RapidScat Initial Results for Cross-Calibration and Diurnal Cycles

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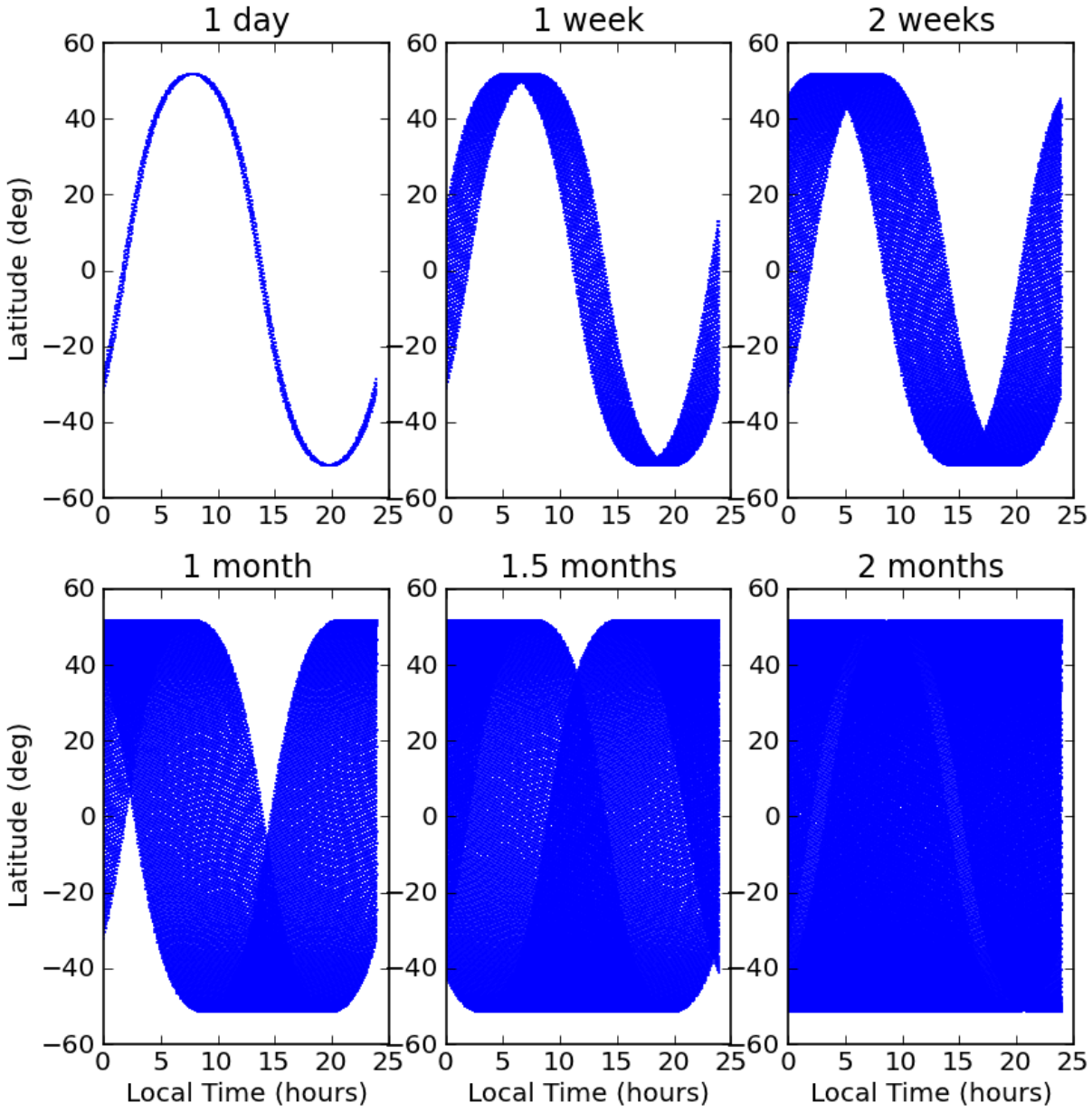
Mapping of the Diurnal Cycle



- Mapping the diurnal and semi-diurnal cycles requires, at a minimum, sampling every 6 hours in local time.
- The local time sampling characteristics of the ISS are to revisit the same latitude at slightly different local times each orbit.
- To fully sample the diurnal and semi-diurnal cycles once globally requires at least 2 months of data.
- To estimate diurnal and semi-diurnal cycles accurately, on the order of 10 sets of observations (~2 years) will be required.

Eastern Pacific Wind Jets

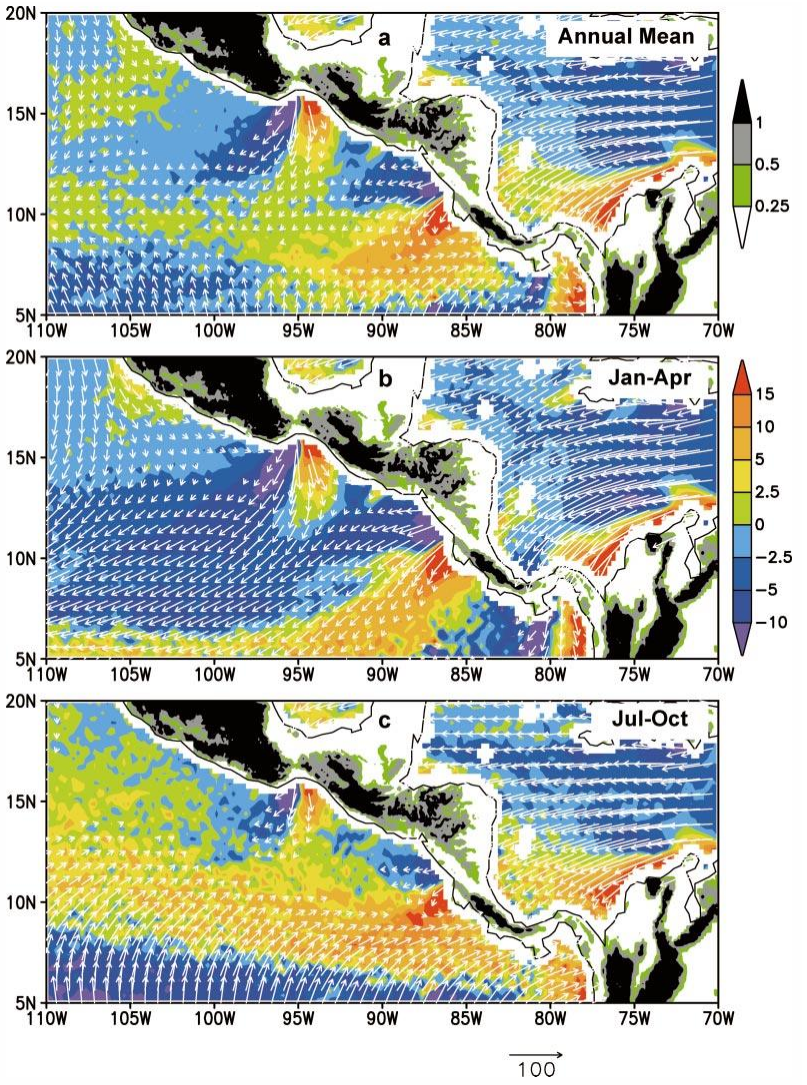
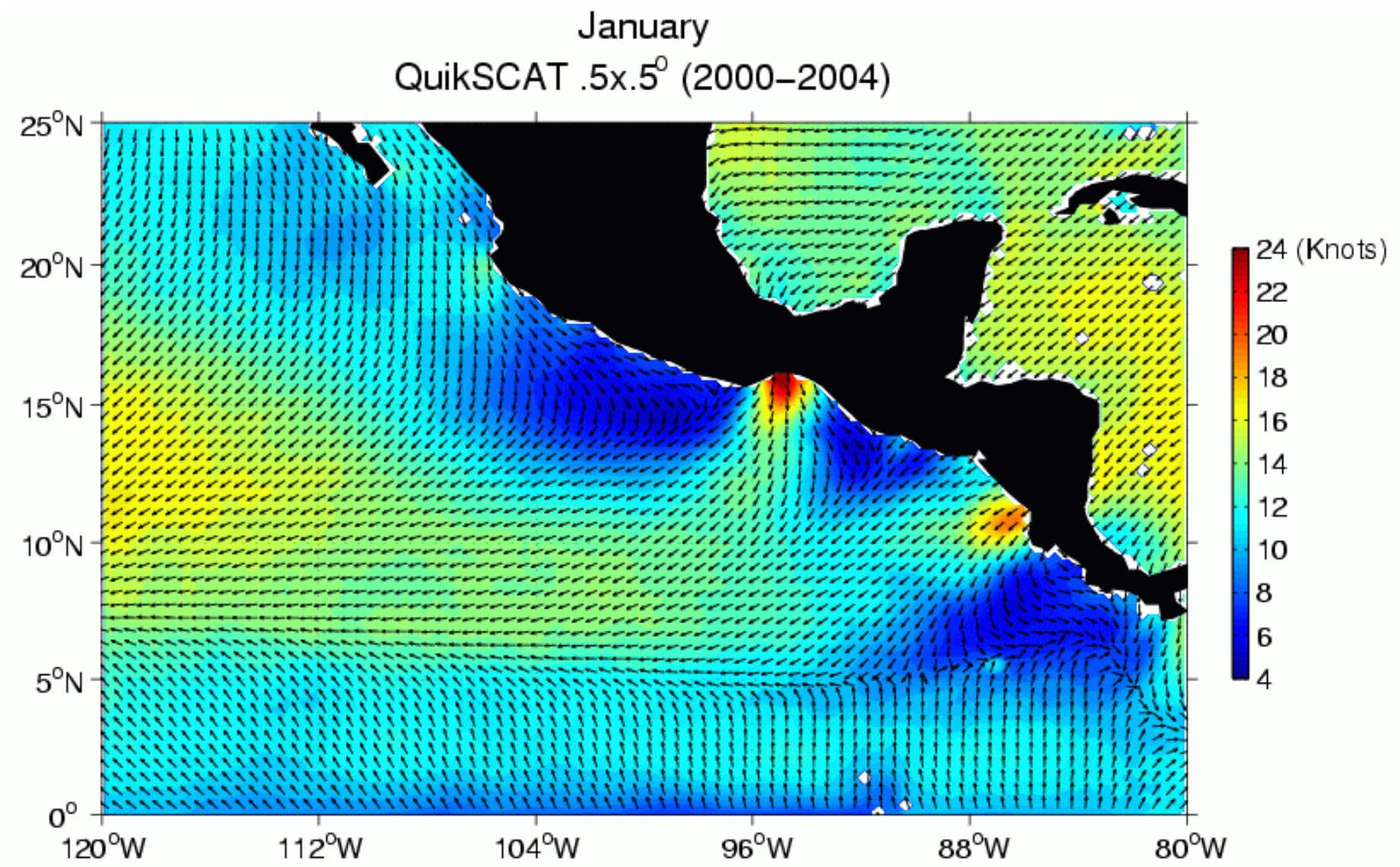


