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*Supplement of*

# Seasonal cycles of biogeochemical fluxes in the Scotia Sea, Southern Ocean: a stable isotope approach

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**Supplementary material**

**Table S1: Sediment trap bottle opening timings. Dates and duration open correspond to both deep (2000 m) and shallow (400 m) traps.**

| Bottle number | Bottle open date | Days open |
|---|---|---|
| 1 | 25/01/2018 | 7 |
| 2 | 01/02/2018 | 14 |
| 3 | 15/02/2018 | 14 |
| 4 | 01/03/2018 | 31 |
| 5 | 01/04/2018 | 30 |
| 6 | 01/05/2018 | 31 |
| 7 | 01/06/2018 | 30 |
| 8 | 01/07/2018 | 31 |
| 9 | 01/08/2018 | 31 |
| 10 | 01/09/2018 | 30 |
| 11 | 01/10/2018 | 31 |
| 12 | 01/11/2018 | 30 |
| 13 | 01/12/2018 | 14 |
| 14 | 15/12/2018 | 17 |

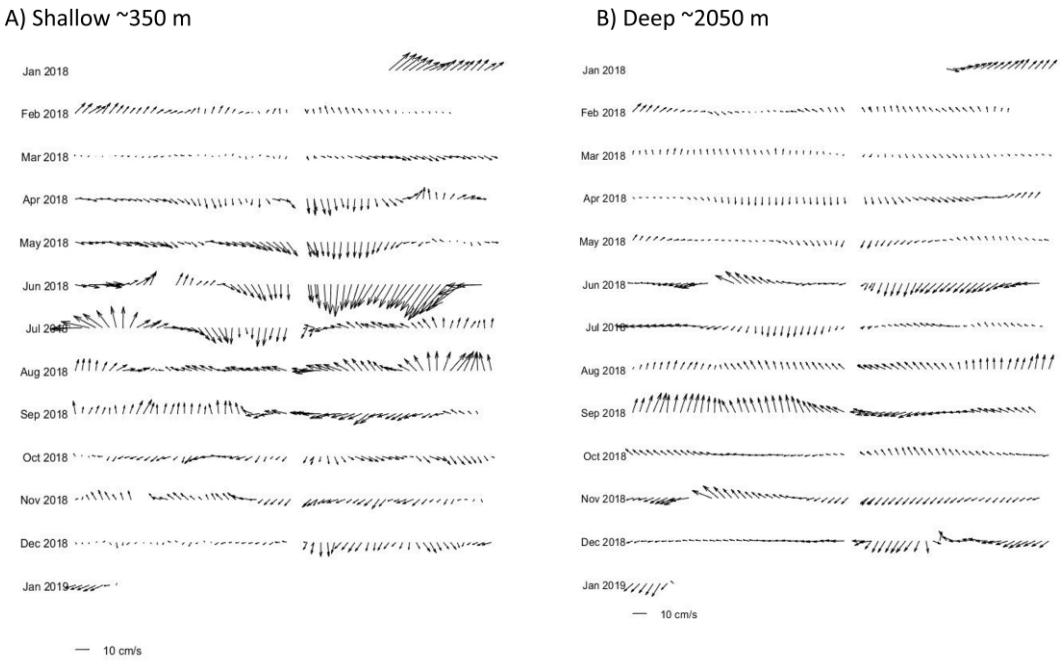


**Figure S1: Current vector stick plots of filtered (de-tided with 33-hour half amplitude period) current data. Smoothed data are shown every 12 hours. Arrow length scales to current speed, indicated by the scale bar, in cm/s.**

