Cross-shelf exchange in the Southwestern Atlantic shelf

Giuliana Berden
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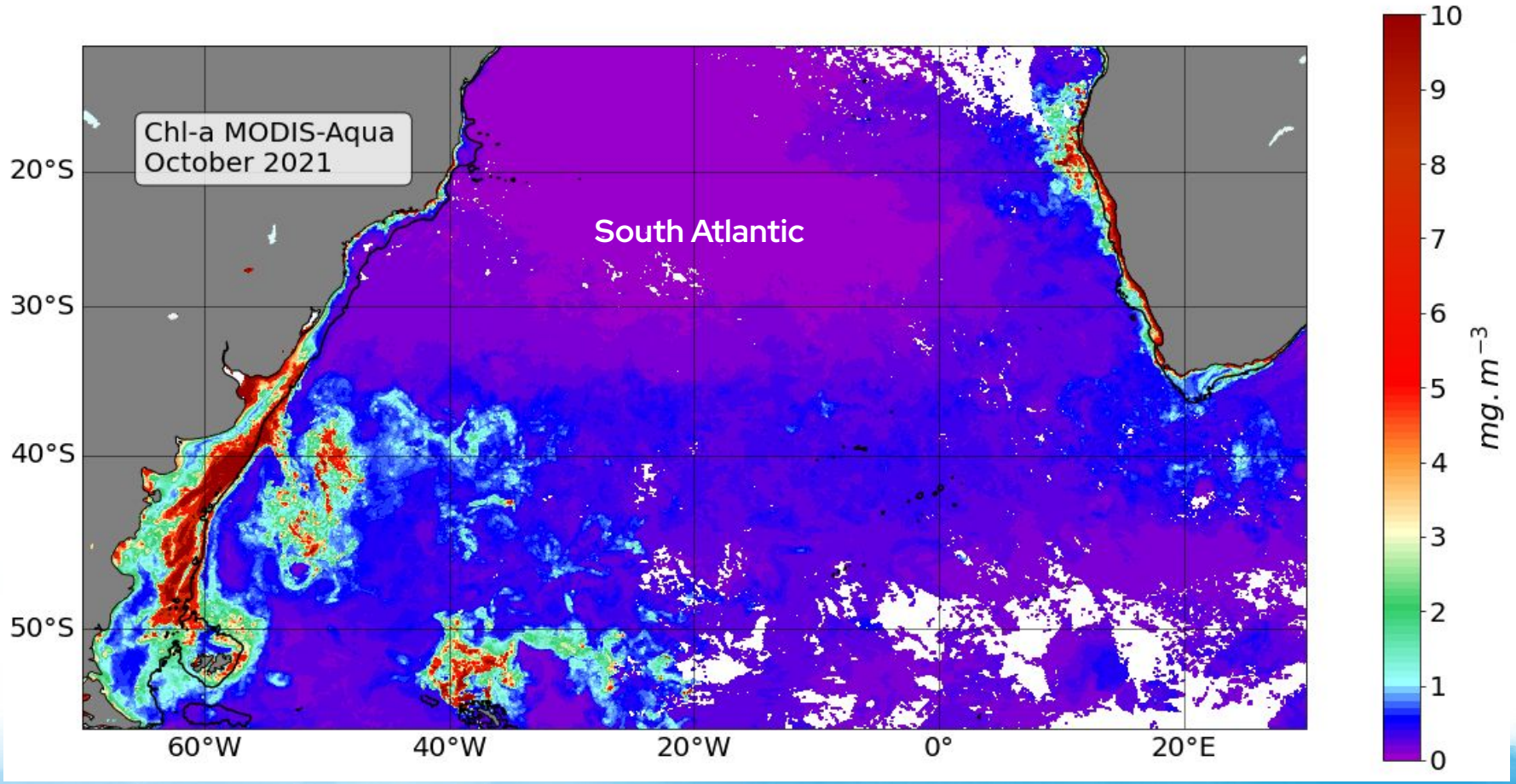
