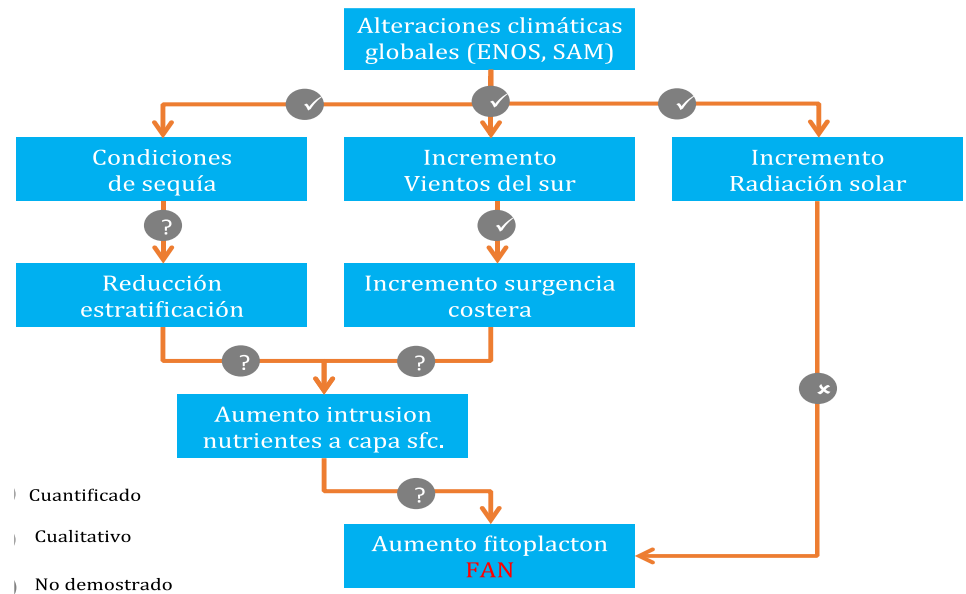
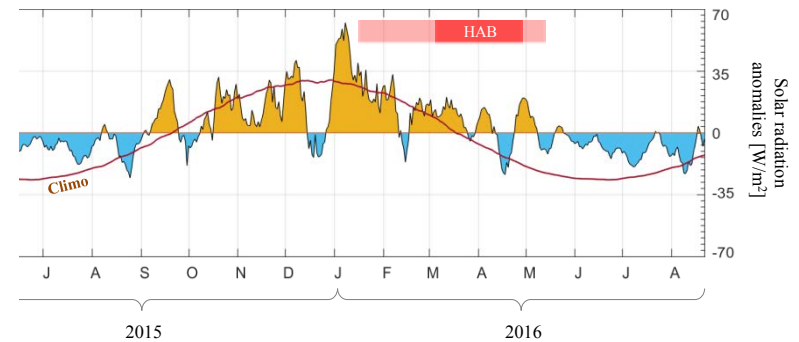
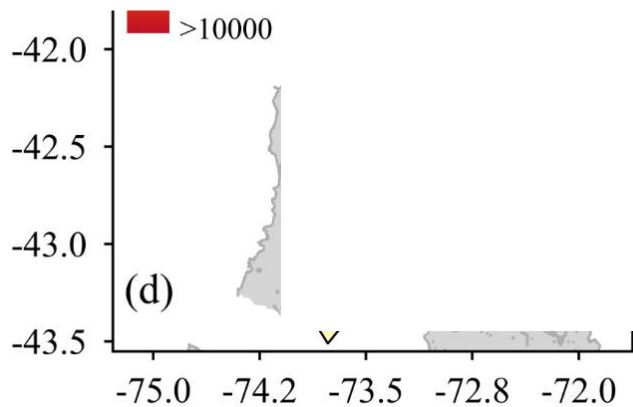
Saldias et al 2018