FIG. 3. QuikSCAT pseudo–wind stress (vectors in $m^2 s^{-2}$) and Ekman pumping velocity (shade in 10^{-6} m s^{-1}) climatology: (a) annual mean, (b) Jan–Apr, and (c) Jul–Oct. Land orography (km) is plotted in color shading.

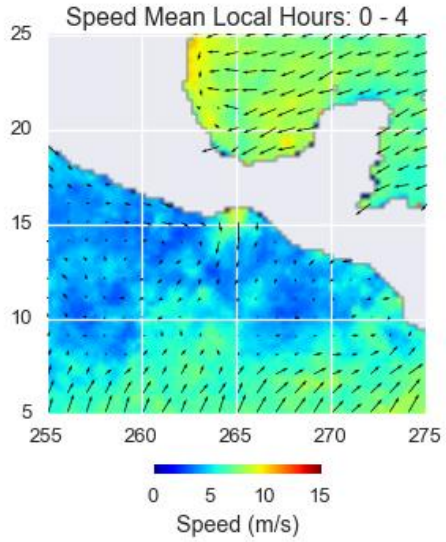
S. Xie, H. Xu, W. Kessler, and M. Nonaka, "Air–sea interaction over the eastern pacific warm pool: Gap winds, thermocline dome, and atmospheric convection," Journal of Climate, vol. 18, no. 1, pp. 5–20, 2005.

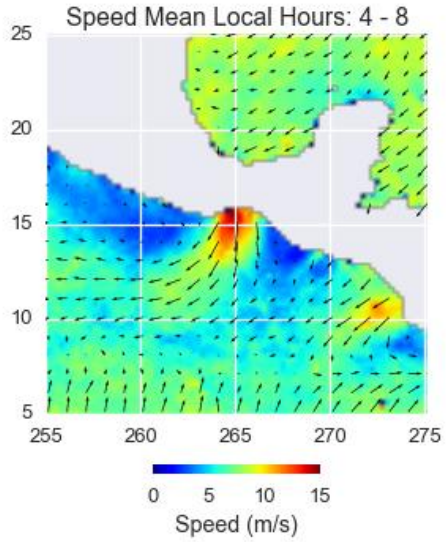
Tehuantepec: COAPS Climatology

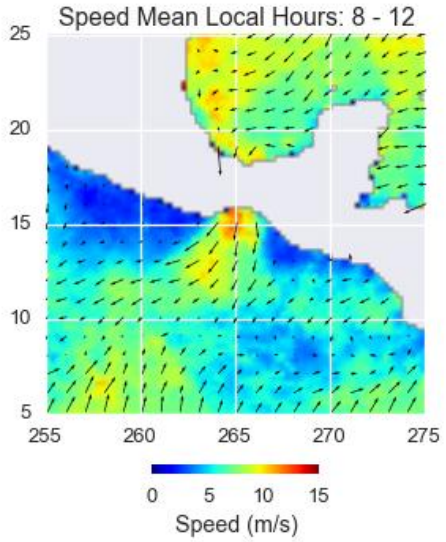


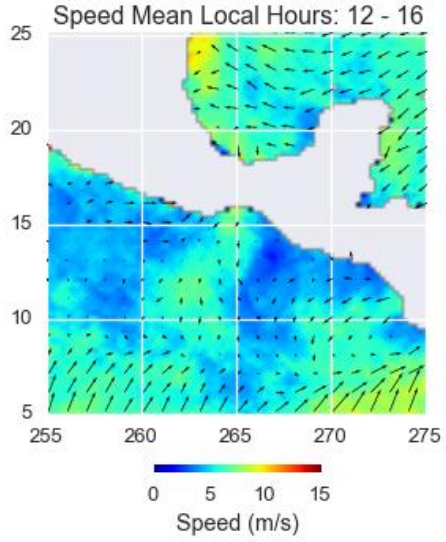
C. M. Risien and D. Chelton, "A global climatology of surface wind and wind stress fields from 8 years of quikscat scatterometer data," Journal of Physical Oceanography, 2008.

