

# Supplementary materials for

## Internal tides off the Amazon shelf – Part 2: 4 temperature variability at tidal frequencies

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The supplementary materials content three figures:

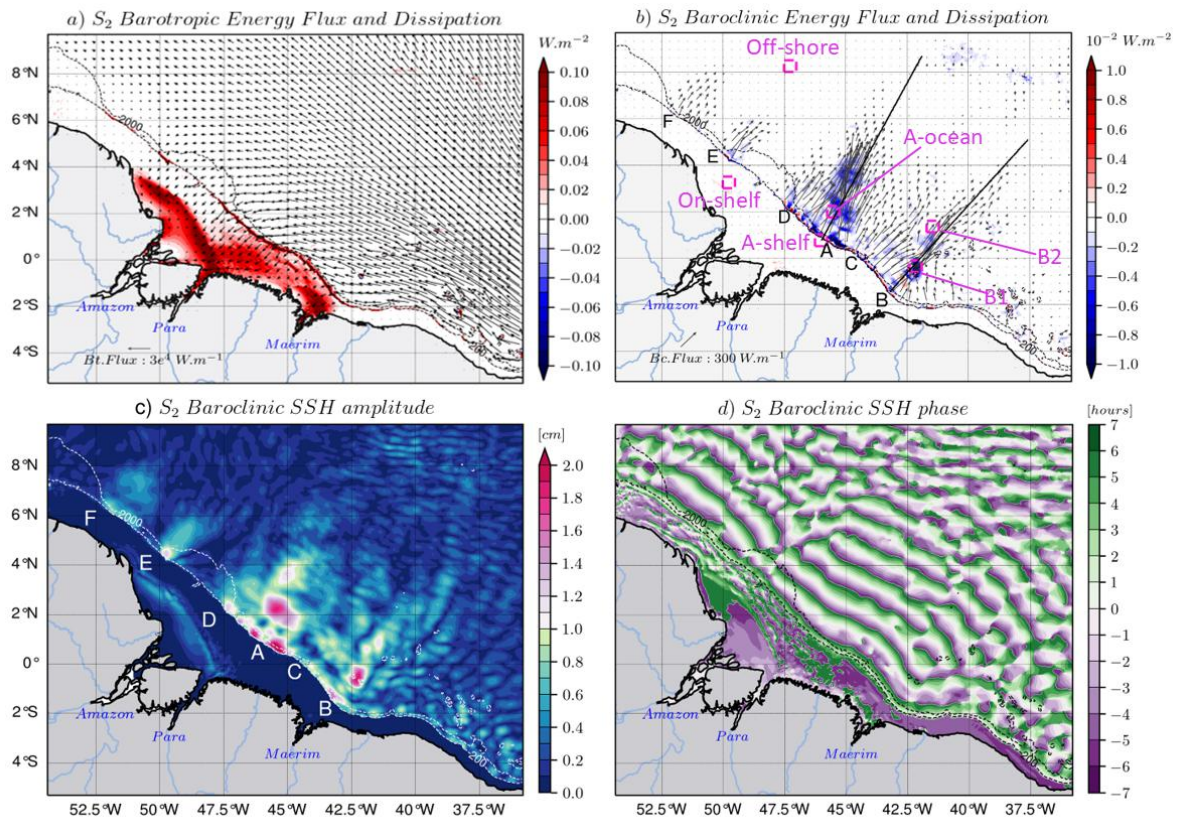
- **Figure S1** on the characteristics of S<sub>2</sub> coherent tides;

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- **Figure S2** on the harmonic analysis of non-tidal temperatures at high frequencies;

- **Figure S3** on additional Spring-Neap composites maps.