OA

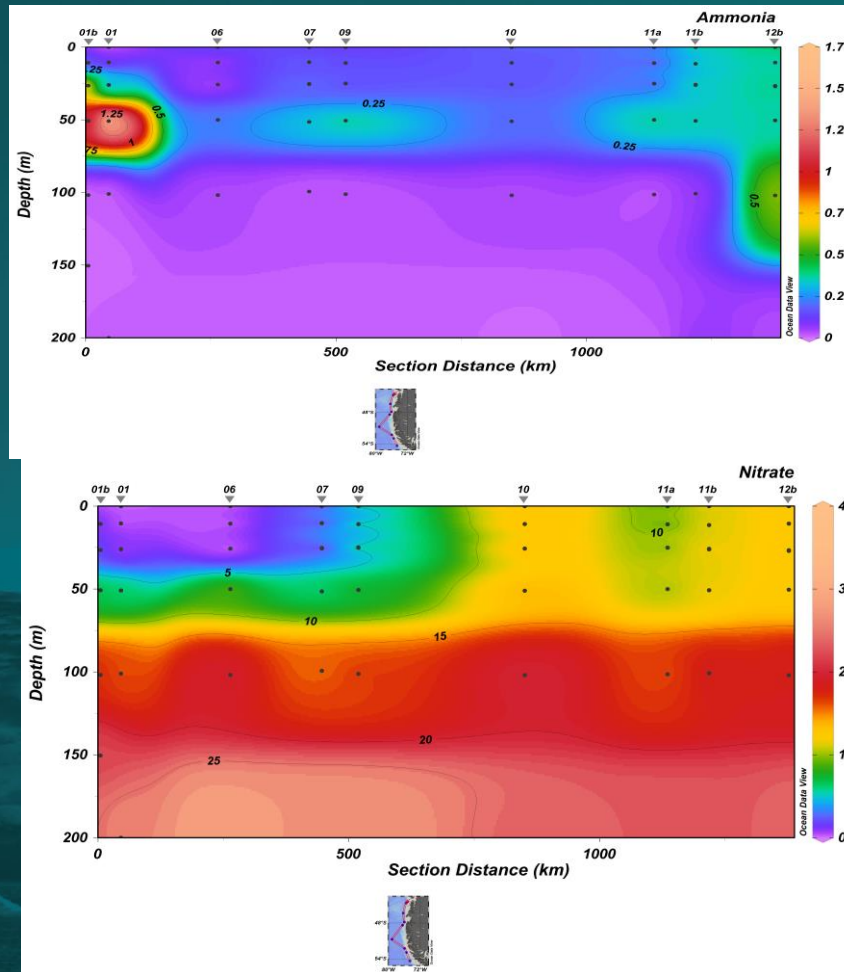
Freshening

- *Reloncavi Fjord. CO₂ source system.*
- *2015-2017 (river)*
- *Seno Ballena, 2018 (glacier)*
- *South Bay, 2018 (glacier Antarctica)*