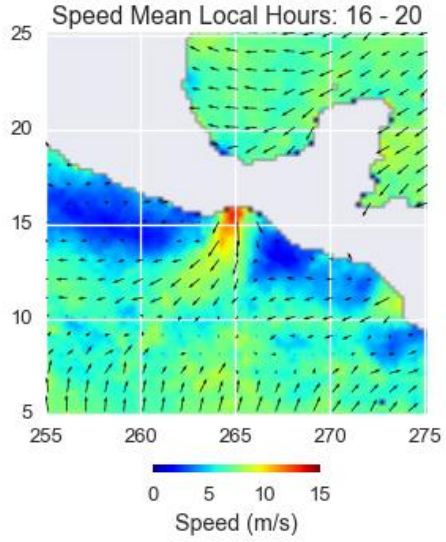
Tehuantepec: October-November

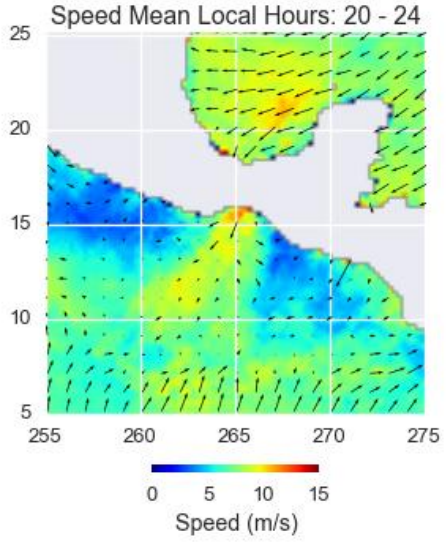




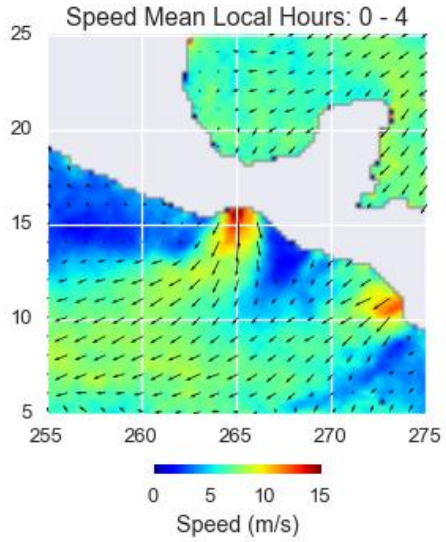


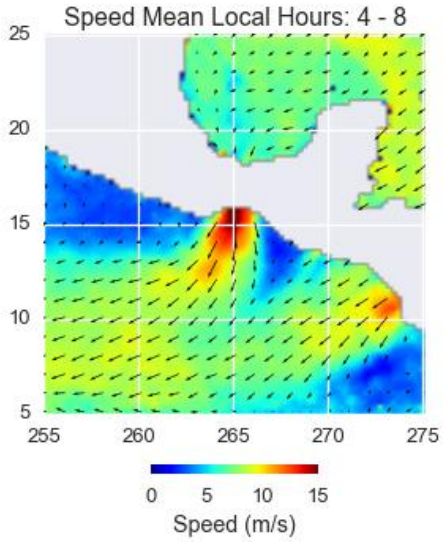


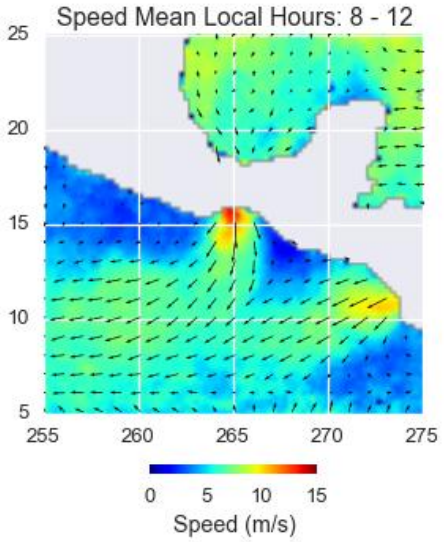


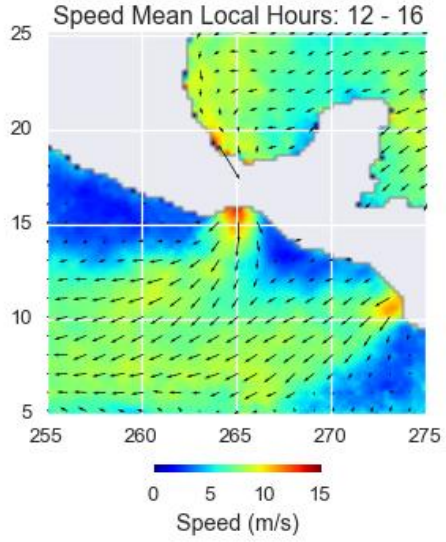


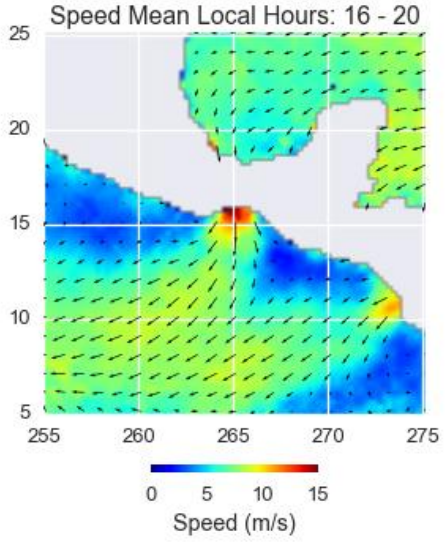
Tehuantepec: December-January

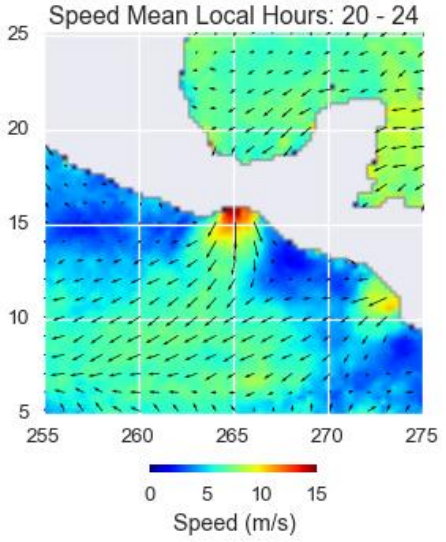




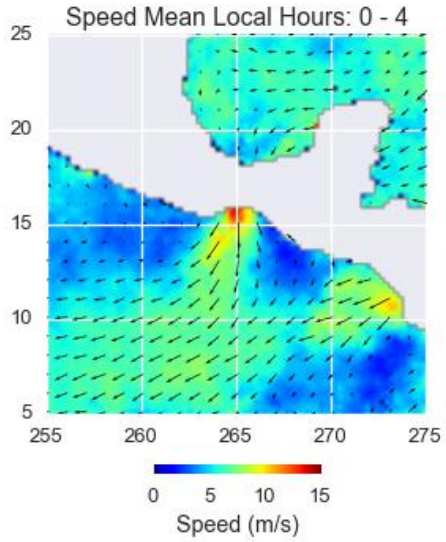


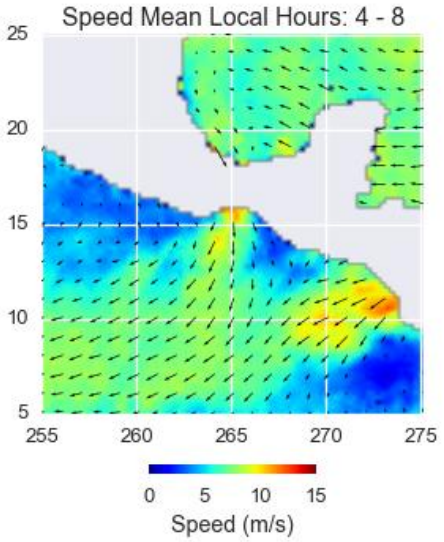


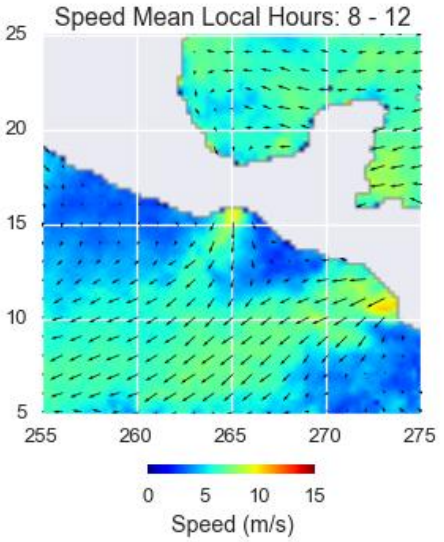


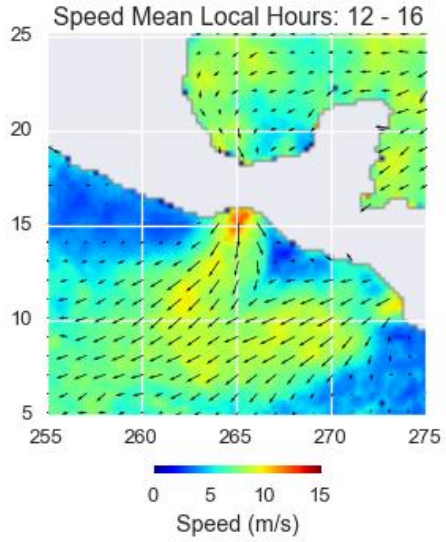


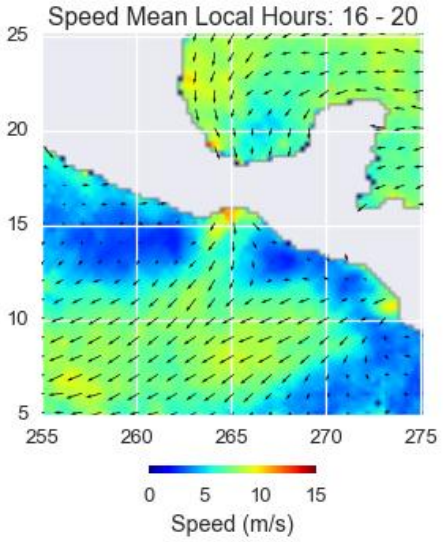
Tehuantepec: February-March

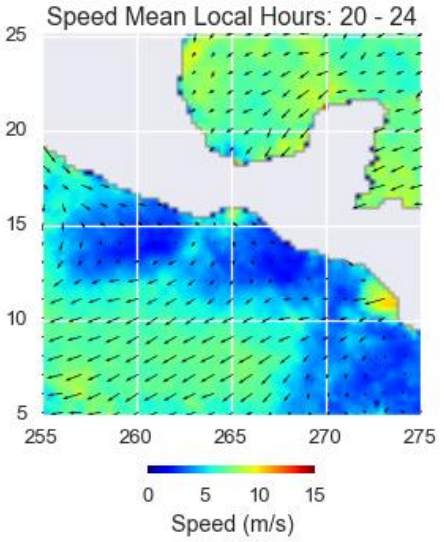