**Supplementary 1.** Additional characteristics of semidiurnal tides in NBR



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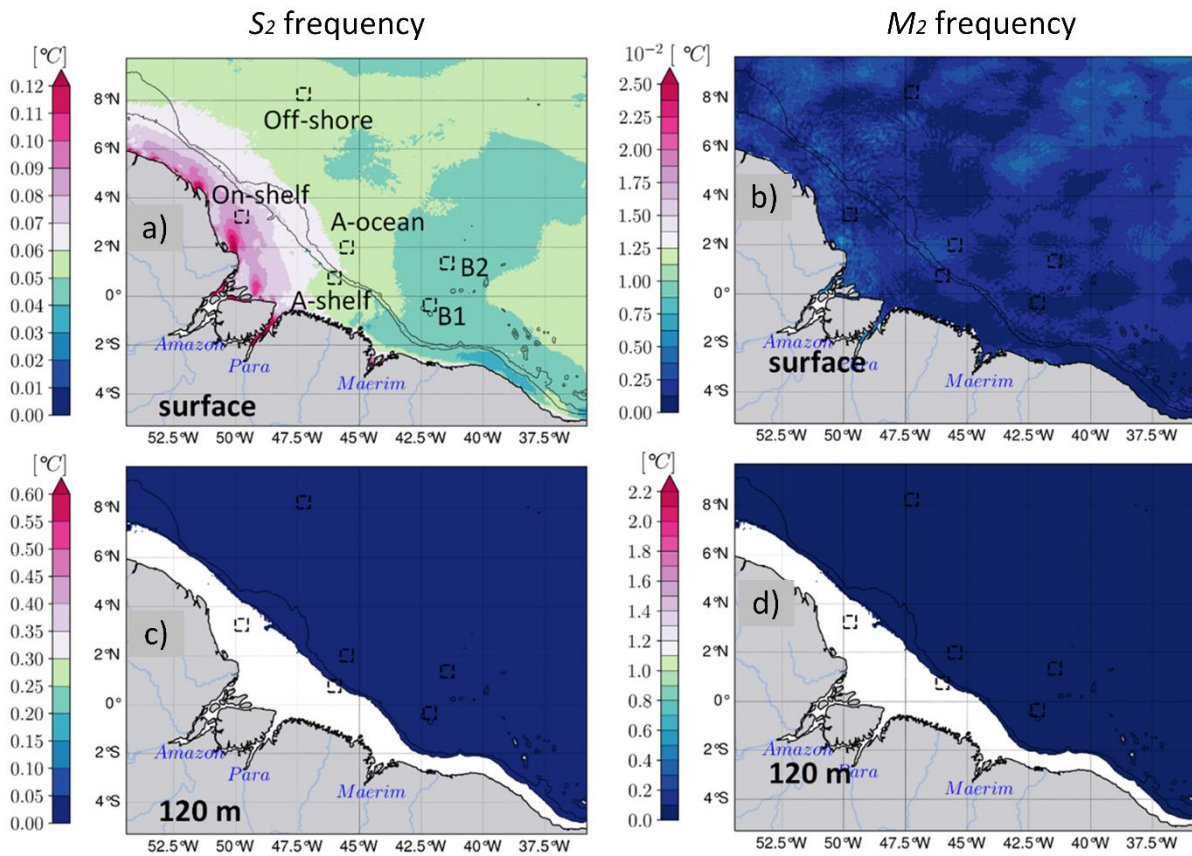
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**Figure S1.** Characteristics of  $S_2$  coherent tides for the year 2015: (a) barotropic energy flux (black arrows) and barotropic energy dissipation (color shading), (b) depth-integrated baroclinic energy flux (black arrows) and depth-integrated baroclinic energy dissipation (color shading), (c) baroclinic sea surface height and (d) its phase lag. A to F labels in panels (b) and (c) indicate the internal tide generation sites on the shelf break. Black and white dotted lines in respective panels represent the 200 and 2000 m isobaths from the model bathymetry. In panel (b) and for figures above, the two black straight lines indicate the mean trajectory of internal tides radiating from generation sites A and B; magenta (here) and black (in the following figures) boxes indicate the areas within the vertical mean of temperature amplitudes were performed; the center of each box corresponds to the location of the point for which we performed spectral analysis.