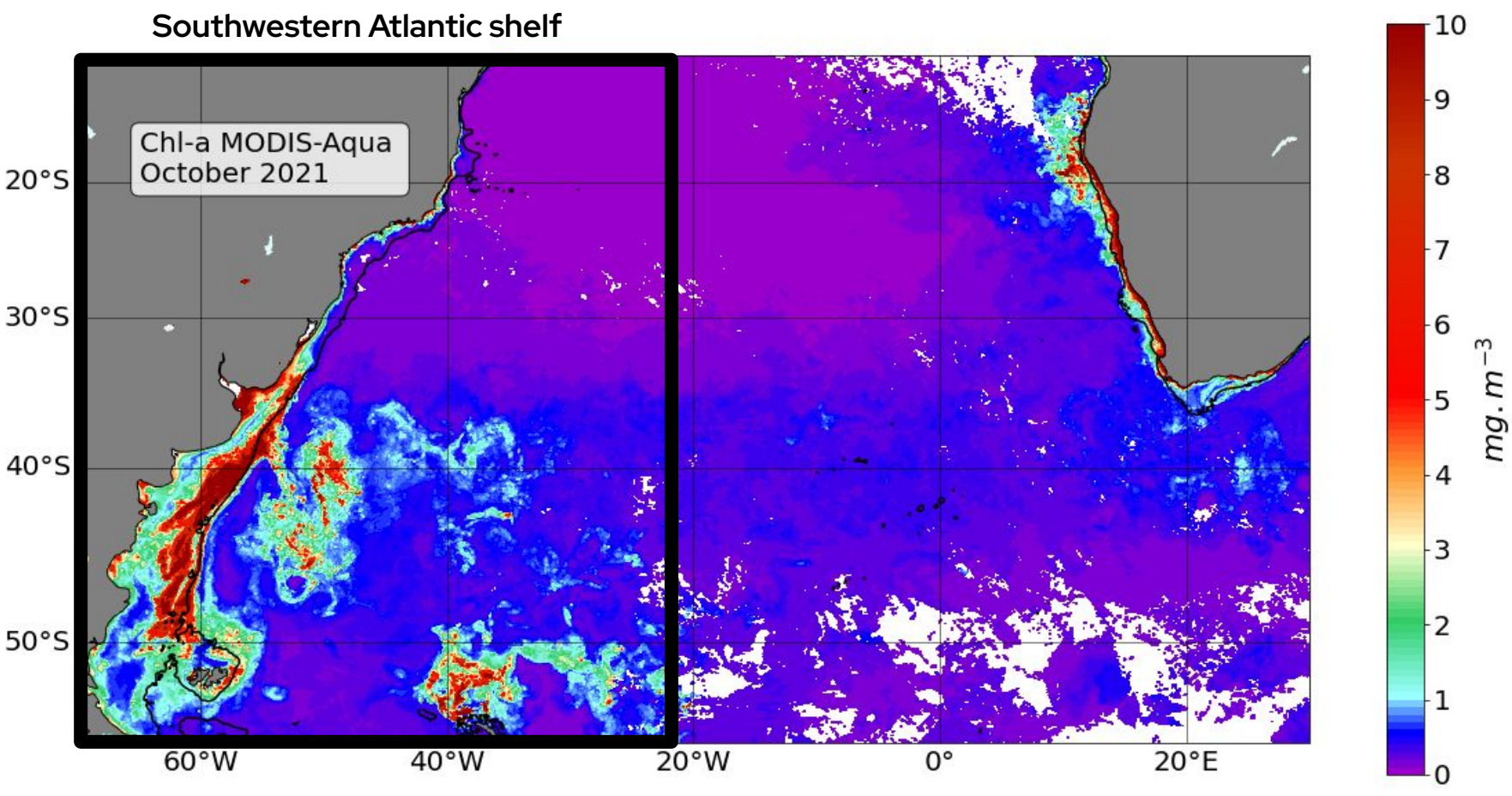
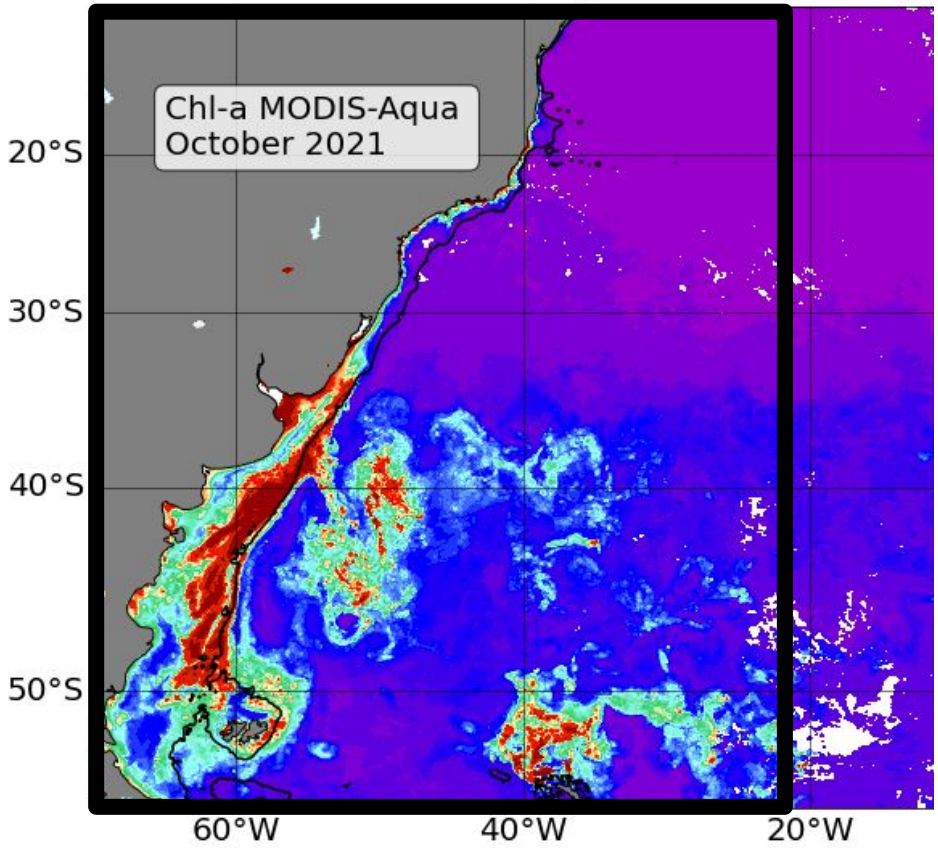
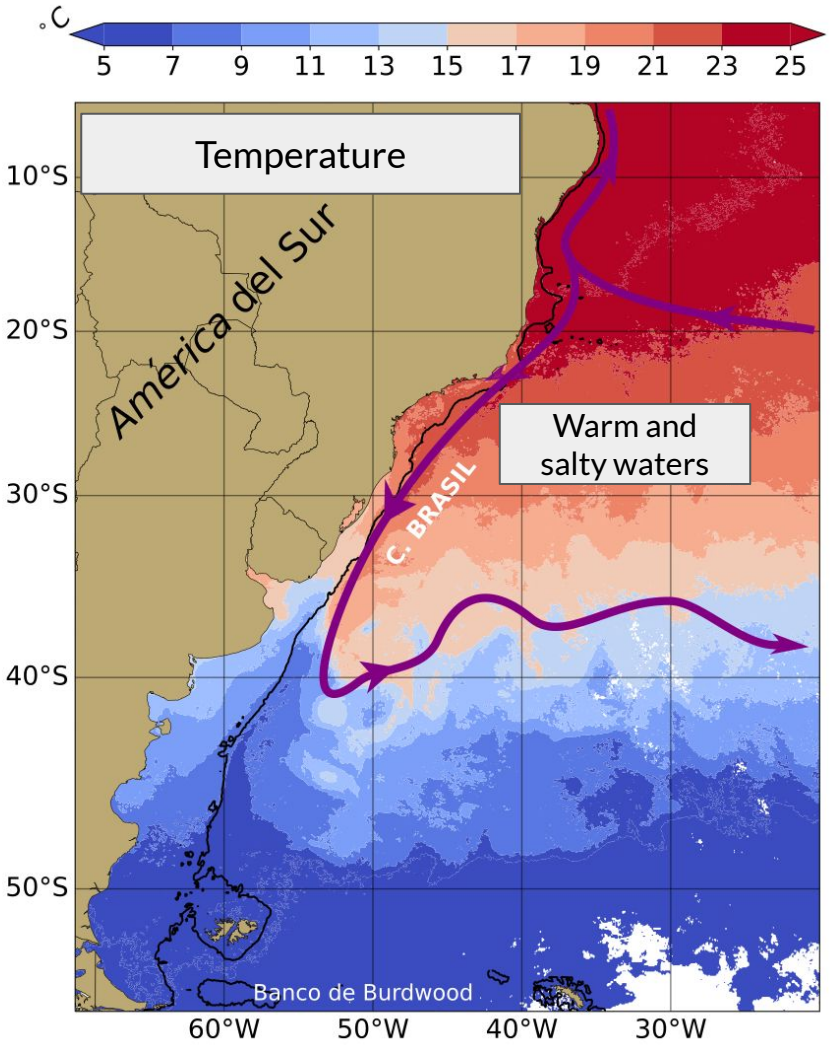
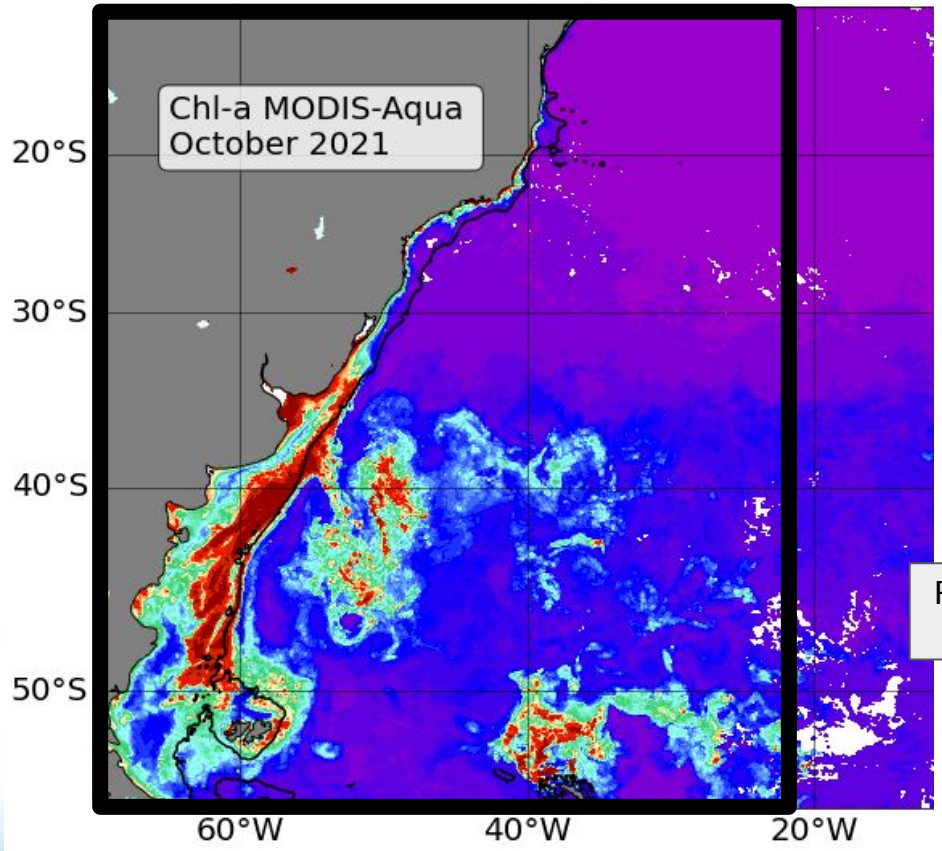