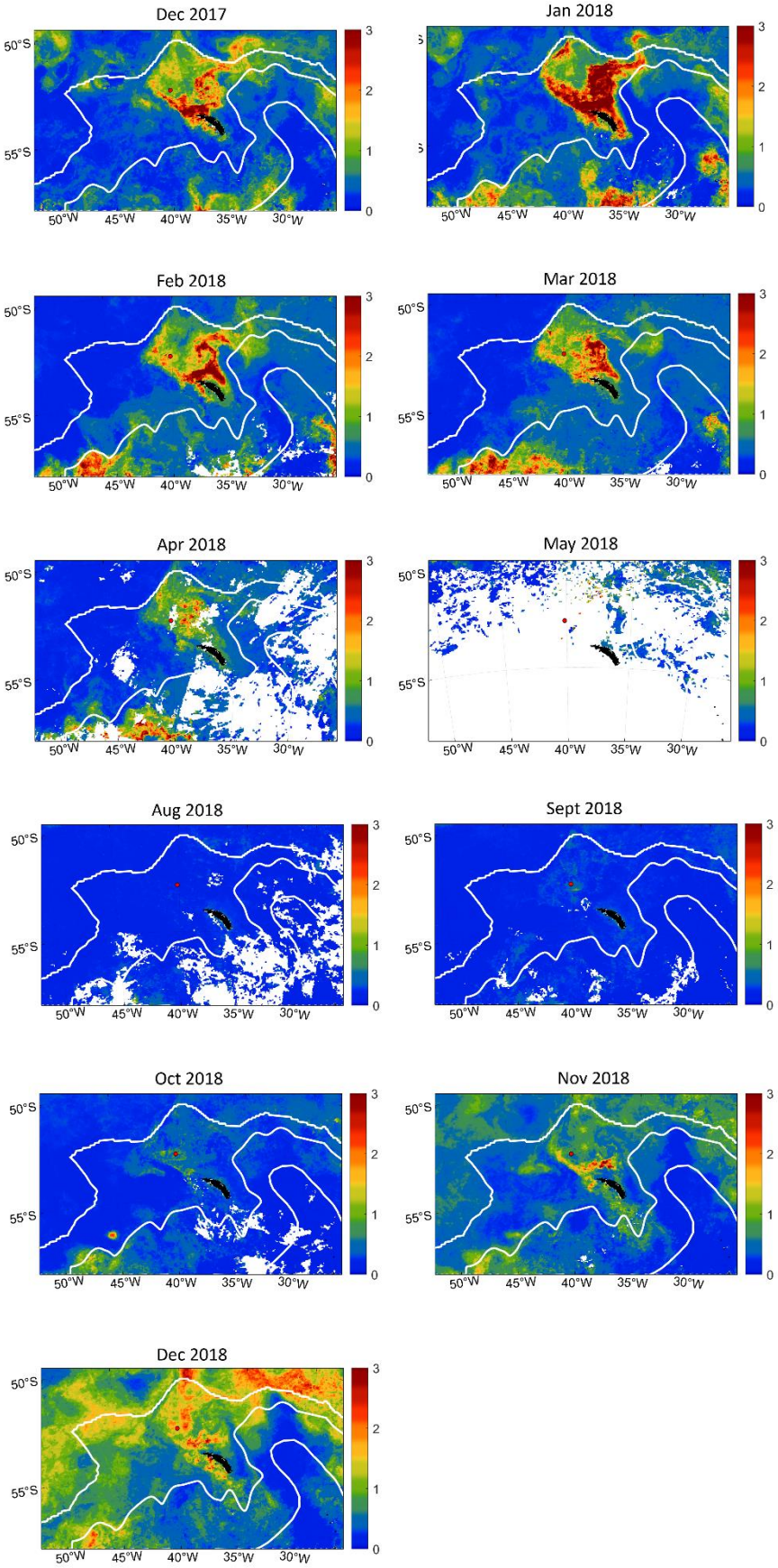
Dec 2017
Jan 2018
Feb 2018
Mar 2018
Apr 2018
May 2018
Aug 2018
Sept 2018
Oct 2018
Nov 2018
Dec 2018
50°S
55°S
50°W
45°W
40°W
35°W
30°W
0
1
2
3

***Figure S2: Seasonal progression of satellite derived surface chlorophyll concentration (mg $m^{-3}$). Data are monthly for Dec 2017- May 2018, and Aug 2018-Dec 2018, averaged from 8 day satellite chlorophyll data from the Ocean Colour CCI (version 5.0)* (Sathyendranath et al., 2021, 2019). *White lines indicate frontal positions of the Antarctic Polar Front (APF)* (Moore et al., 1999), *Southern Antarctic Circumpolar Current Front (SACCF)* (Thorpe et al., 2002) *and the Southern Boundary of the Antarctic Circumpolar Current (SB-ACC)* (Orsi et al., 1995). *P3 station is indicated by the red marker.***