**Supplementary 2.** High frequency variability in hourly non-tidal simulation temperatures

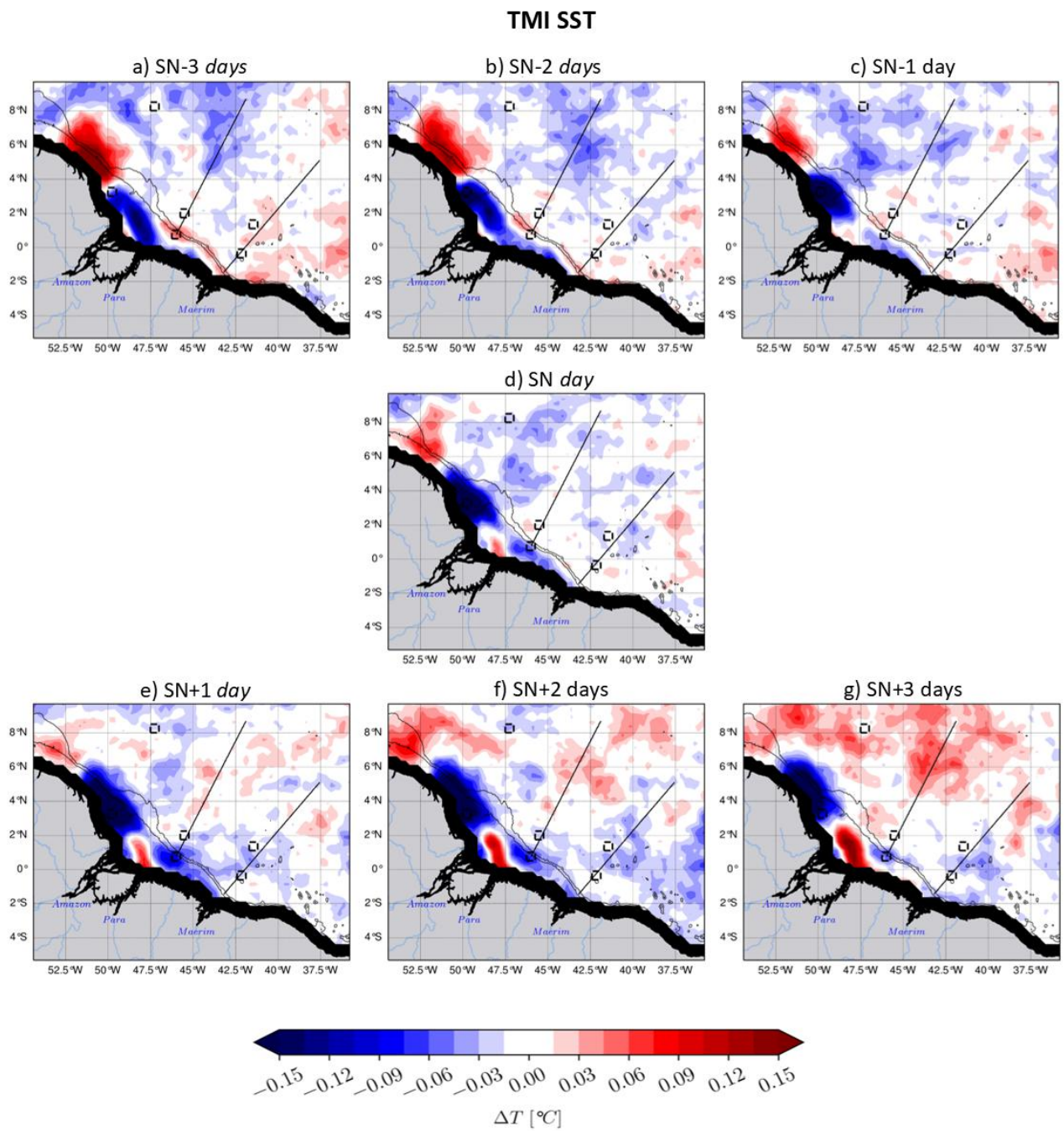
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**Figure S2.** The harmonic analysis of temperature at high frequencies based on 2015 non-tidal simulation hourly datasets:  $S_2$  in the left panels and  $M_2$  in the right panels, the surface and subsurface in the upper and lower panels, respectively. The two black thin contours, here and in the following figure unless otherwise stated, are the 200 and 2000 m isobaths from model bathymetry.

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Supplementary 3. Additional Spring-Neap composites maps



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Figure S3. Continue below.