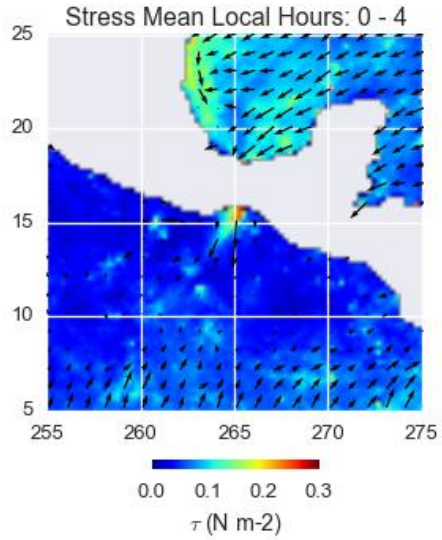


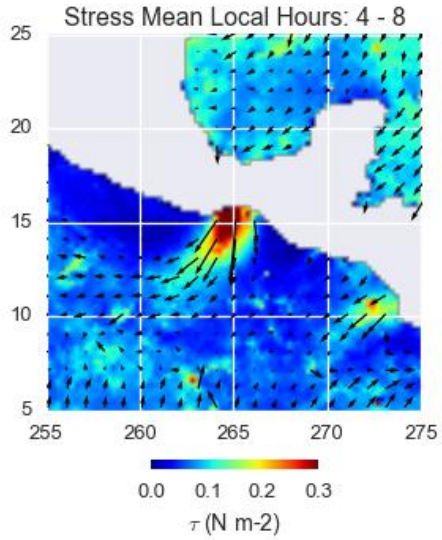


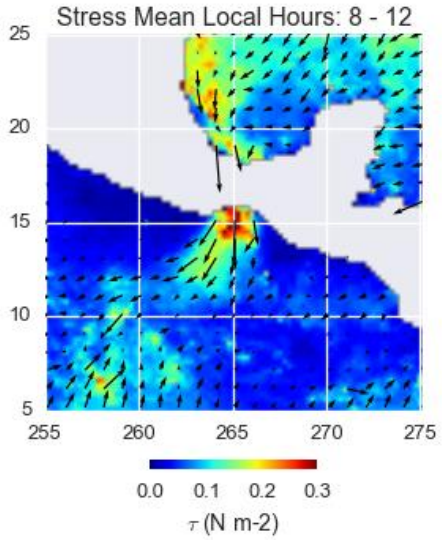


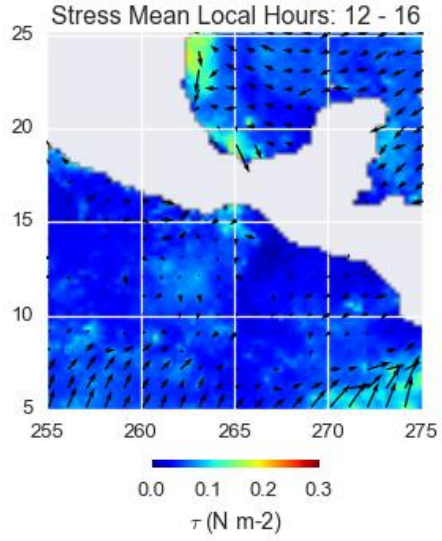


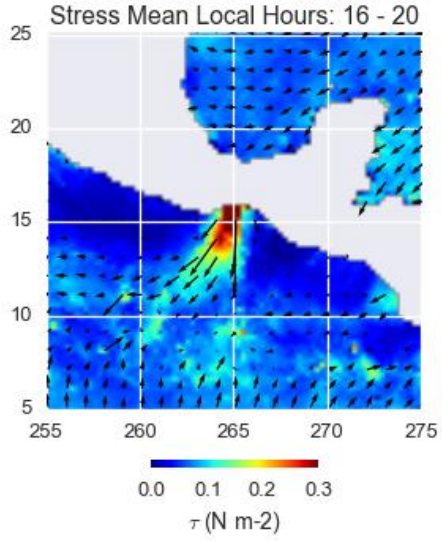
Tehuantepec: October-November

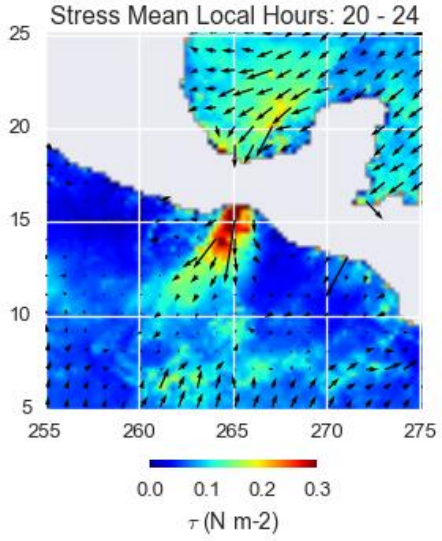




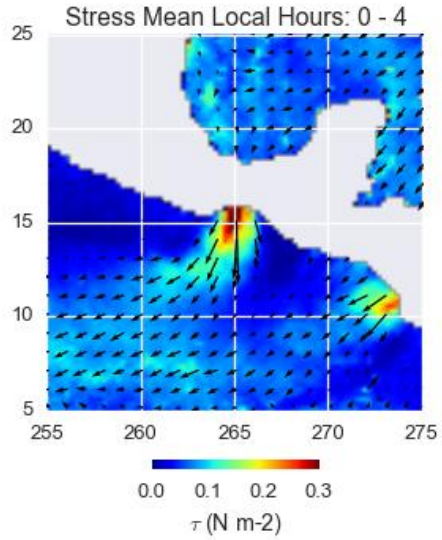


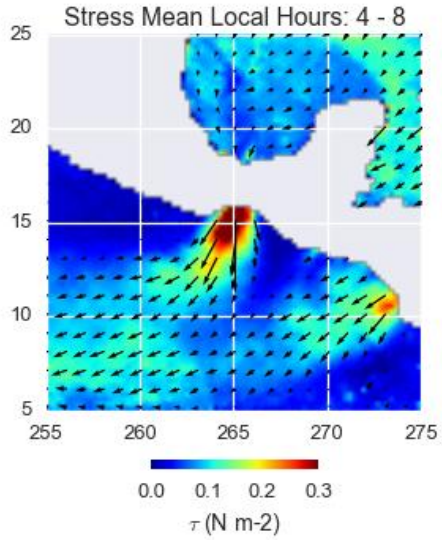


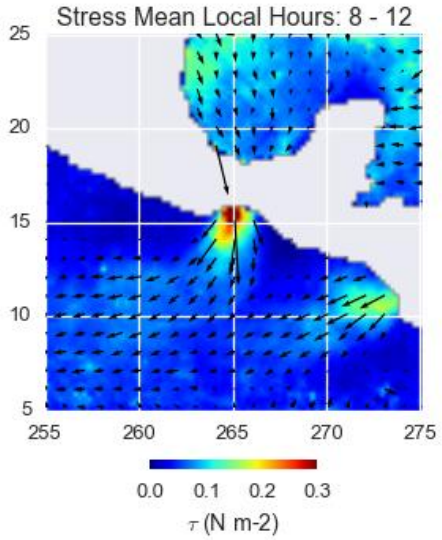


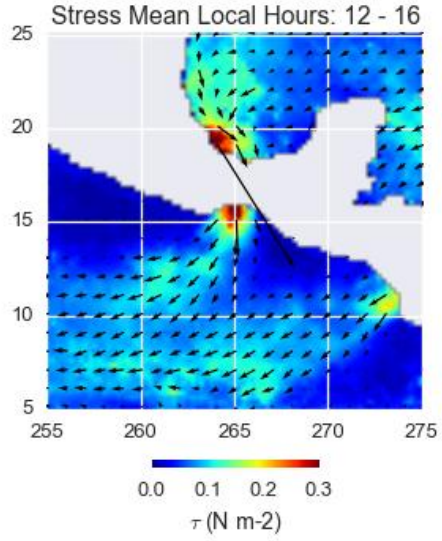


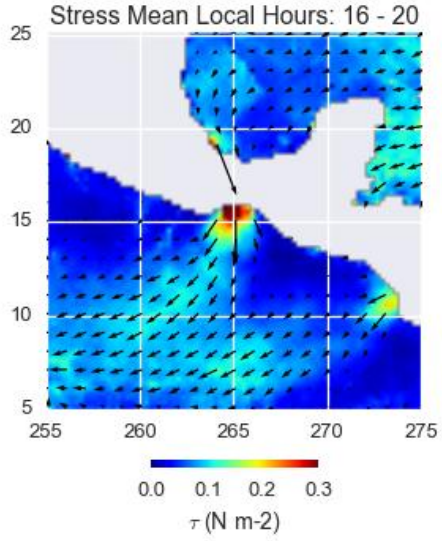
Tehuantepec: December-January

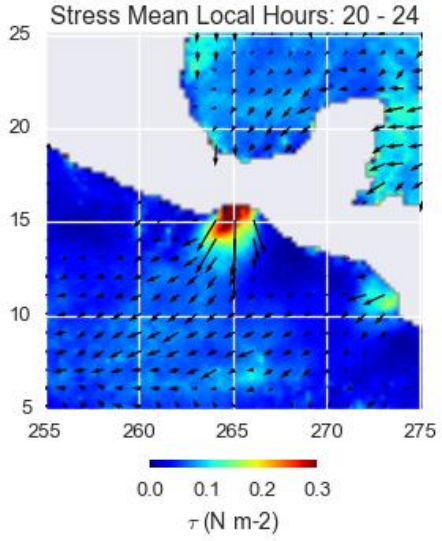












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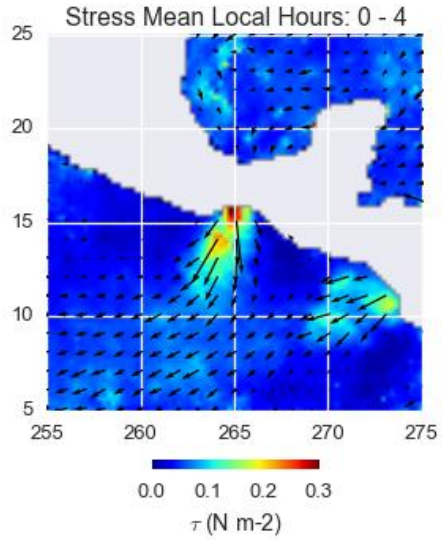