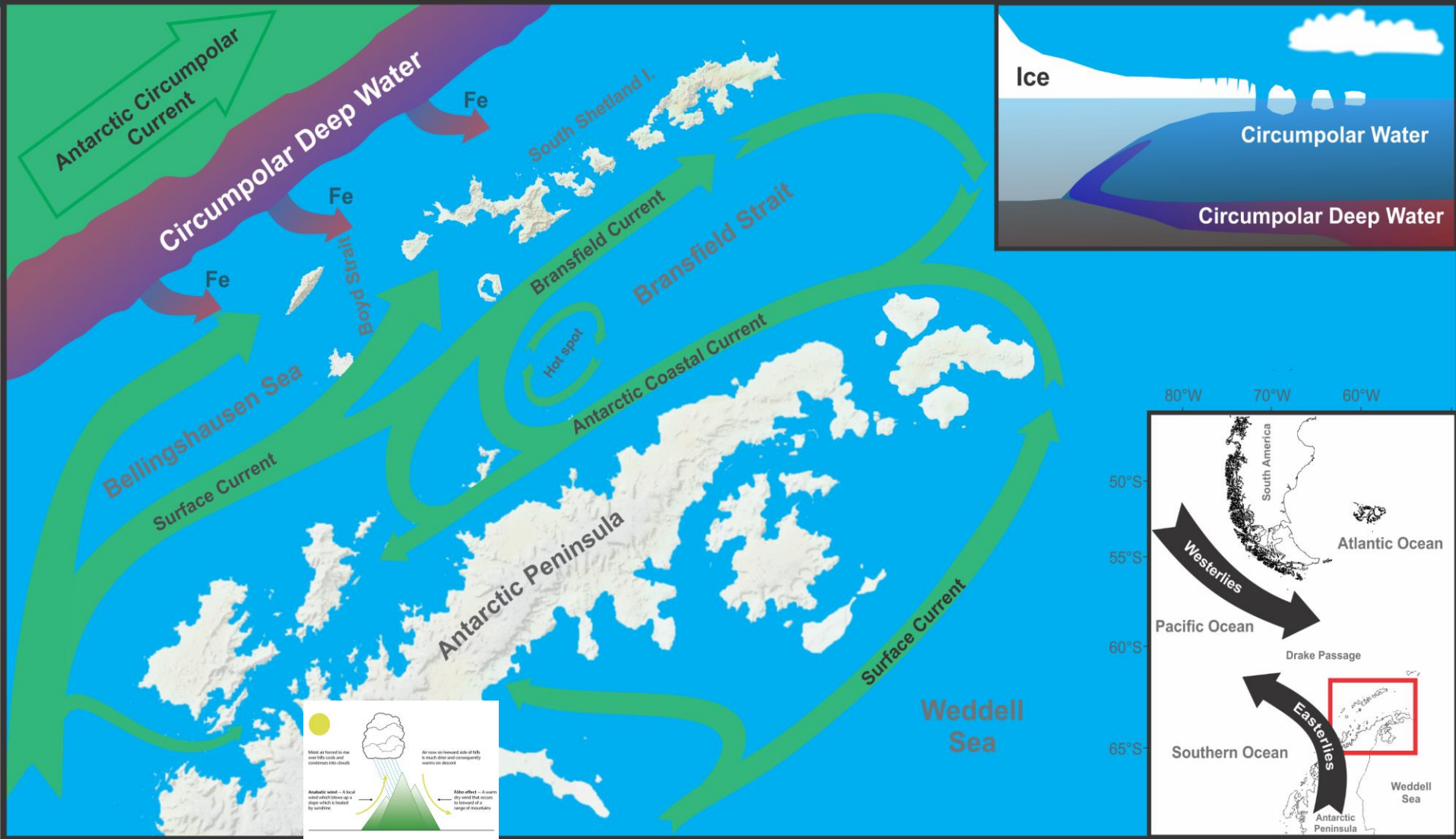
Phytoplankton blooms 2017 (MIRAI): potential role of Nitrogen?