### Non-tidal simulations SST

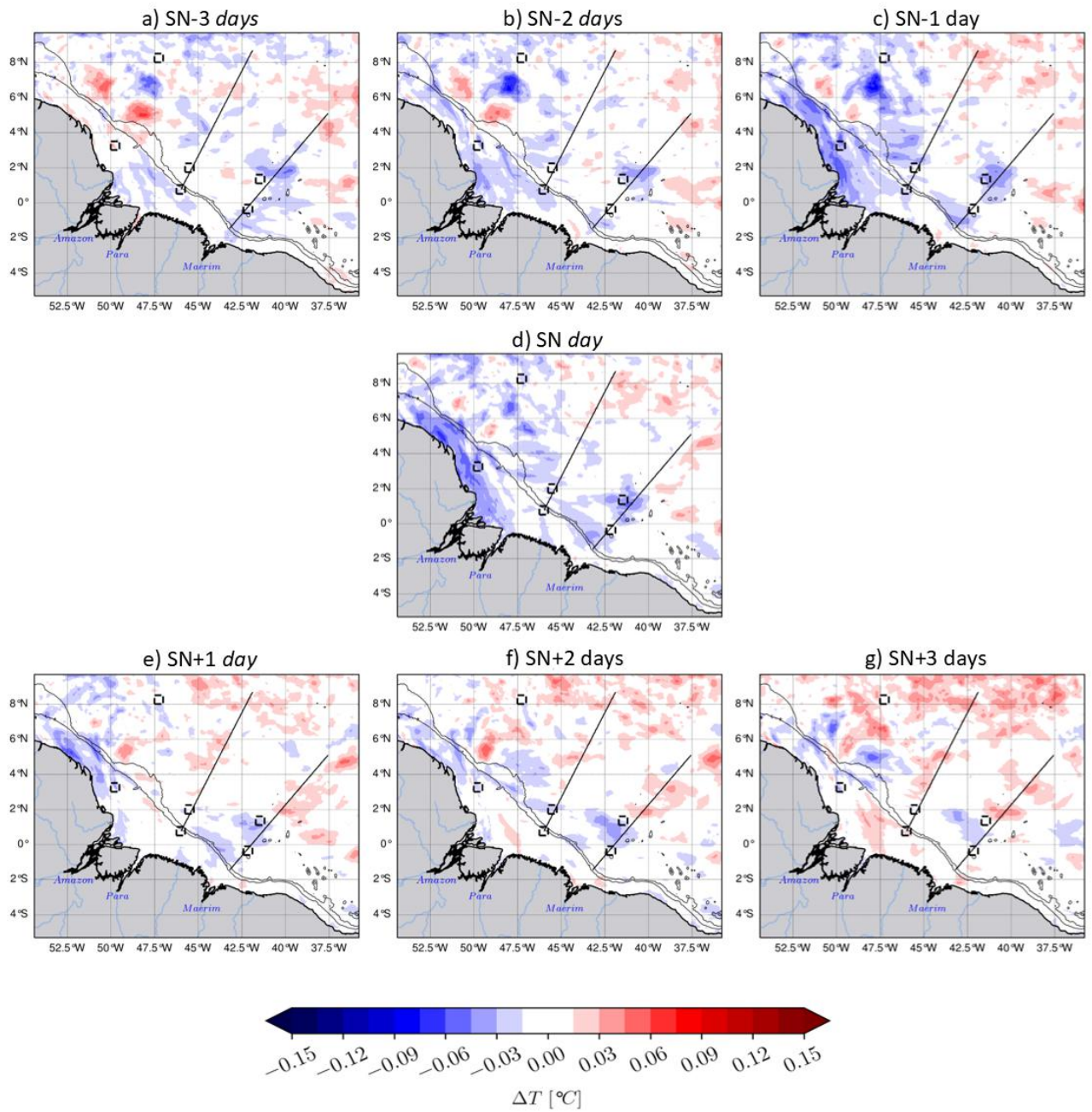