Chl-a MODIS-Aqua
October 2021
South Atlantic
20°S
30°S
40°S
50°S
60°W
40°W
20°W
0°
20°E
10
9
8
7
6
5
4
3
2
1
0
mg.m⁻³

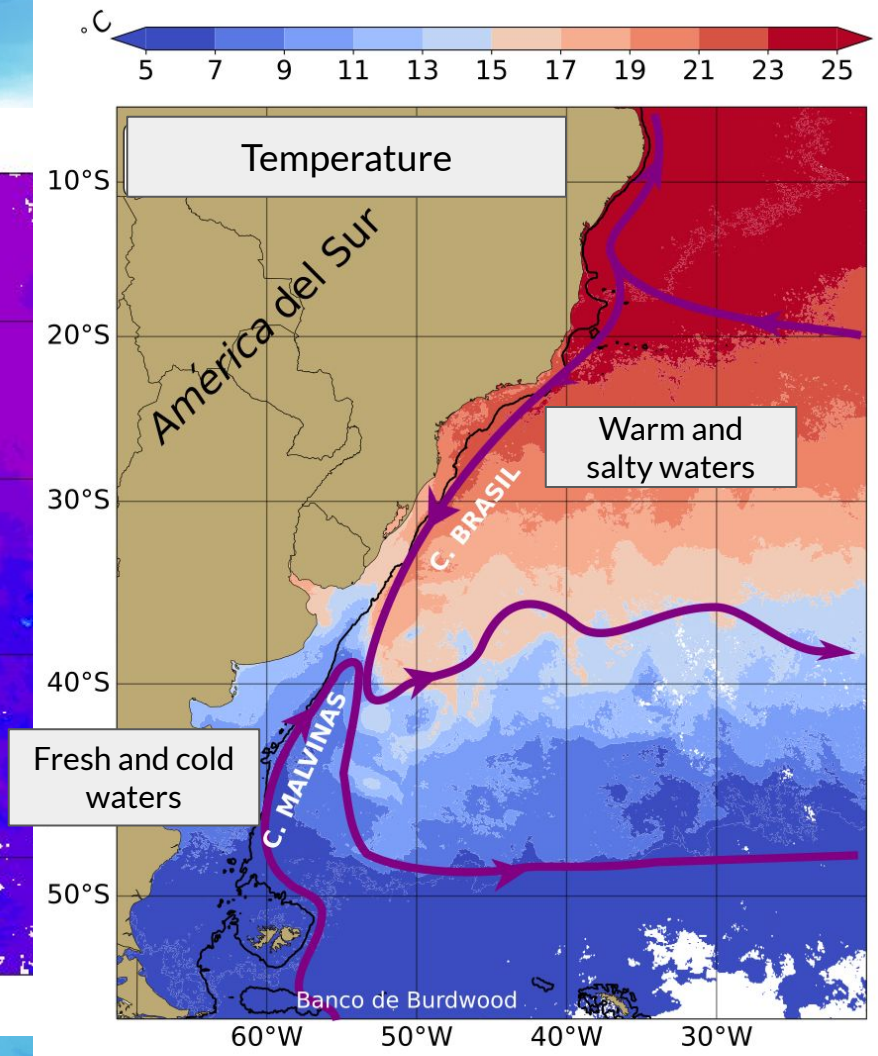
Southwestern Atlantic shelf



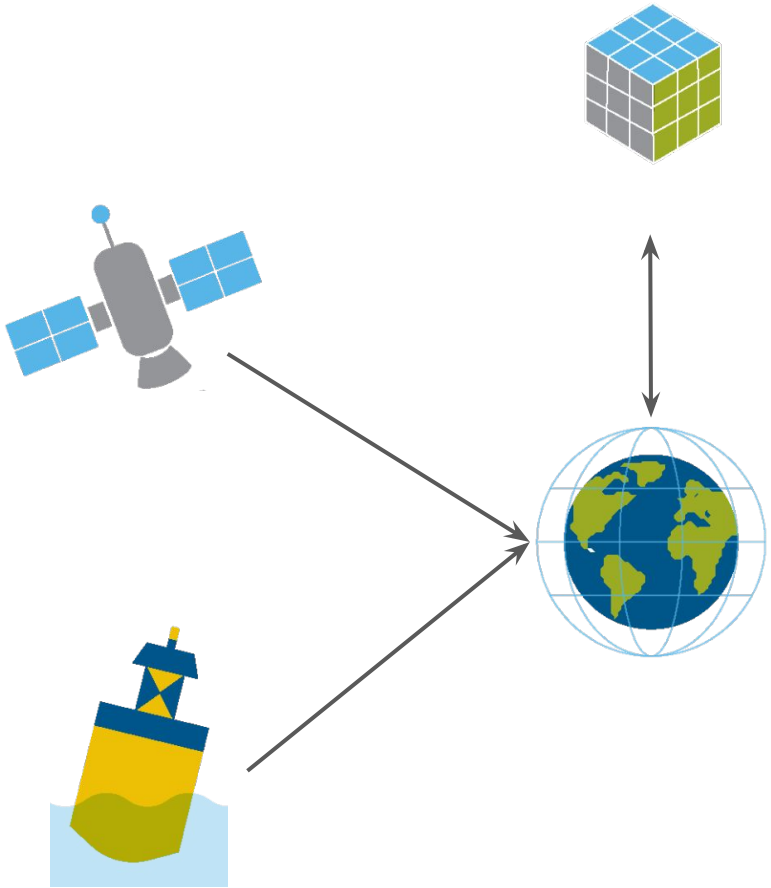

Chl-a MODIS-Aqua
October 2021
20°S
30°S
40°S
50°S
60°W
40°W
20°W

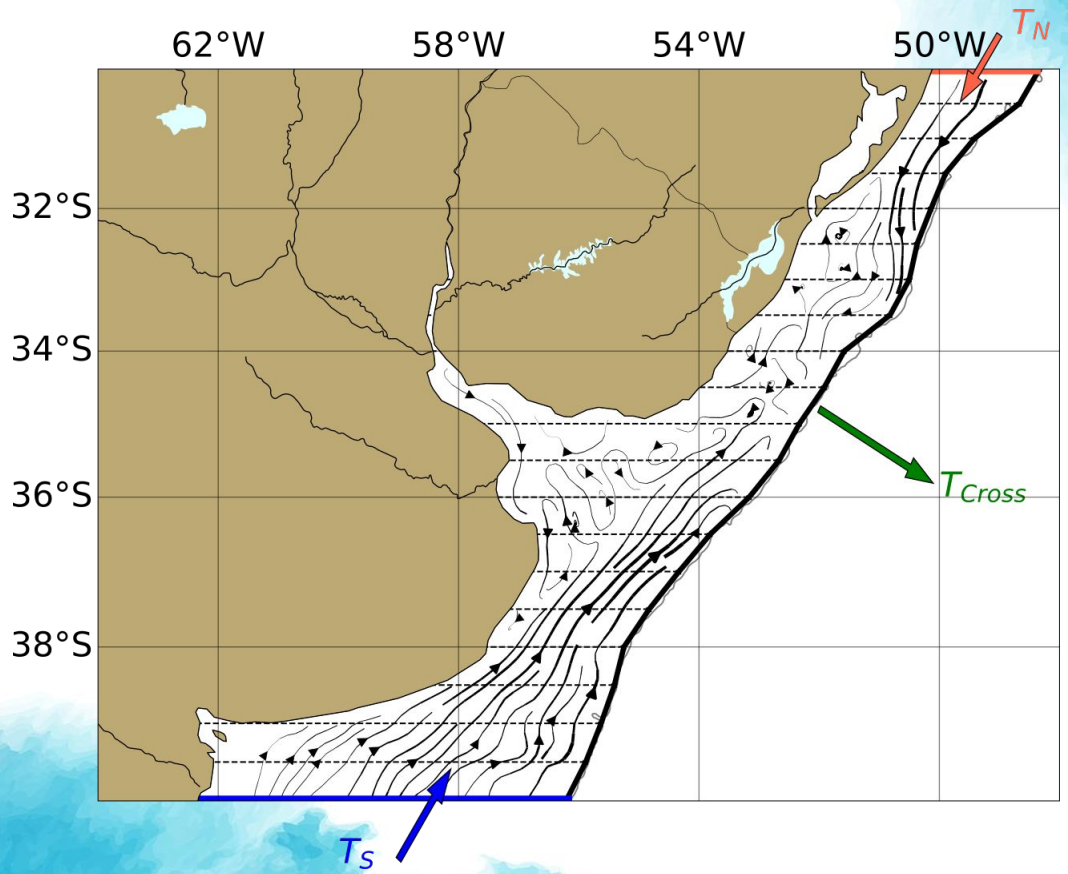

°C
5
7
9
11
13
15
17
19
21
23
25
Temperature
América del Sur
Warm and
salty waters
C. BRASIL
Banco de Burdwood
10°S
20°S
30°S
40°S
50°S
60°W
50°W
40°W
30°W


Chl-a MODIS-Aqua
October 2021
20°S
30°S
40°S
50°S
60°W
40°W
20°W


°C
5
7
9
11
13
15
17
19
21
23
25
Temperature
América del Sur
Warm and
salty waters
C. BRASIL
C. MALVINAS
Fresh and cold
waters
Banco de Burdwood
10°S
20°S
30°S
40°S
50°S
60°W
50°W
40°W
30°W