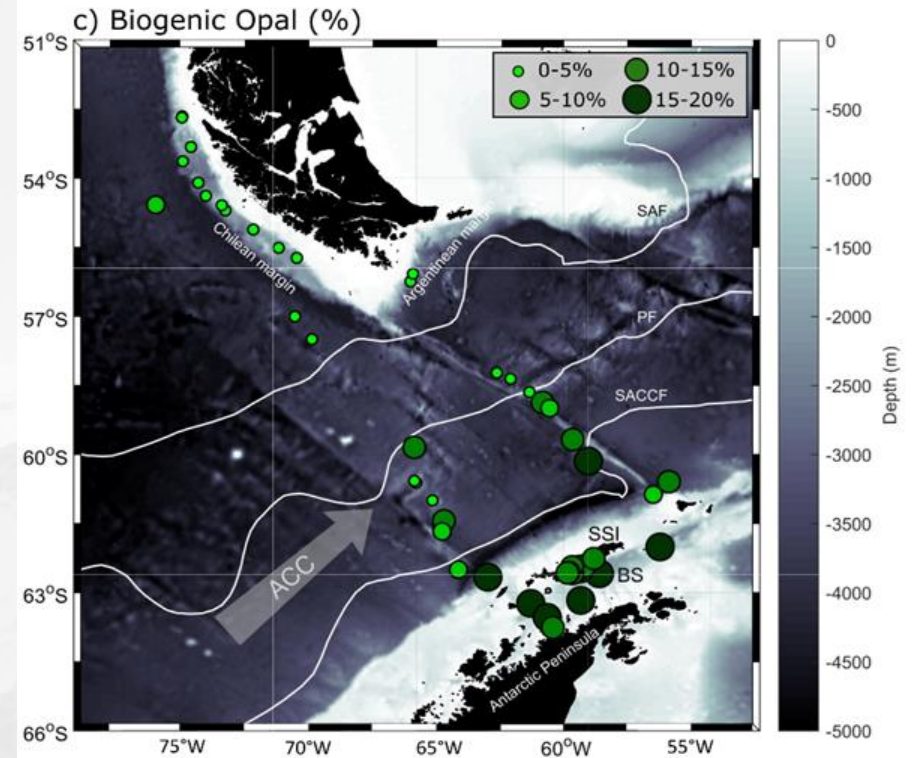
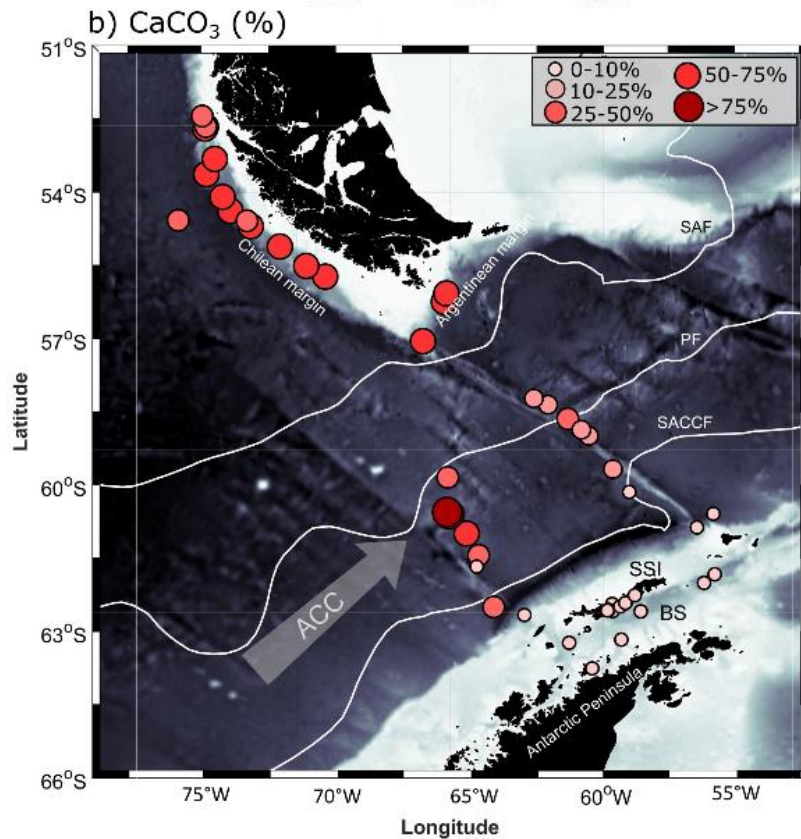
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Antarctic

**On-going research and future
scientific challenges**



1.- The biogeochemical and diatom composition of surface sediments across Drake Passage, from the Chilean/Argentinian margin to the Antarctic Peninsula



North – South transition
from carbonate-rich sediment
in the SAZ to opal-rich
sediment in Antarctic
Peninsula area.