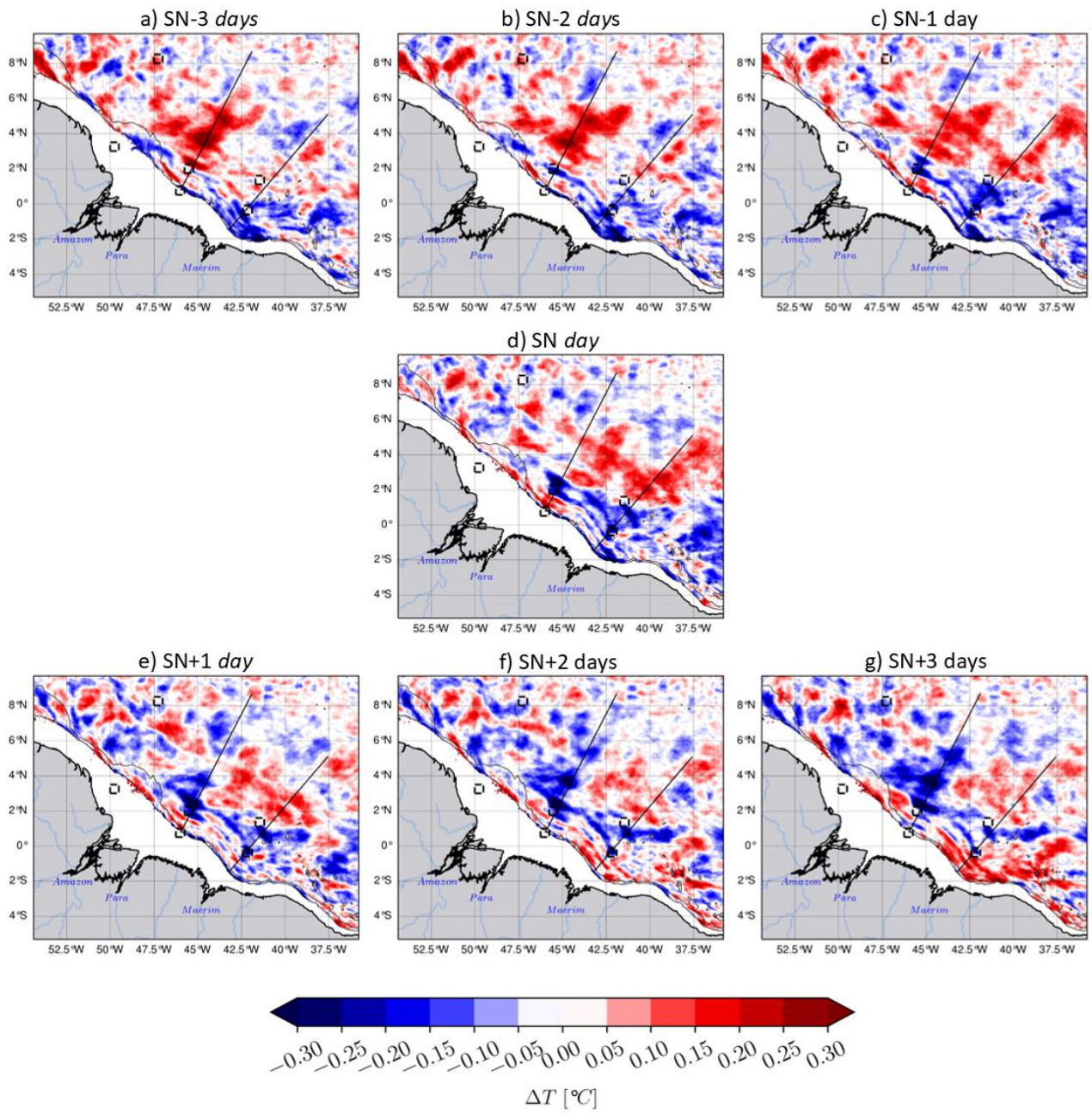