Reanalysis
GLORYS



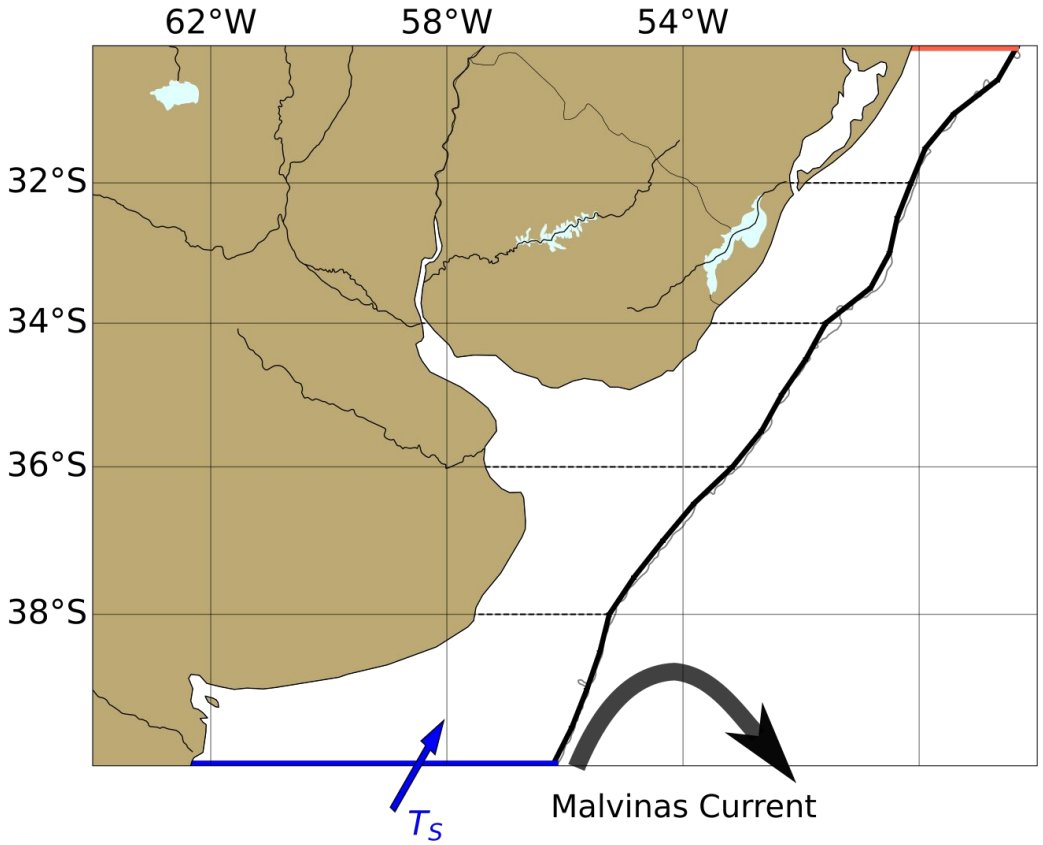


$$T_{cross} = T_N + T_S$$

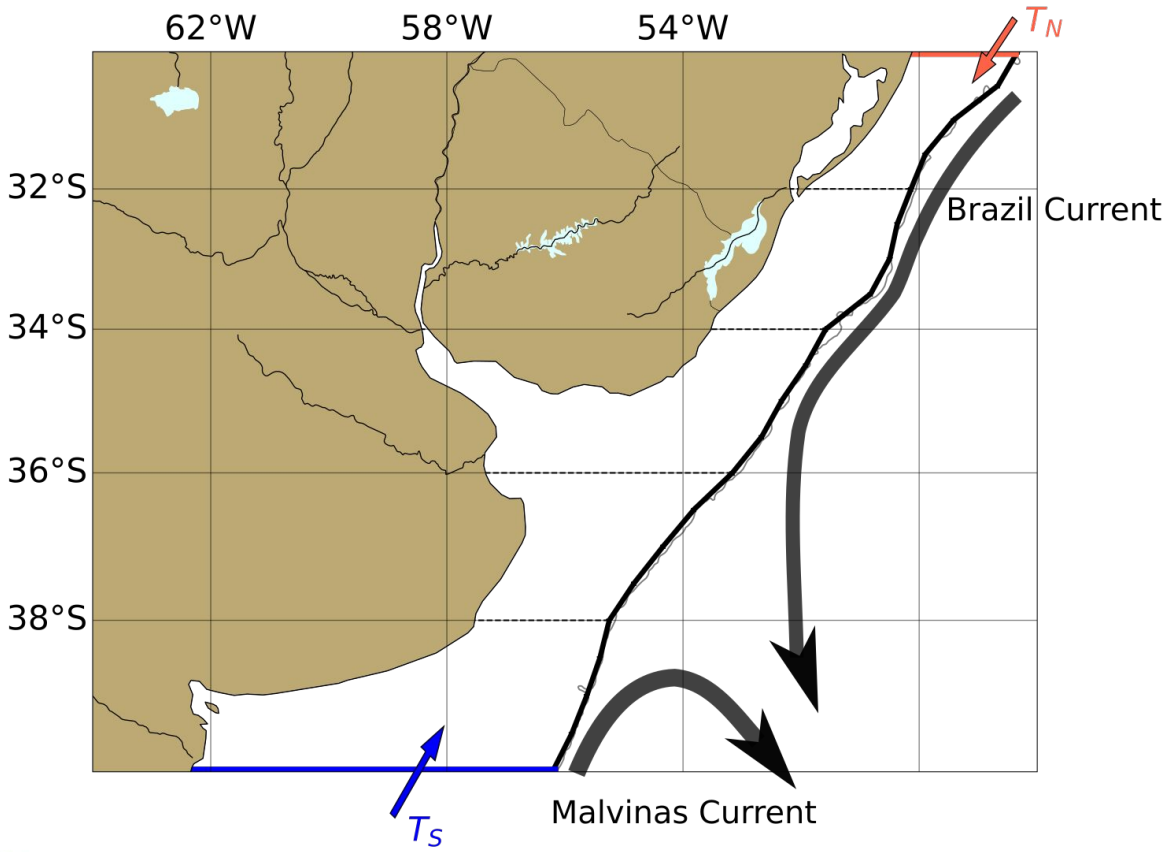
$T_{cross} > 0 \rightarrow$ To open water