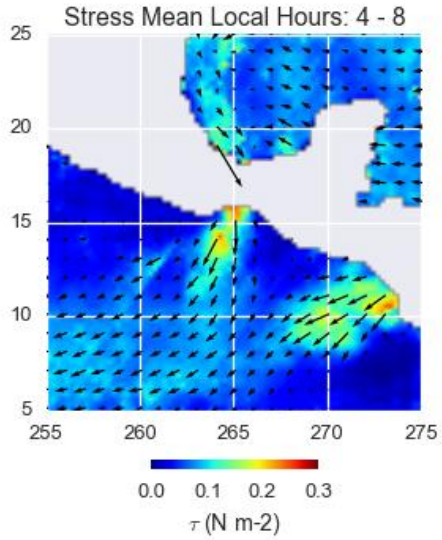

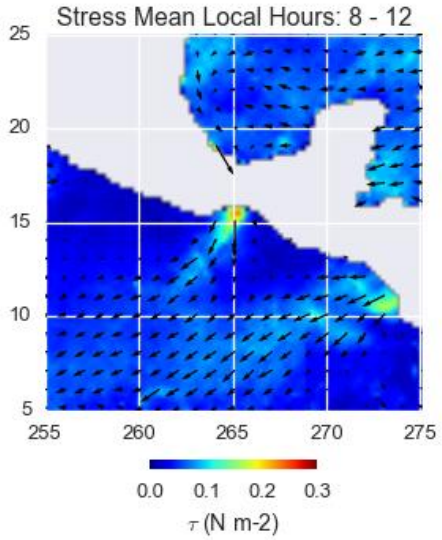

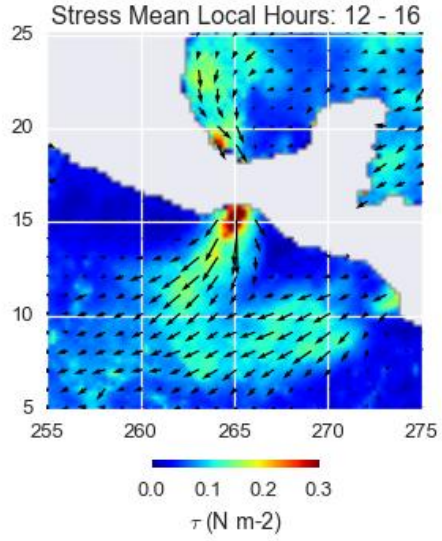

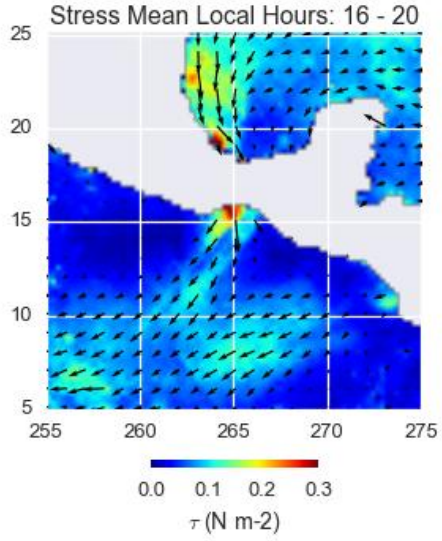

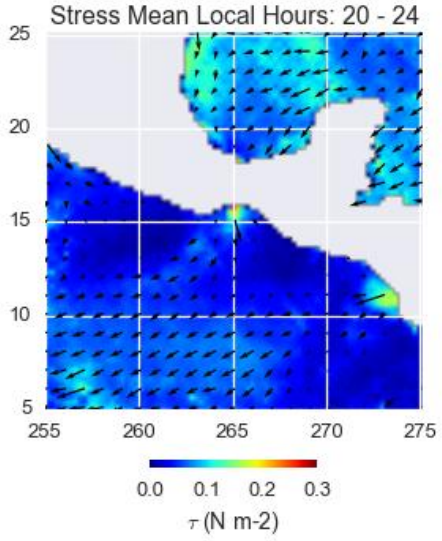

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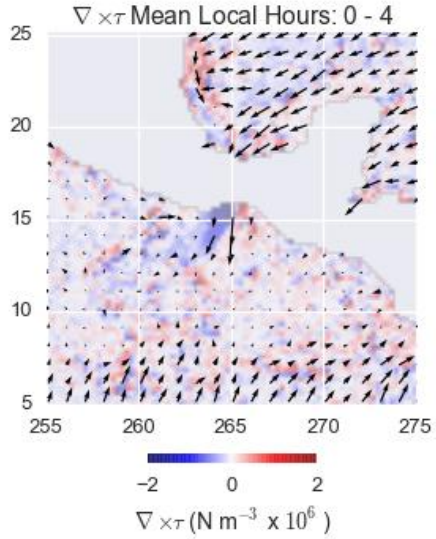