Cárdenas et al 2018

Polarstern 2016

Sistemas costeros Antartica

Expediciones INACH - IDEAL

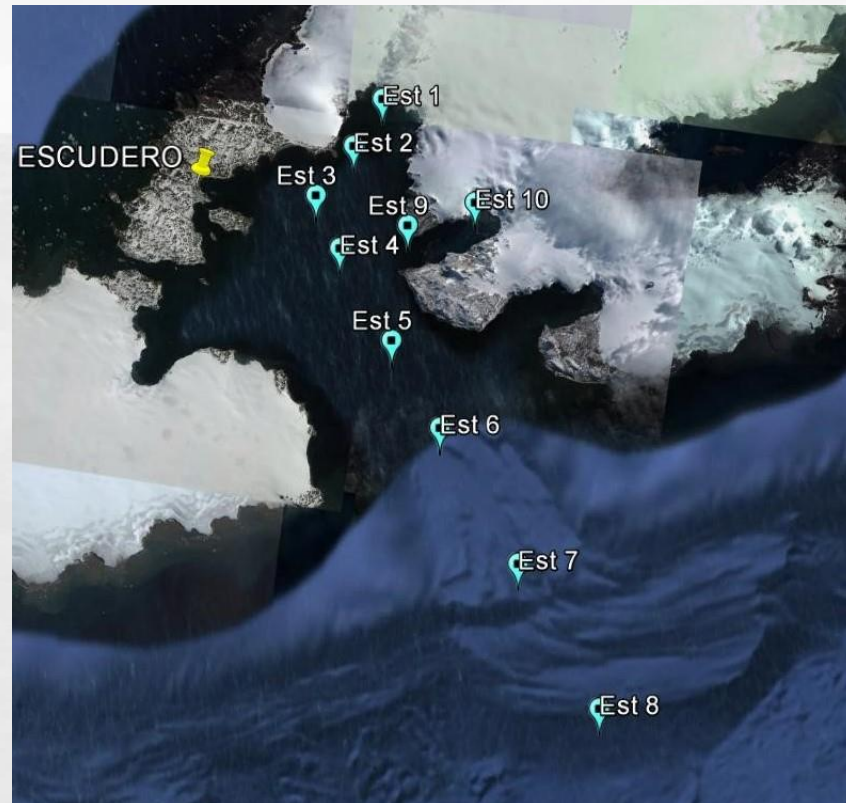


Expediciones ANTARTICA ECA 53

1.- ESCUDERO

2.- YELCHO

Total de 23 investigadores IDEAL
con apoyo logístico
de INACH entre Enero y Febrero
2017-2018-2019.



“an active winter phytoplankton community?”

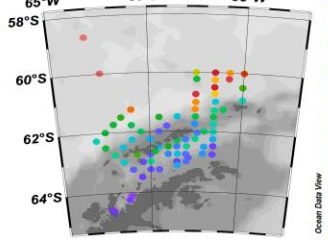
NOAA – AMLR- Winter cruise (August)



Muestreo de zooplacton(



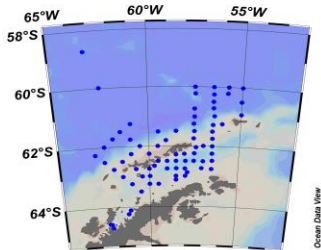
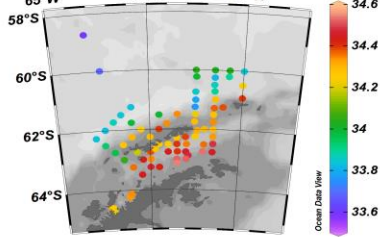
Fluorometry [ug/L] @ Water depth=first