Possible drivers

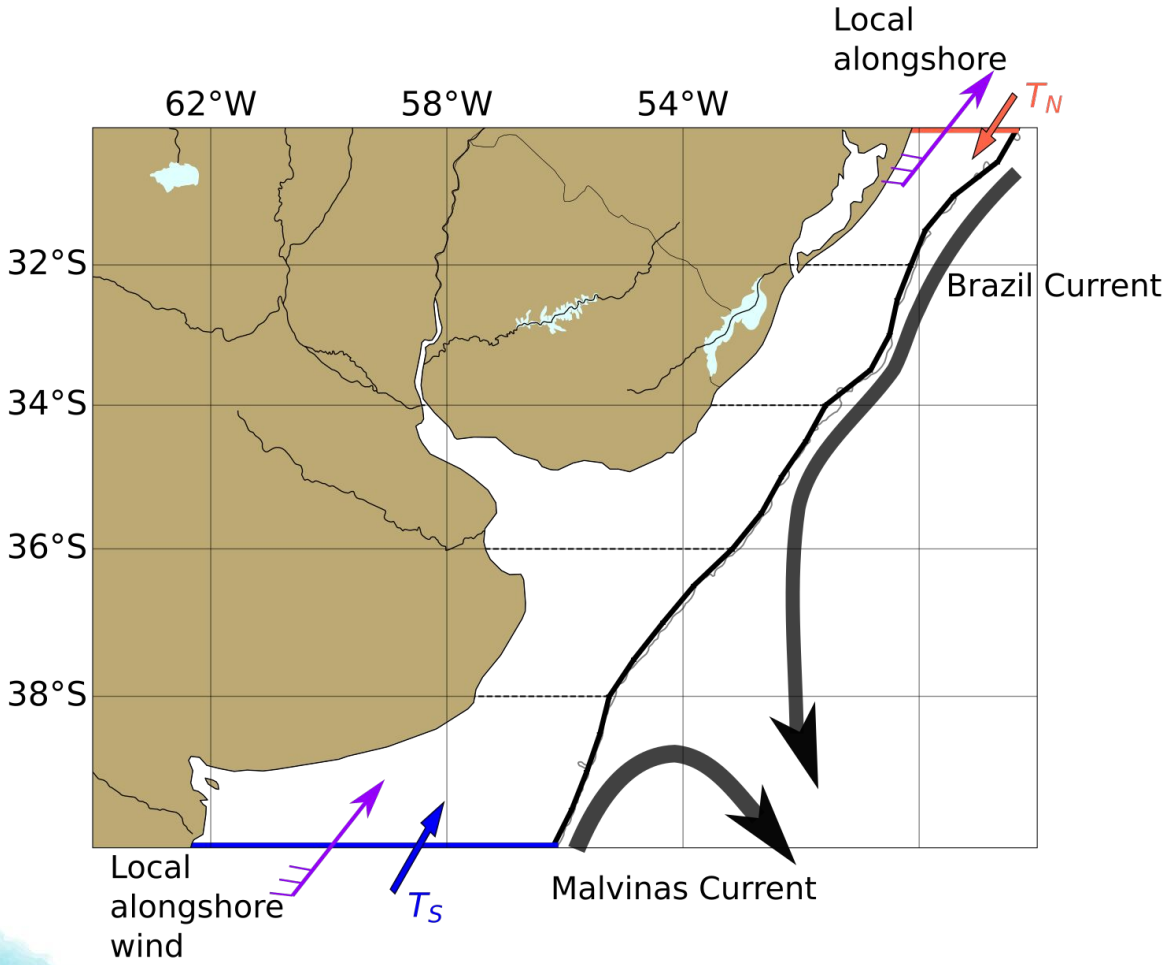
Possible drivers



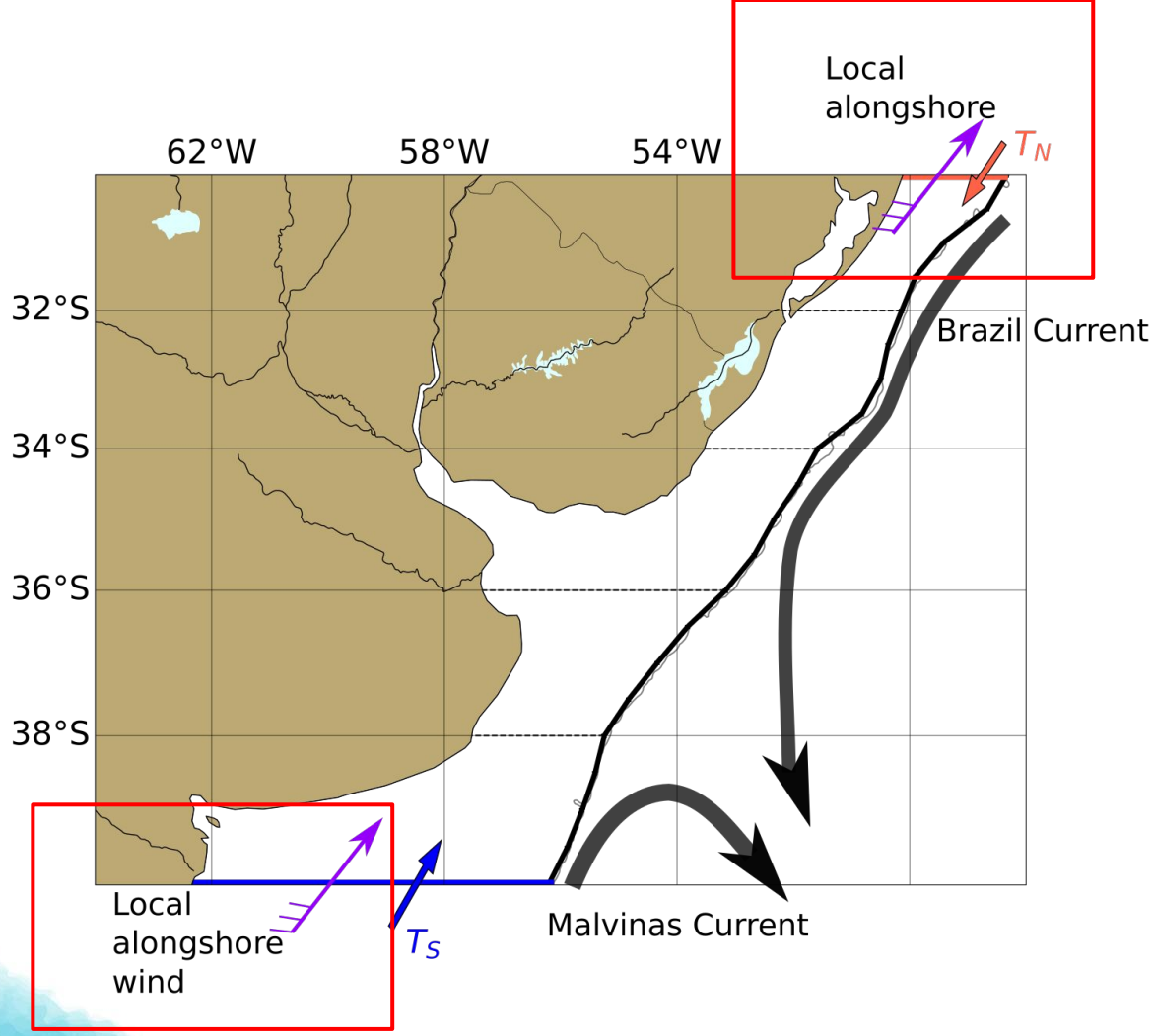
Possible drivers



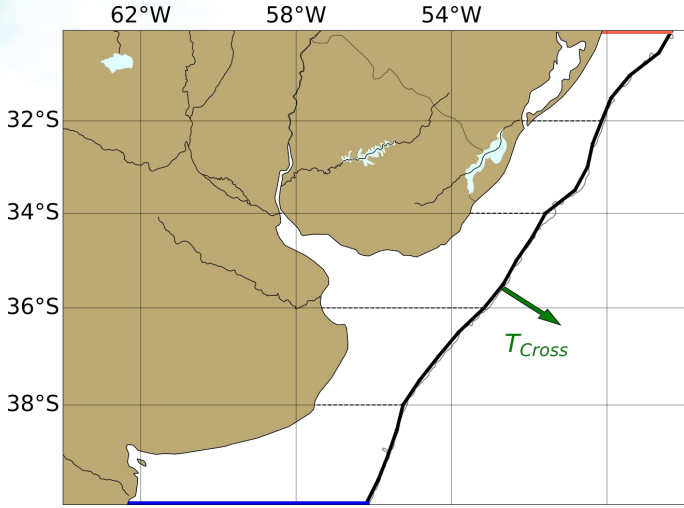
Possible drivers

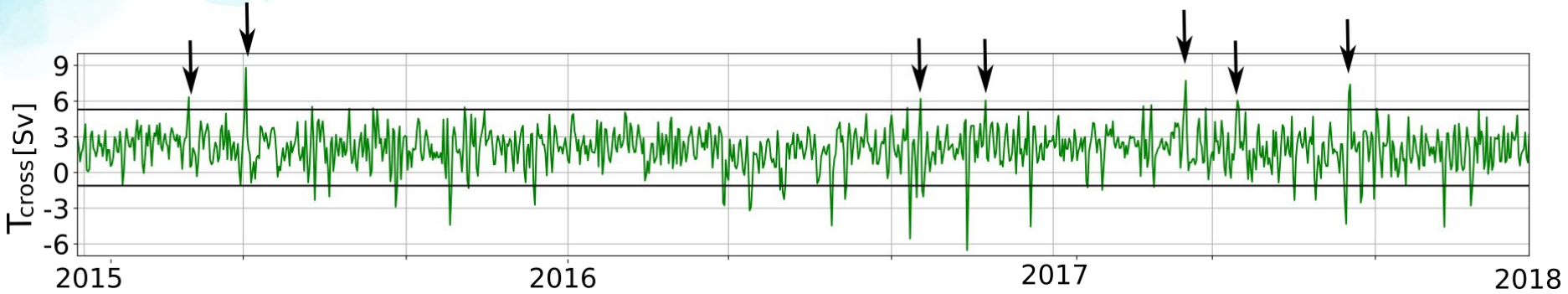


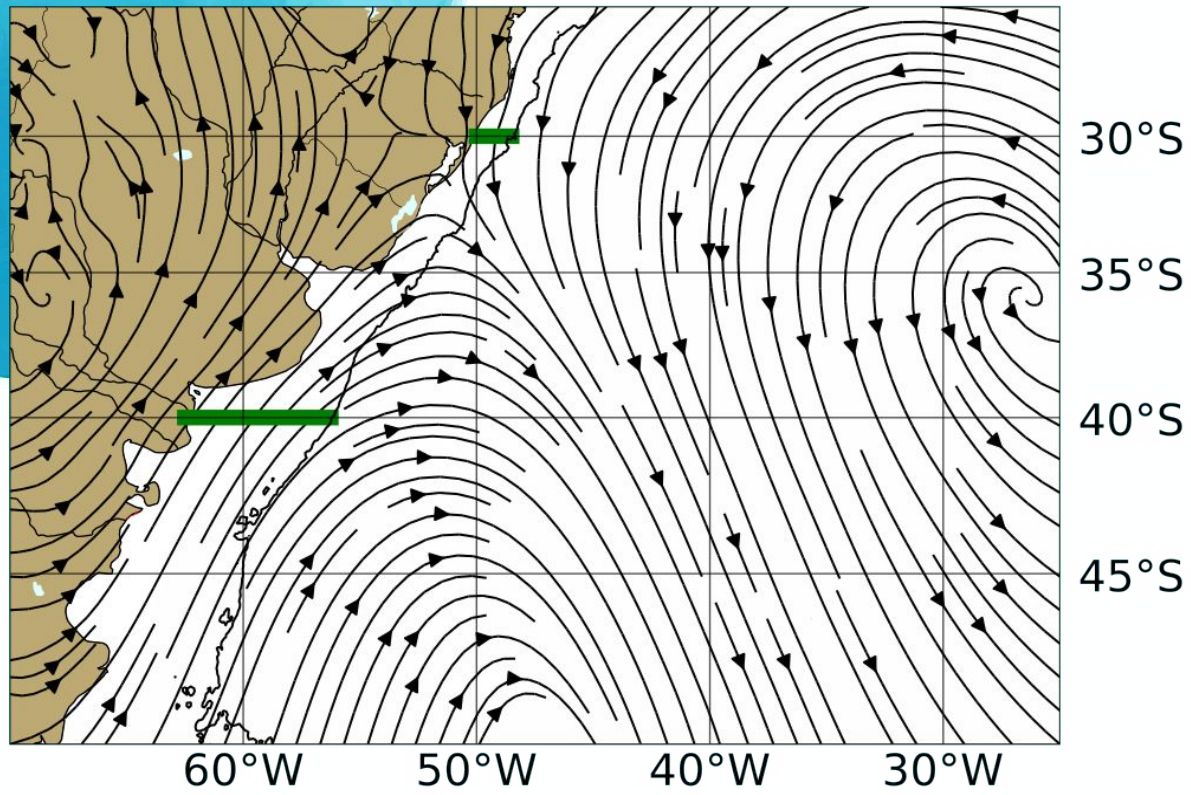
Possible drivers

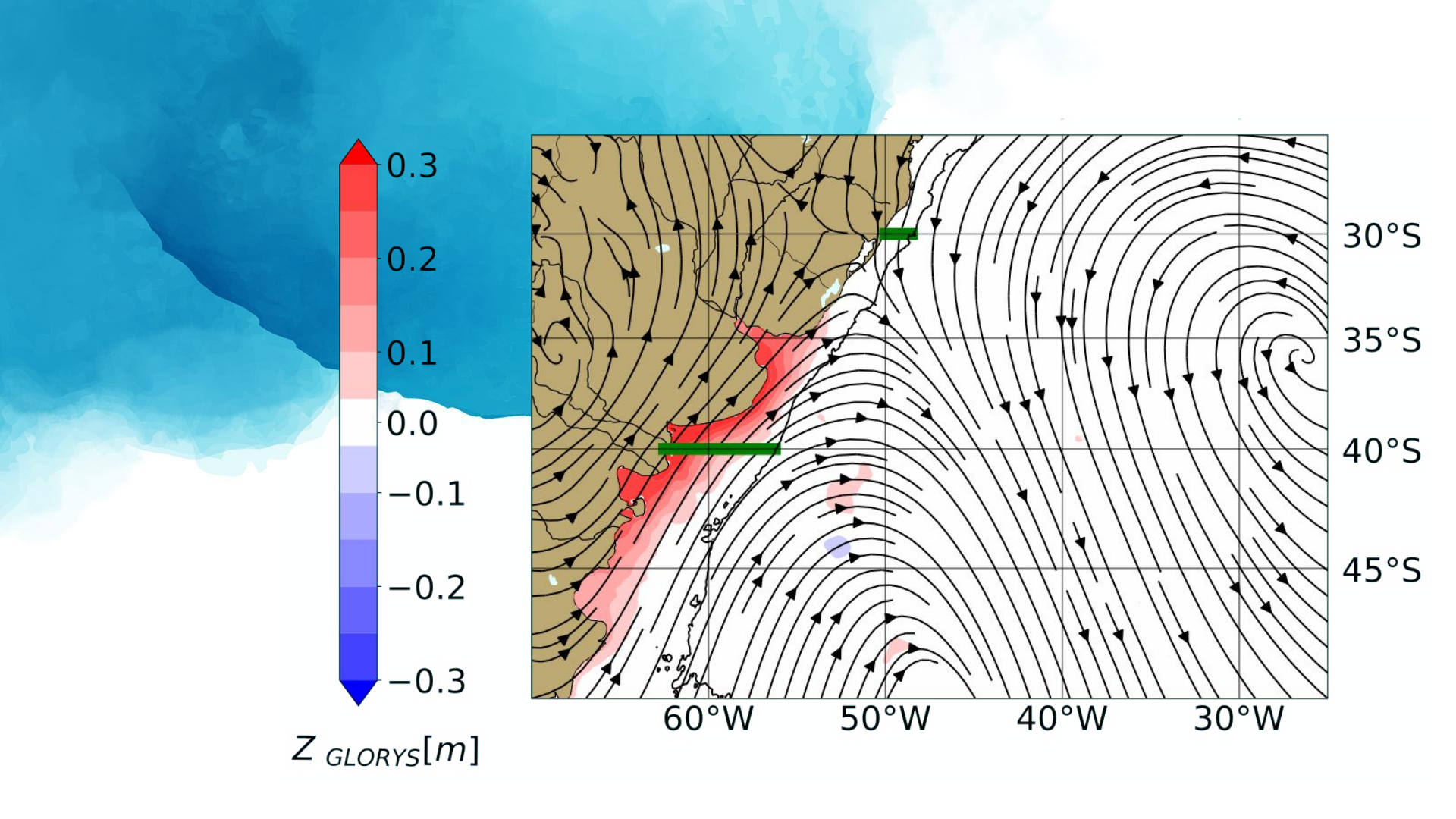