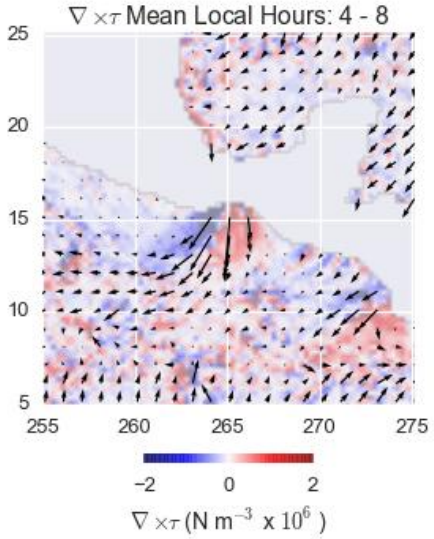

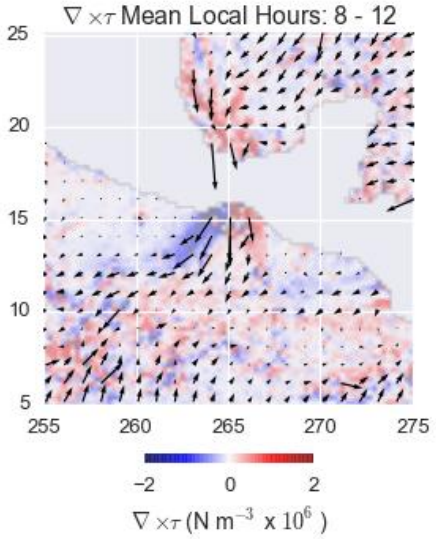

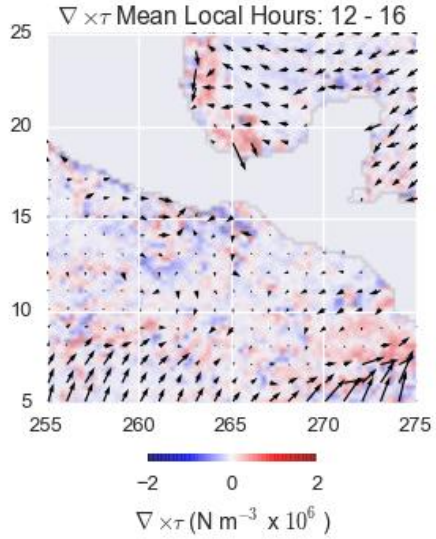

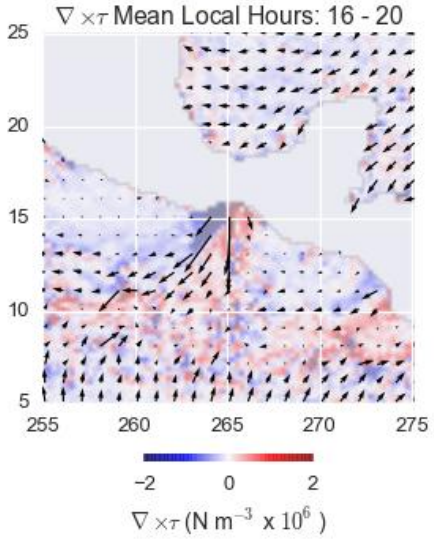

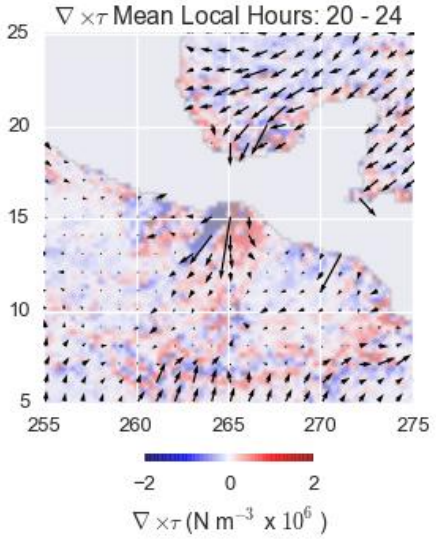

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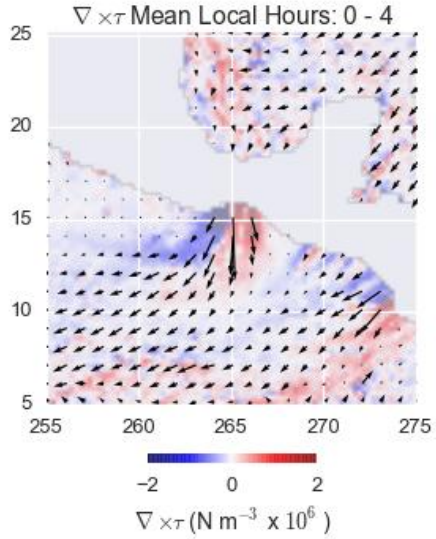
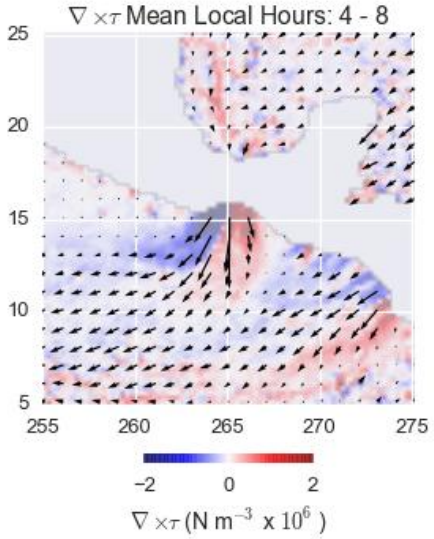
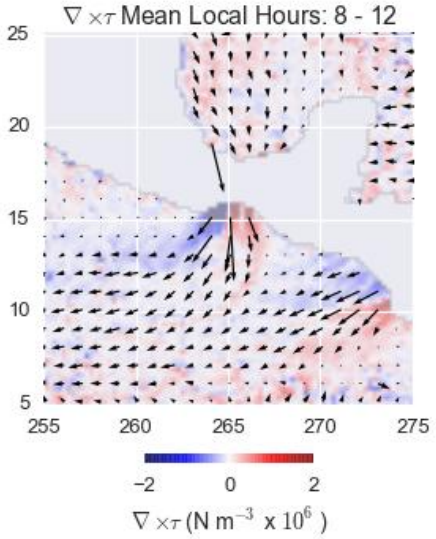
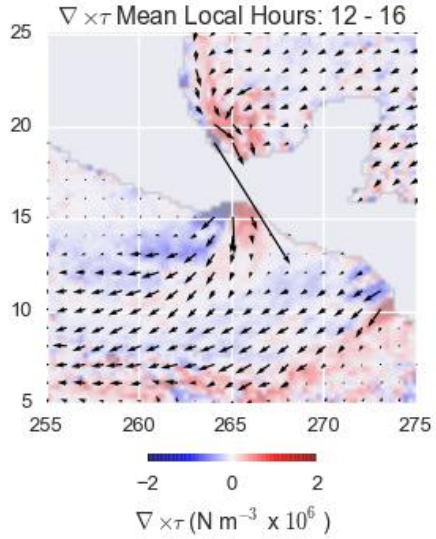
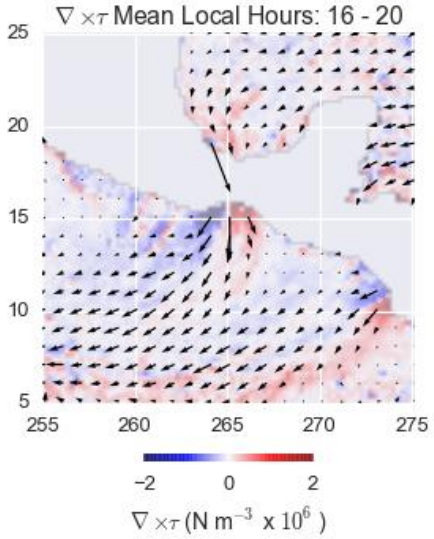
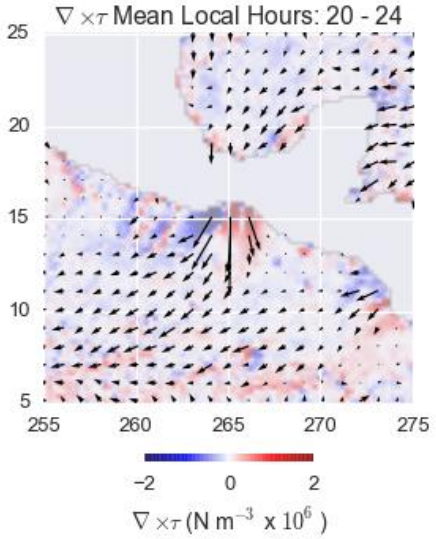