TA [mmo kg-1] @ Water depth=first



Salinity @ Water depth=first

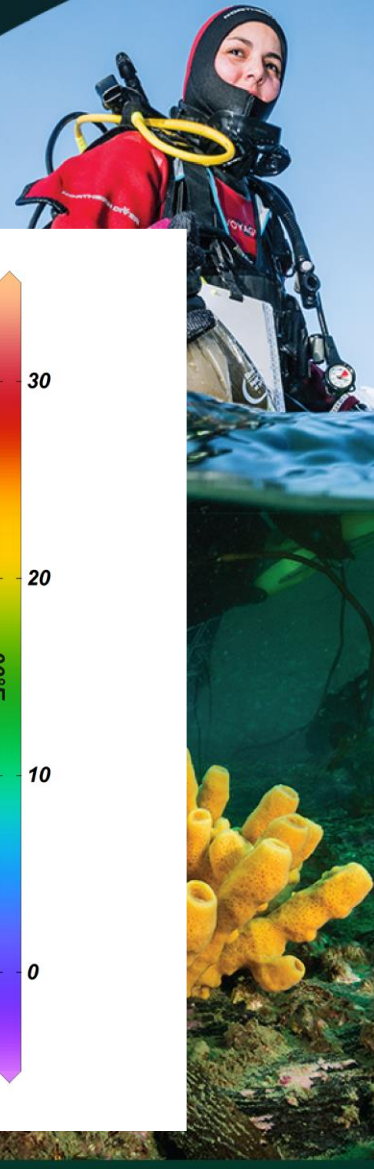
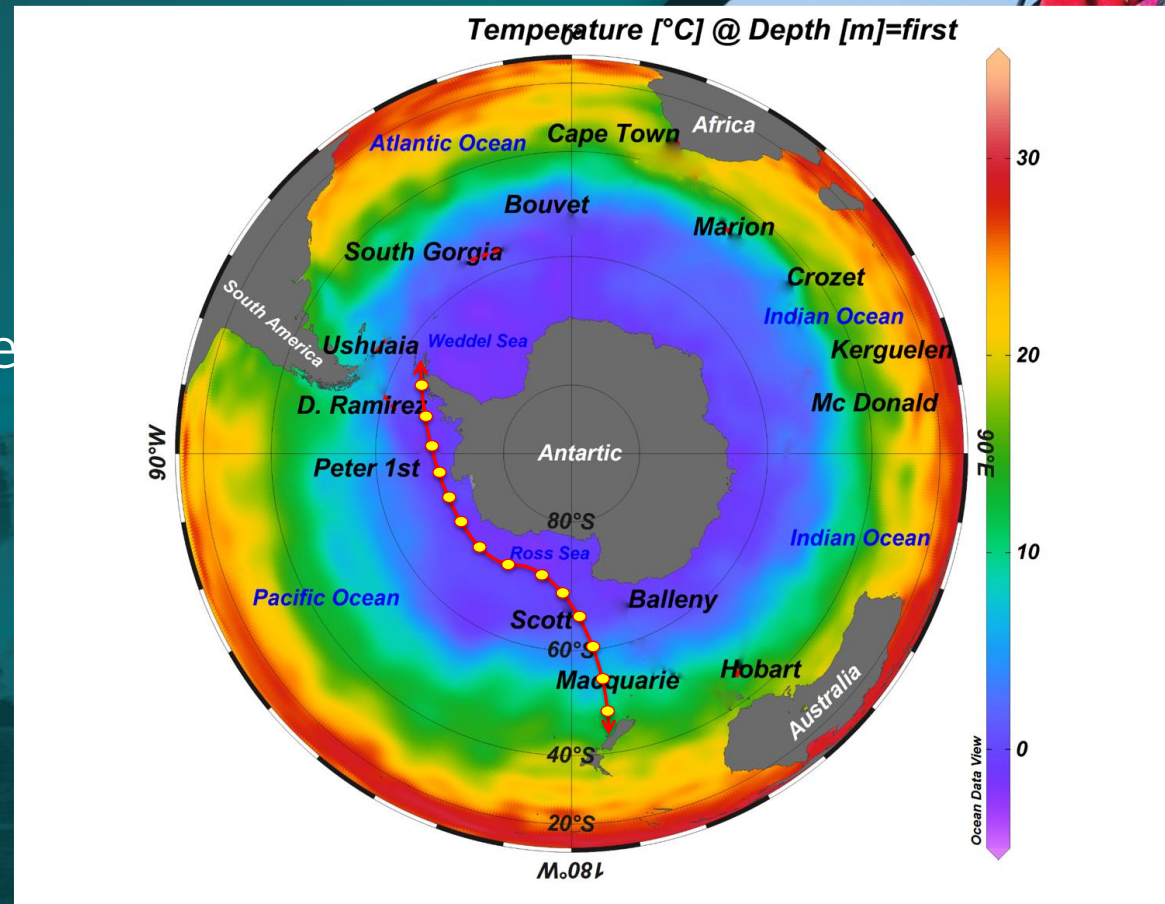