Figure S3. Continue below.

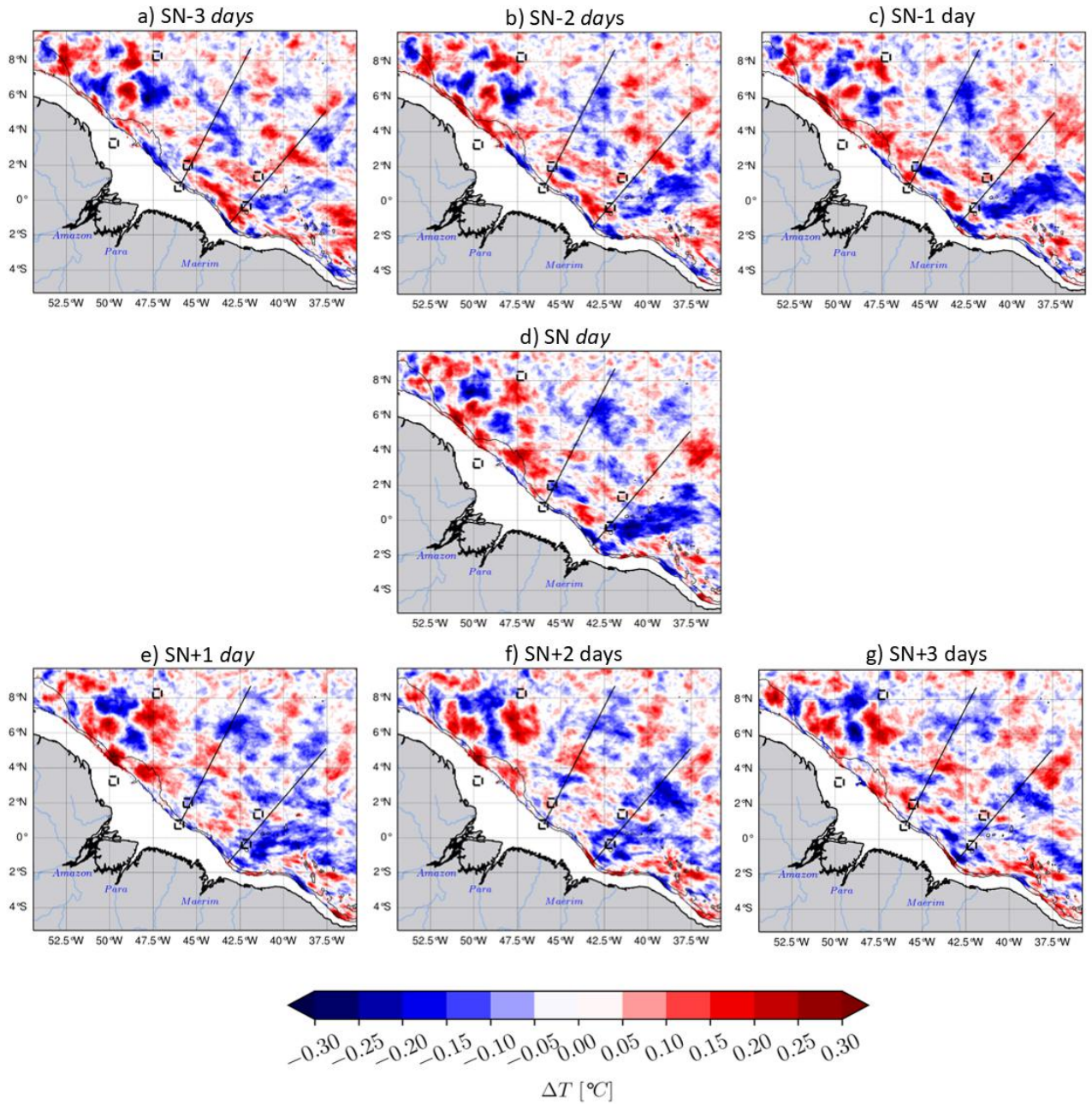
Tidal simulations 120 m



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Figure S3. Continue below.

Non-tidal simulations 120 m



60 **Figure S3.** Spring-Neap composites from daily temperature datasets. (panel 1) TMI SST, (panel 2) non-tidal simulation's SST, (panel 3) tidal simulation temperatures at 120 m depth and (panel 4) non-tidal simulation temperatures at 120 m depth. Each subpanel (a to g) correspond to a case of the offset  $i$ , respectively  $\{-3, -2, -1, 0, 1, 2, 3\}$ , as defined in Appendix C.