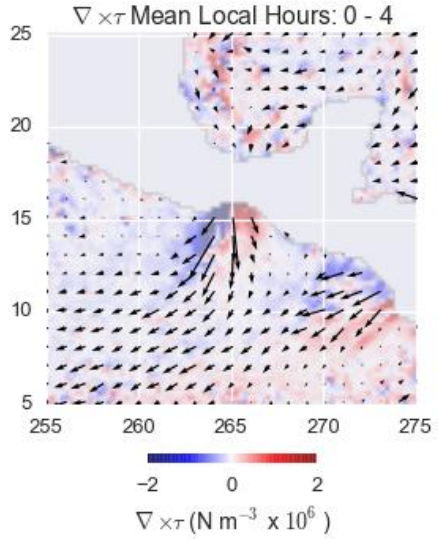


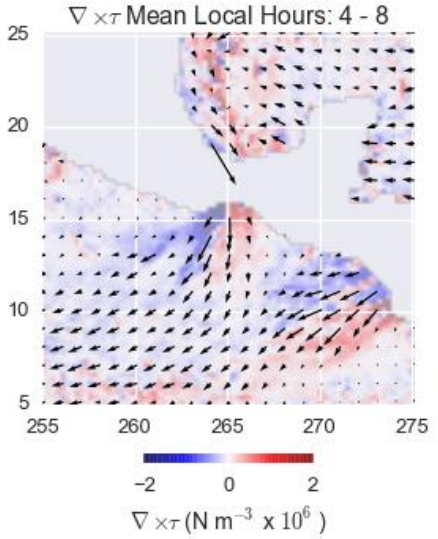


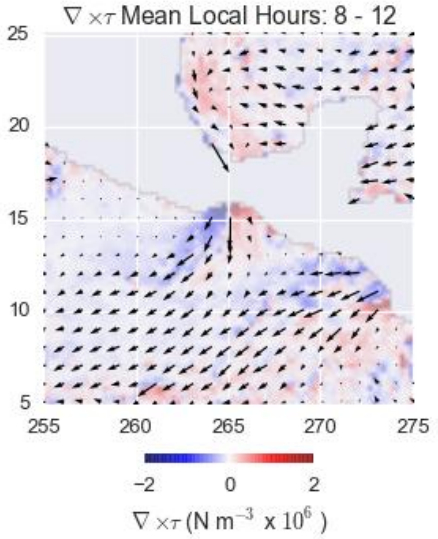


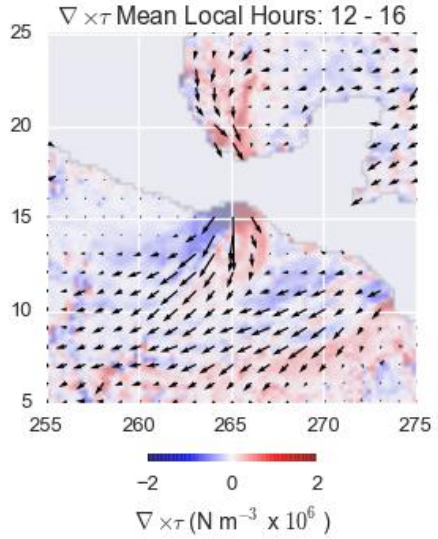


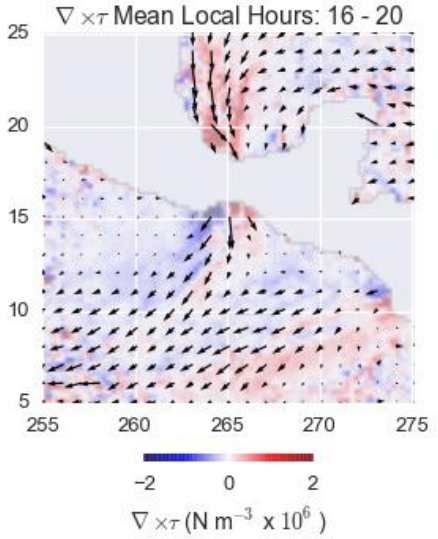
Tehuantepec: February-March

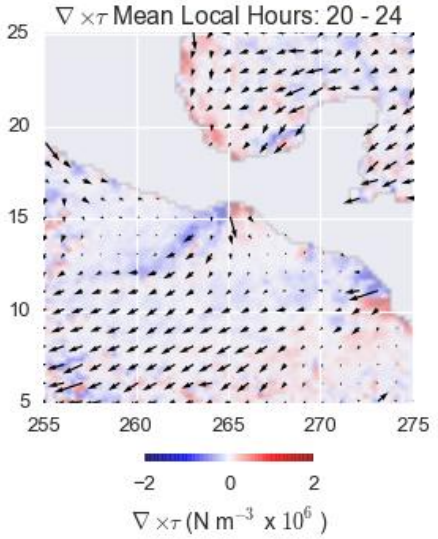












Guajira Upwelling System

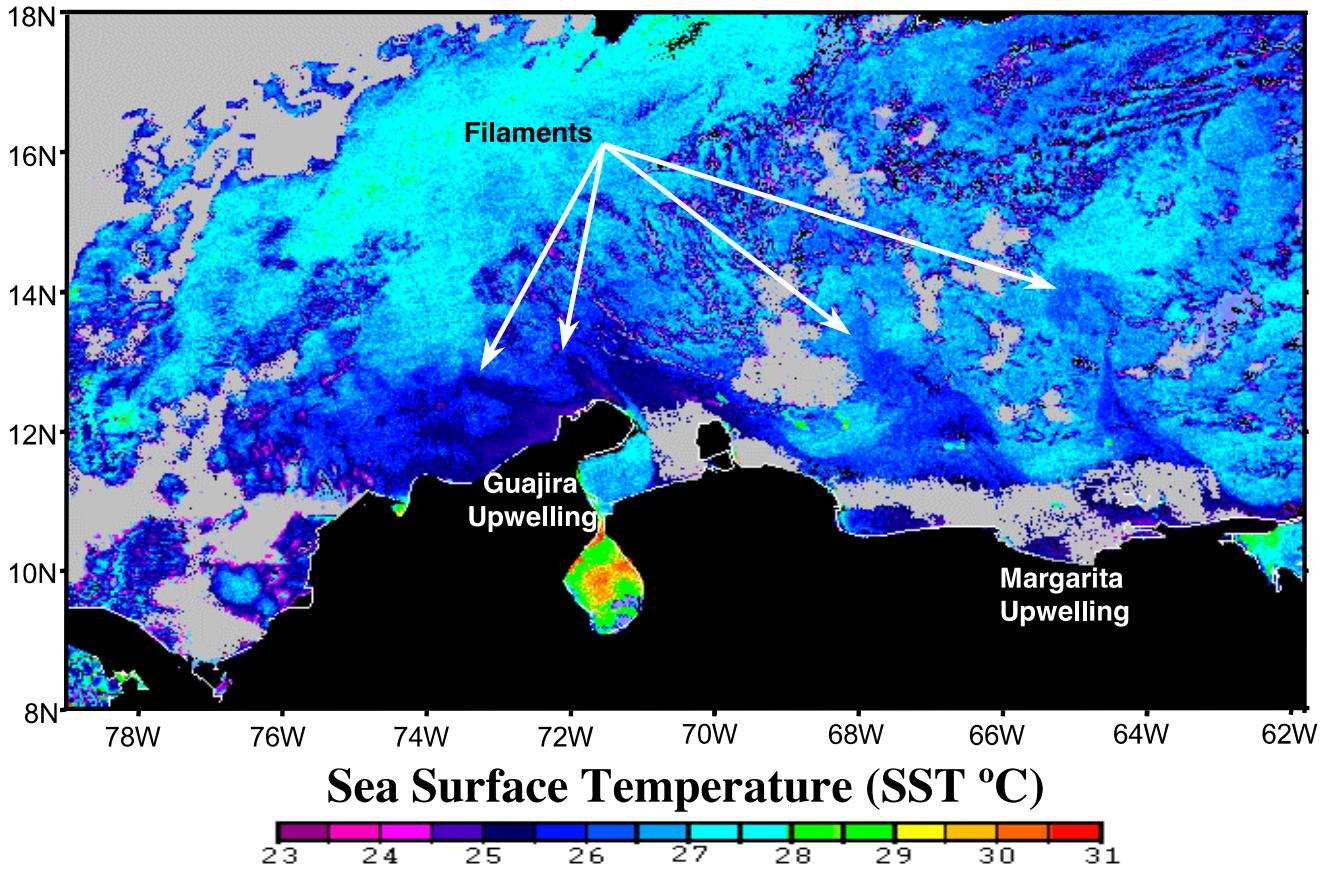
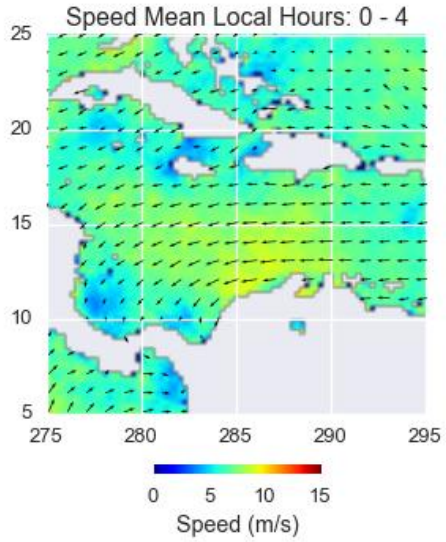
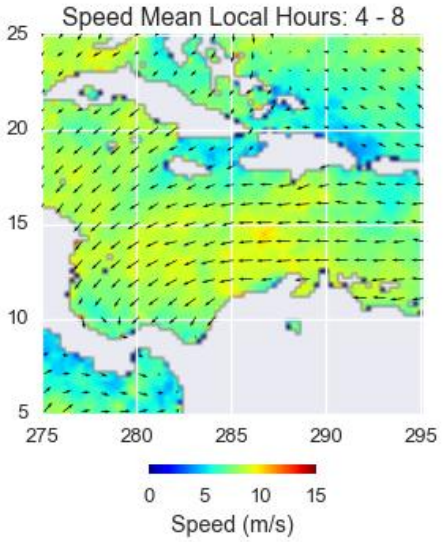


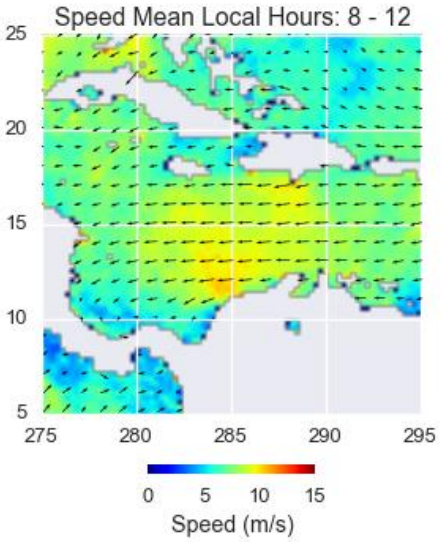
Figure 2. SST from AVHRR image of 12 March 1998. At least 4 filaments are seen in the upwelling zones along the South American coast, including those off Guajira and Margarita Island. Grey areas indicate cloud.

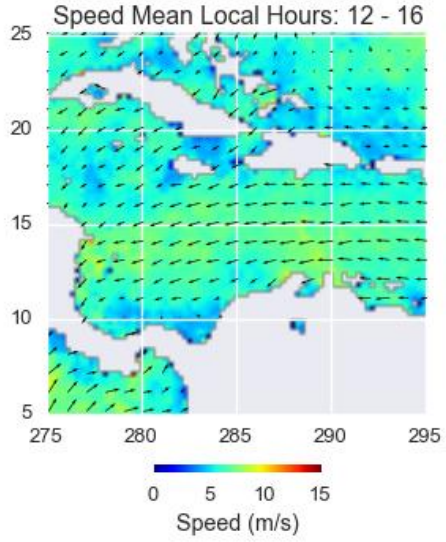
Andrade, C and Barton. E.D., "The Guajira Upwelling System ", Continental Shelf Research, 2004