“Fronts” Transect: Araon – KOPRI 2018

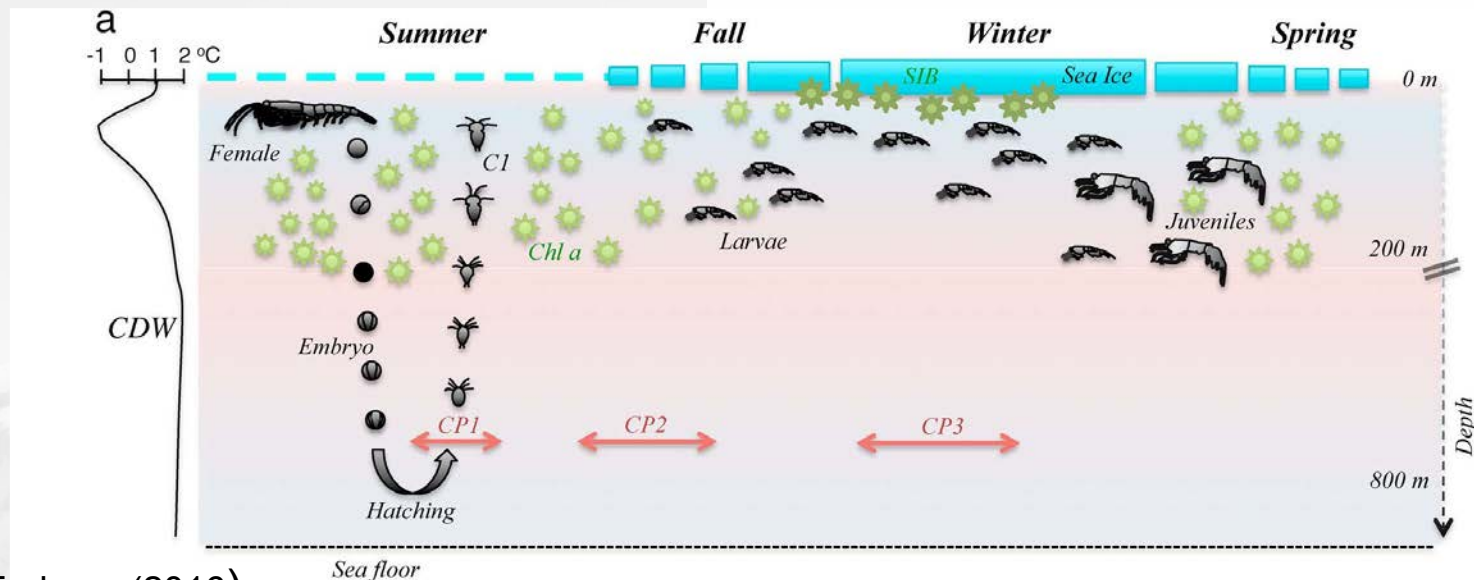
Surface Water

Microbial diversity:

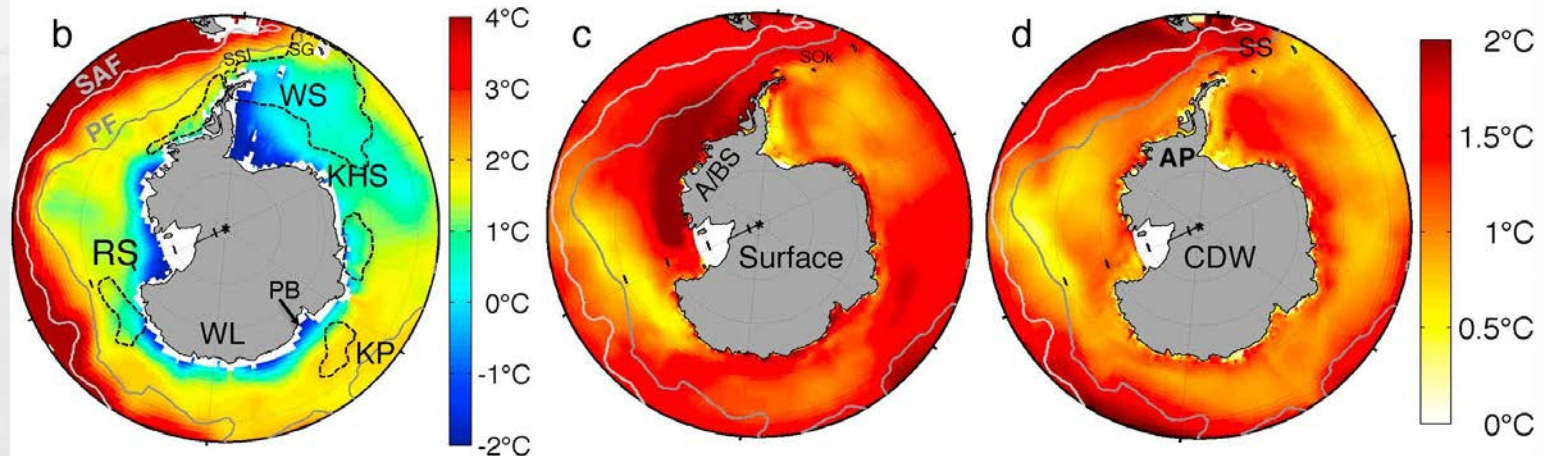
- Bacterioplankton (DNA, RNA, Cytomte)
- Phytoplankton
- Chlorophyll-a
- Nutrients



Coupling biological information on krill (life cycle, distribution and food requirements) with global change (IPCC) models.



Piñones & Fedorov (2016)





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Gracias por su atención

www.centroideal.cl



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