

Island effects on marine production and circulation around the island of South Georgia

Inès Borrione

Prof. Reiner Schlitzer



PhD Objectives

Natural variability of primary productivity in relation to the main circulation patterns in the southwestern sector of the Atlantic Southern Ocean.

Satellite and lagrangian observations - POSTER

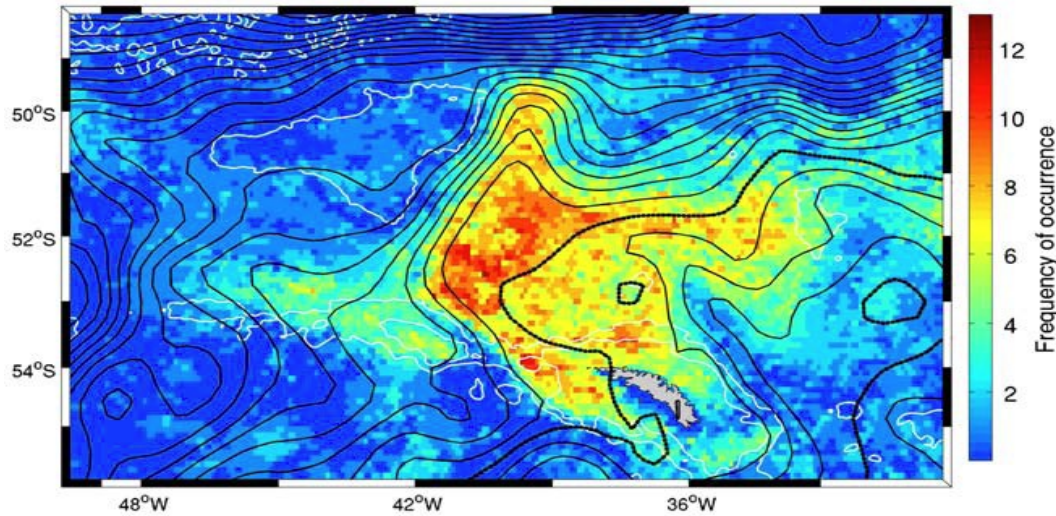
Physical oceanography around South Georgia (i.e.: eddy formation, upwelling regions and transport around the island)

ROMS simulations

Localization of the potential natural sources of nutrients found downstream from South Georgia (i.e. island shelf, upwelling of deeper waters)

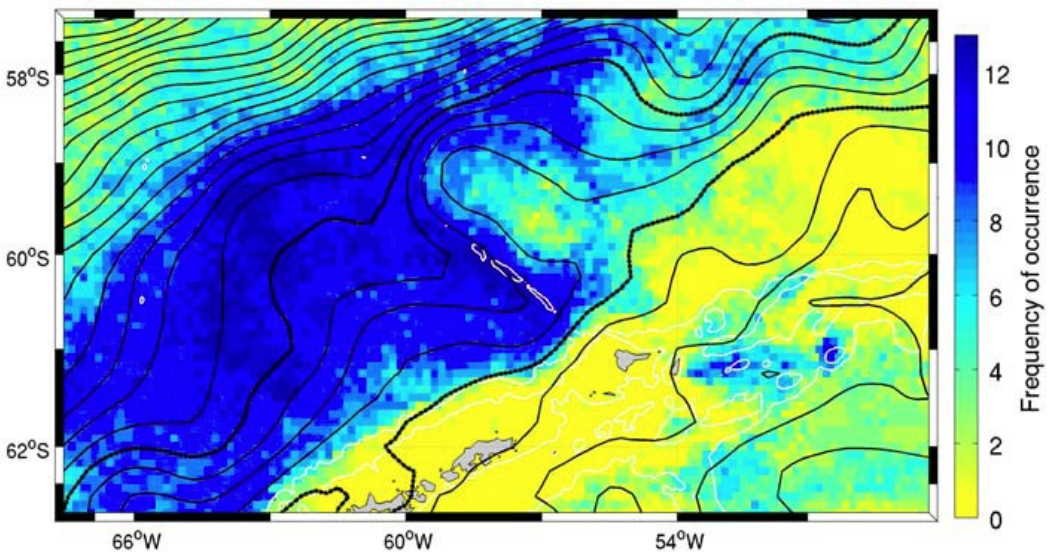
ROMS+PISCES simulations

Observations (1997-2010)



1. Productivity patterns in the two study regions appear to be very stable in time.

2. Topographic steering of surface currents may explain the observed stability.



3. Downstream from a nutrient source, the presence of a meander favors and confines more productive areas (also at monthly scales).

4. How about other sub-Antarctic Islands?

Frequency of occurrence of two productivity ranges

Modeling activities – IRD Brest

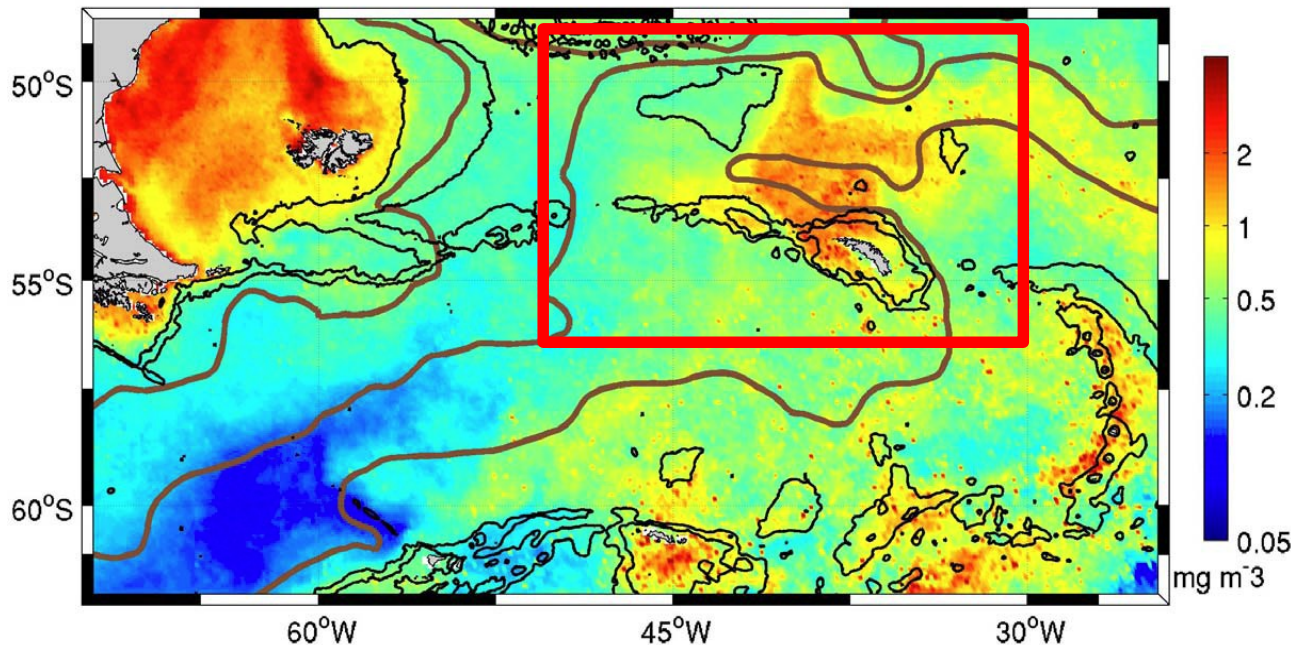
ROMS

+

PISCES

Regional model
Roms-Agrif
SODA+COADS

Biogeochemical model
24 compartments
NEMO



DATA!!

force
validate