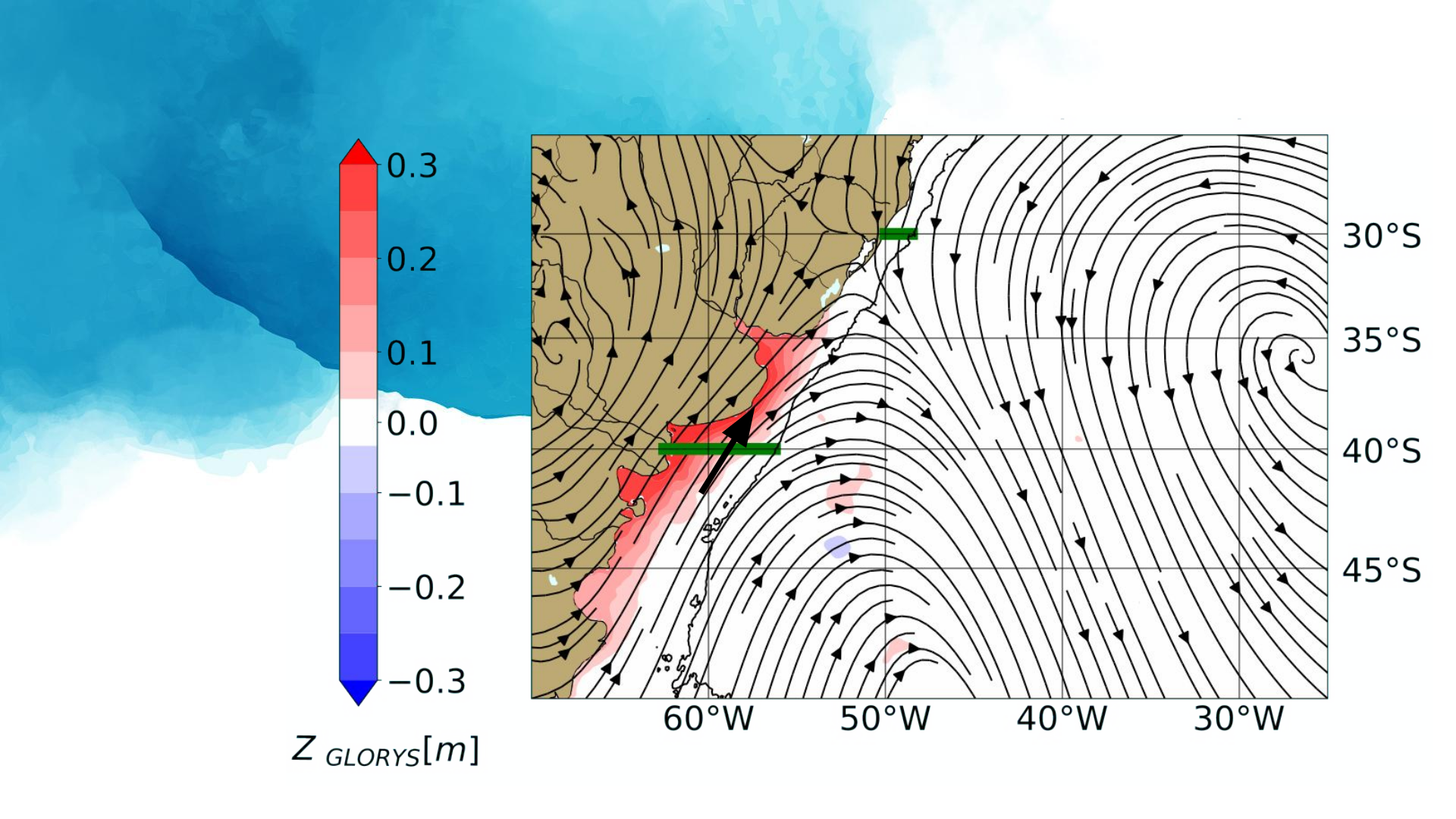
Extreme events

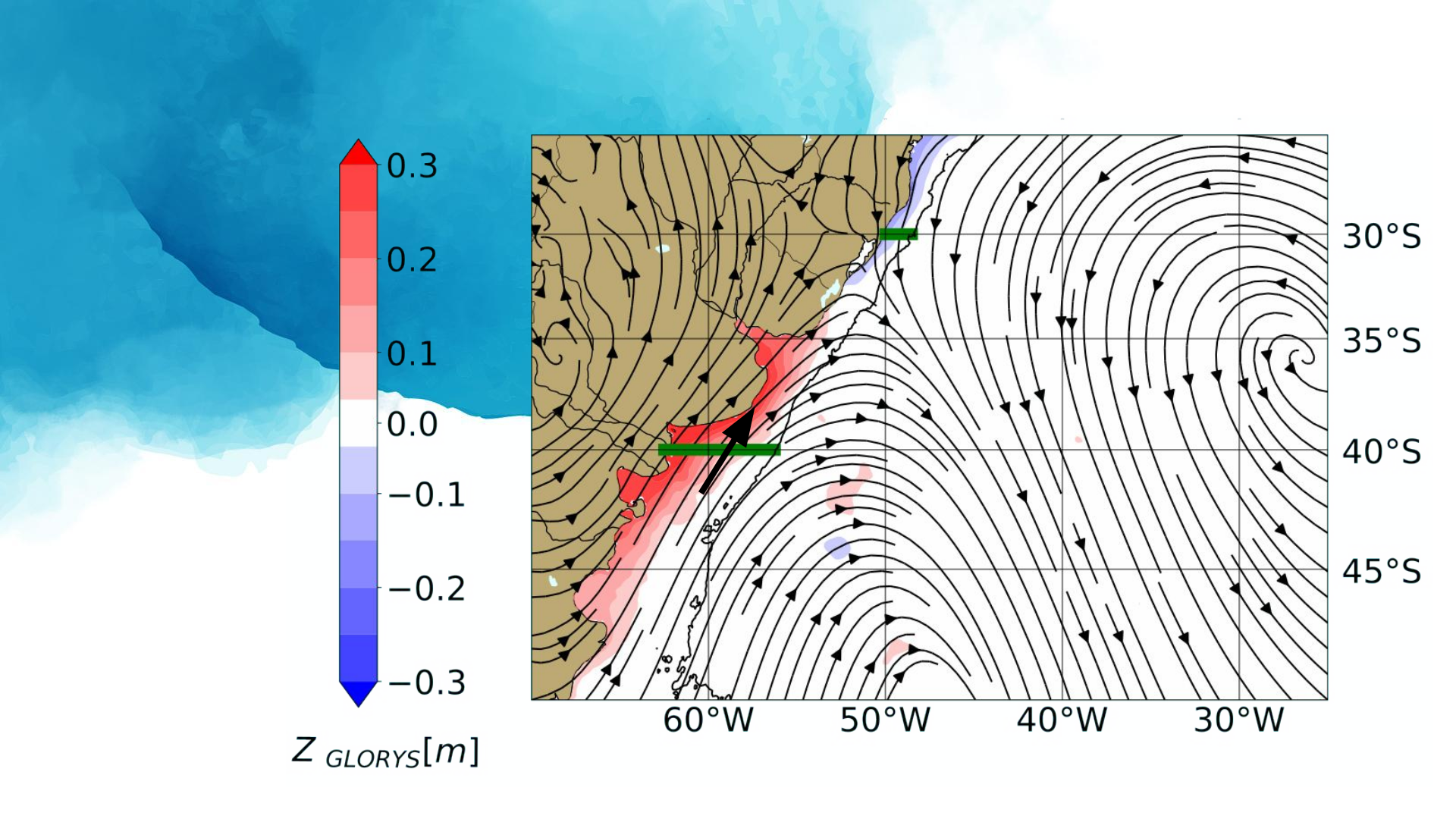


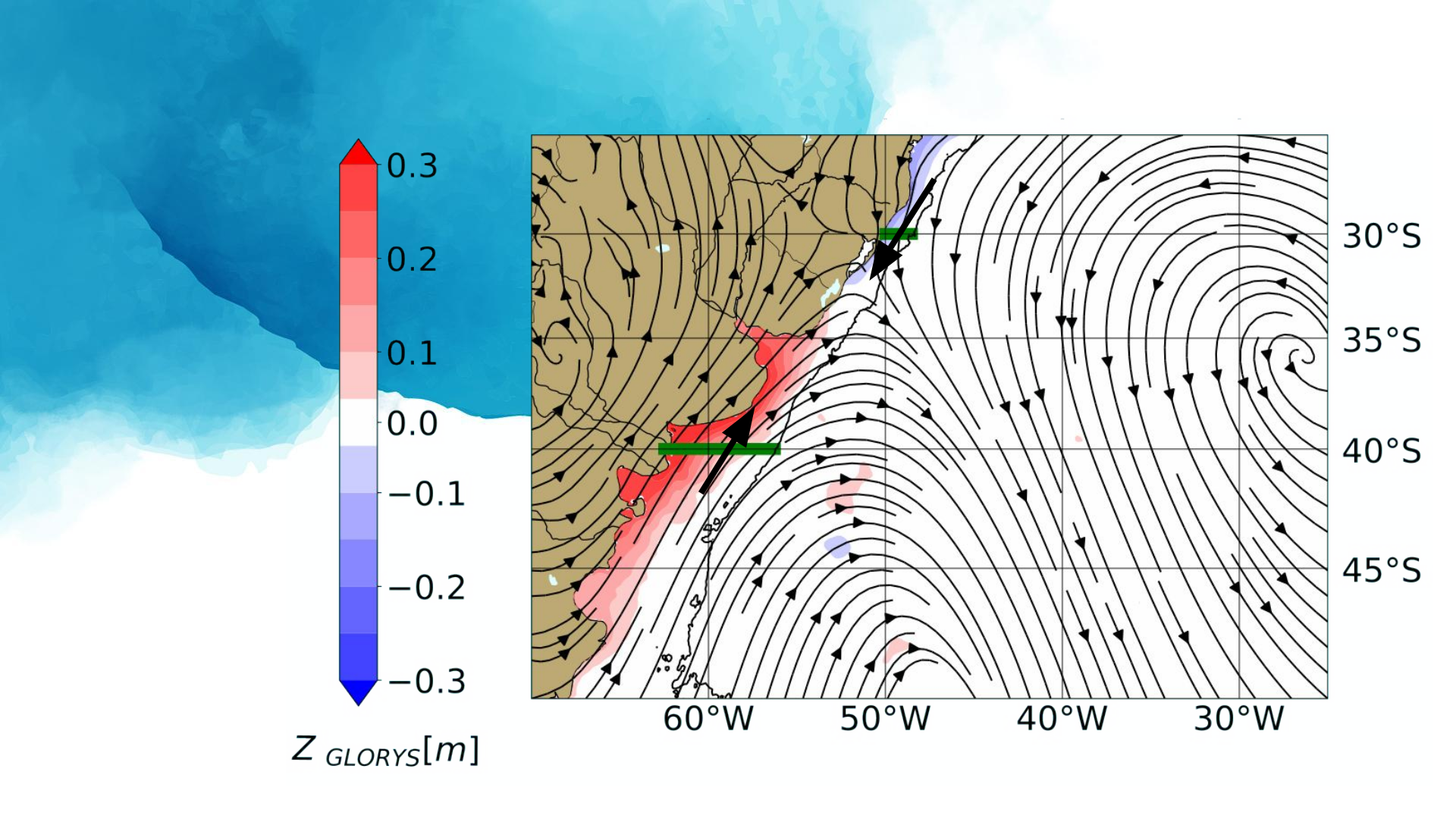


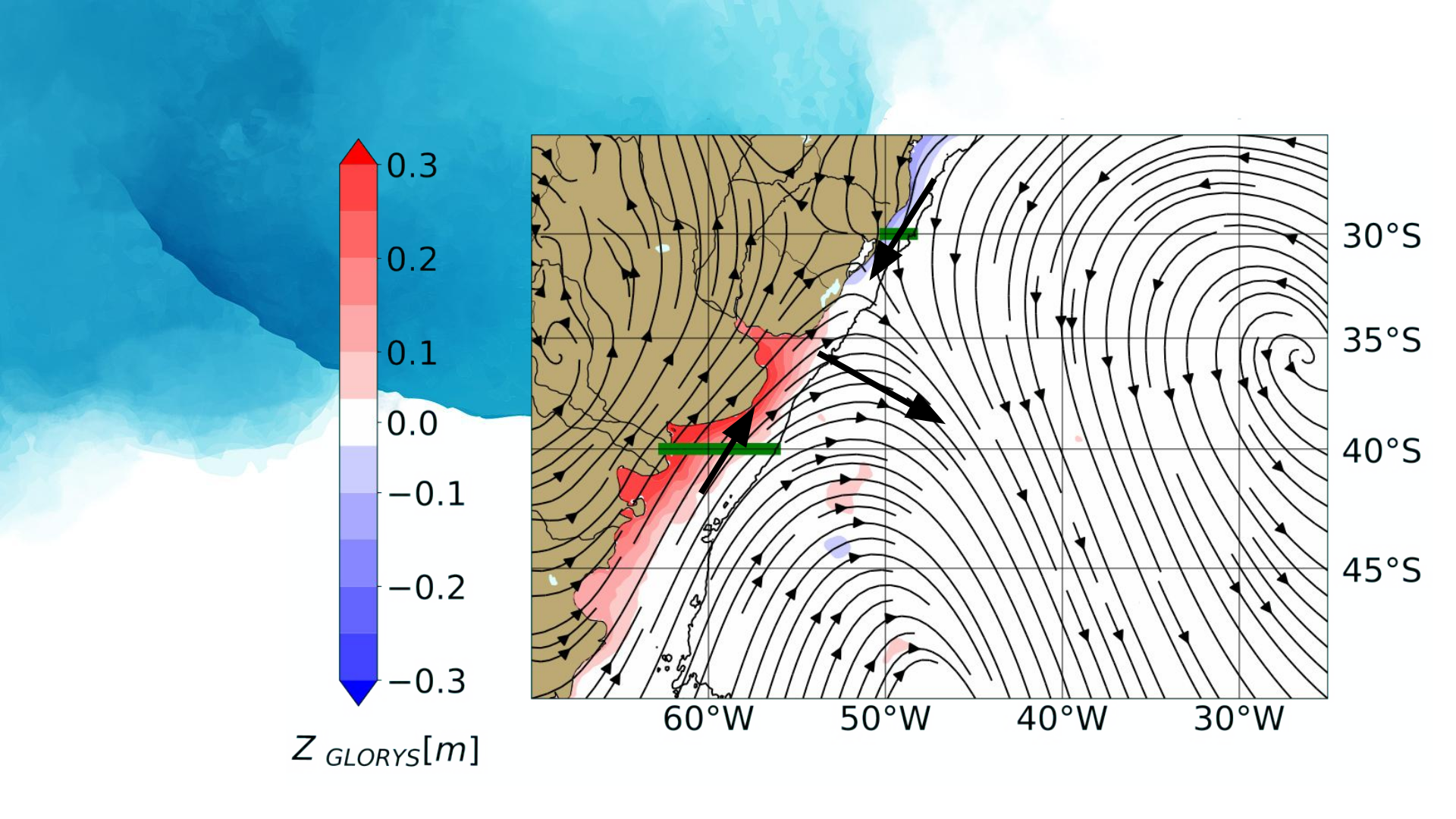

30°S
35°S
40°S
45°S
60°W
50°W
40°W
30°W


0.3
0.2
0.1
0.0
−0.1
−0.2
−0.3
$Z_{GLORYS}[m]$
30°S
35°S
40°S
45°S
60°W
50°W
40°W
30°W


0.3
0.2
0.1
0.0
−0.1
−0.2
−0.3
$Z_{GLORYS}[m]$
30°S
35°S
40°S
45°S
60°W
50°W
40°W
30°W

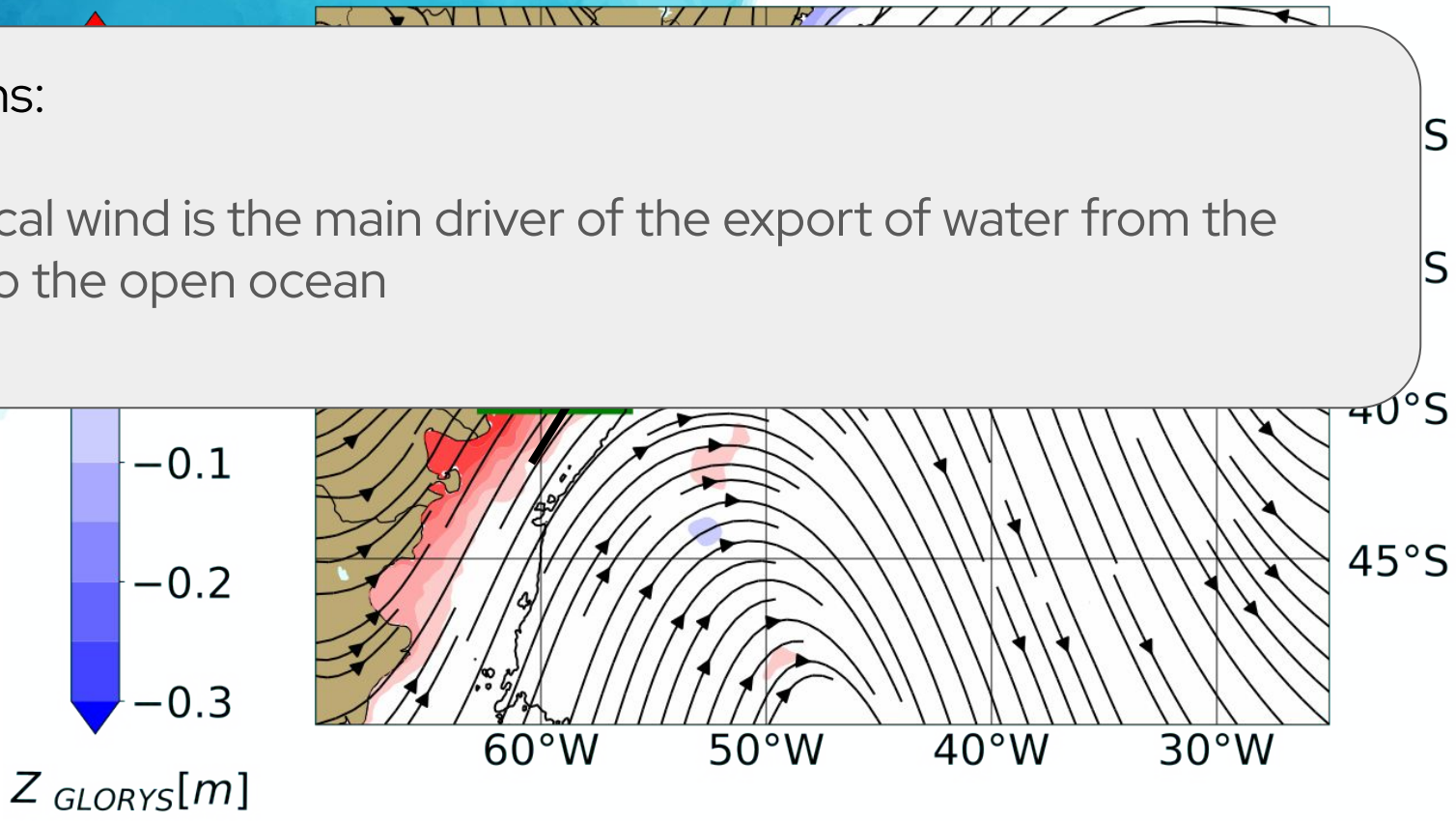

0.3
0.2
0.1
0.0
−0.1
−0.2
−0.3
$Z_{GLORYS}[m]$
30°S
35°S
40°S
45°S
60°W
50°W
40°W
30°W


0.3
0.2
0.1
0.0
−0.1
−0.2
−0.3
$Z_{GLORYS}[m]$
30°S
35°S
40°S
45°S
60°W
50°W
40°W
30°W

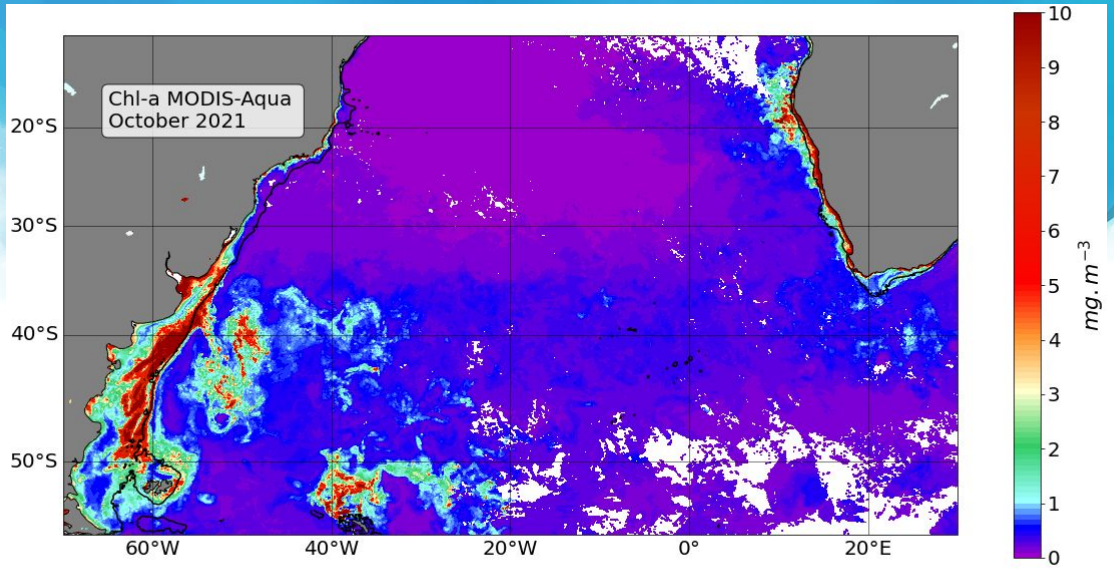

0.3
0.2
0.1
0.0
−0.1
−0.2
−0.3
$Z_{GLORYS}[m]$
30°S
35°S
40°S
45°S
60°W
50°W
40°W
30°W

Conclusions:

- The local wind is the main driver of the export of water from the shelf to the open ocean



Thank you


Chl-a MODIS-Aqua
October 2021
20°S
30°S
40°S
50°S
60°W
40°W
20°W
0°
20°E
10
9
8
7
6
5
4
3
2
1
0
$mg.m^{-3}$