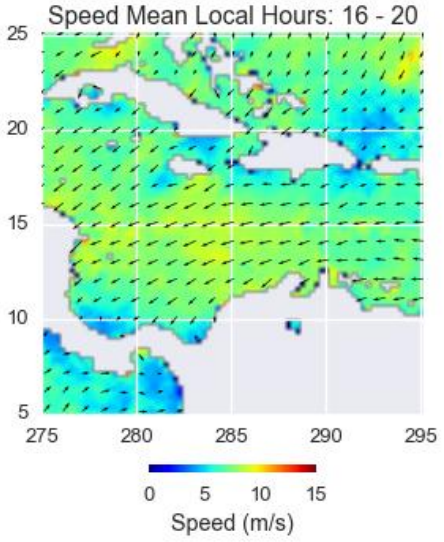
Guajira: October-November

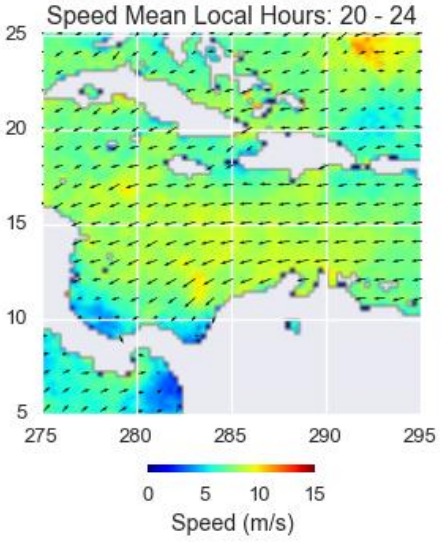




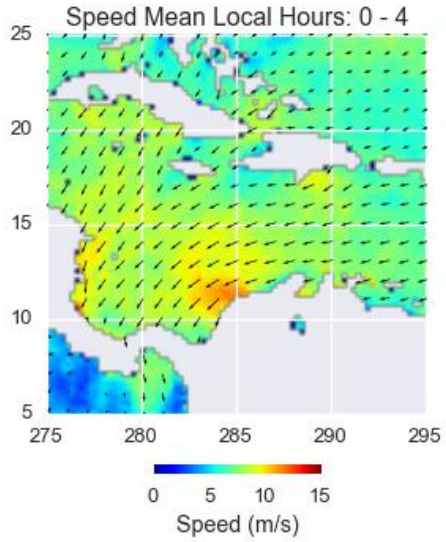


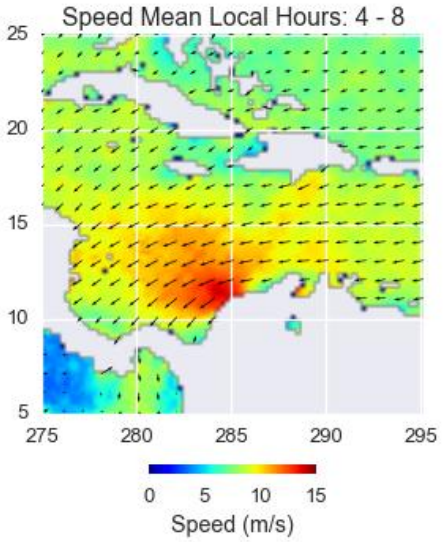


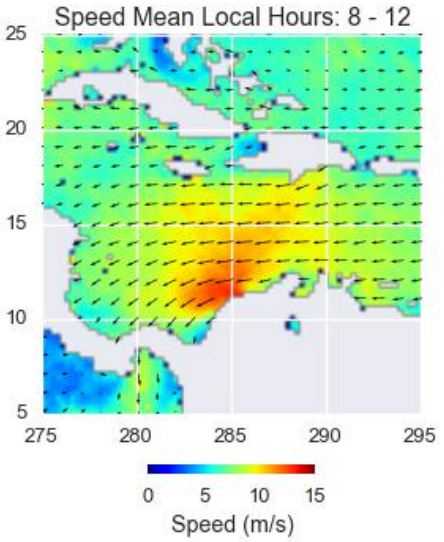


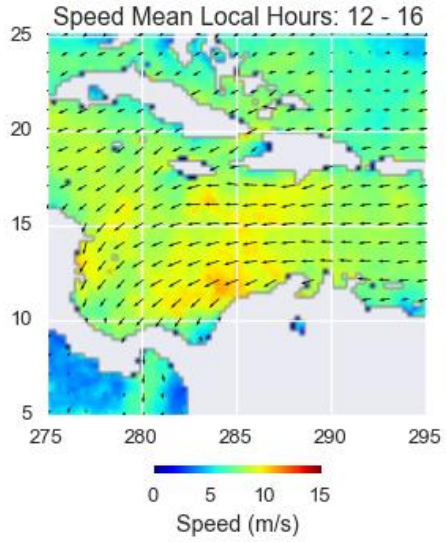


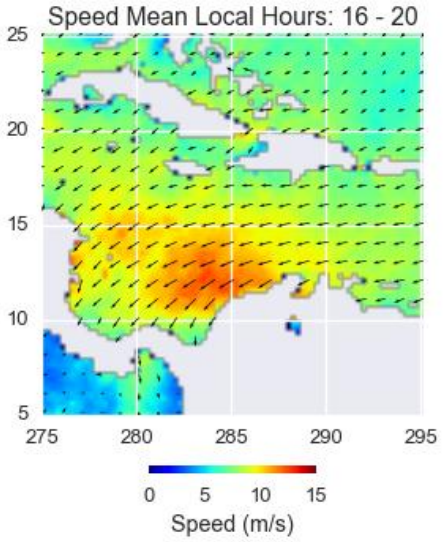
Guajira: December-January

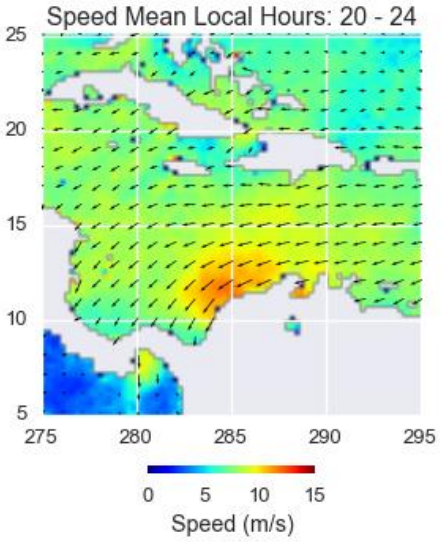




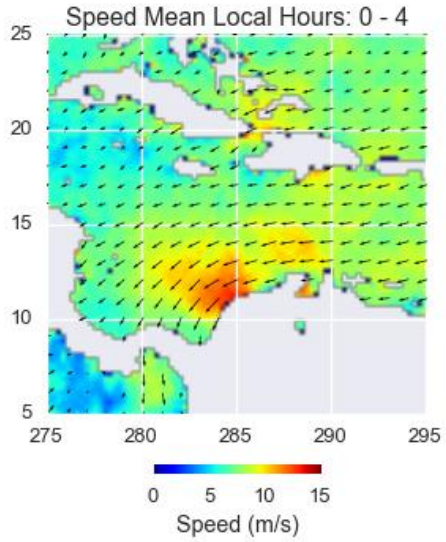


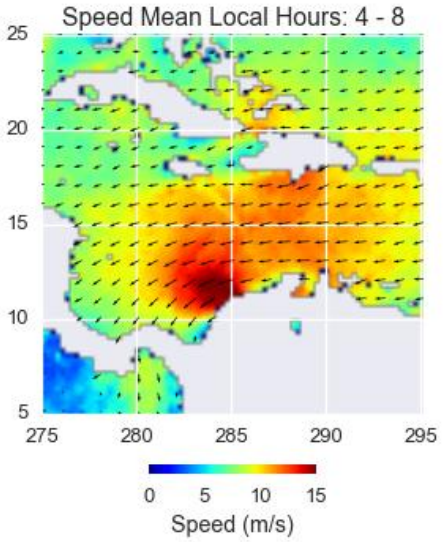


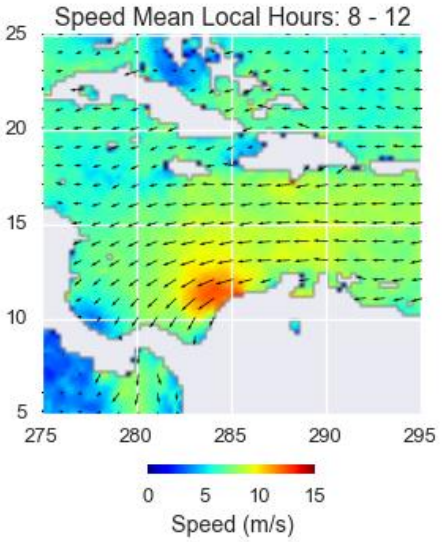


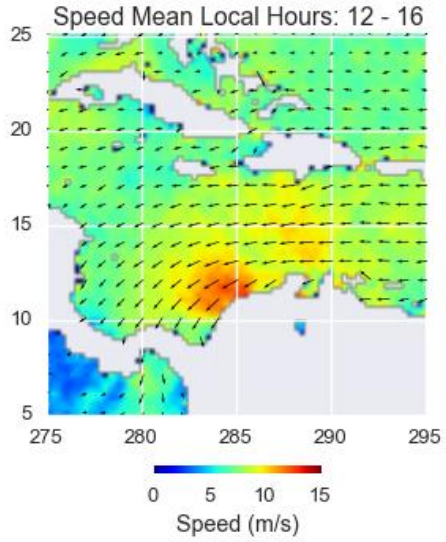


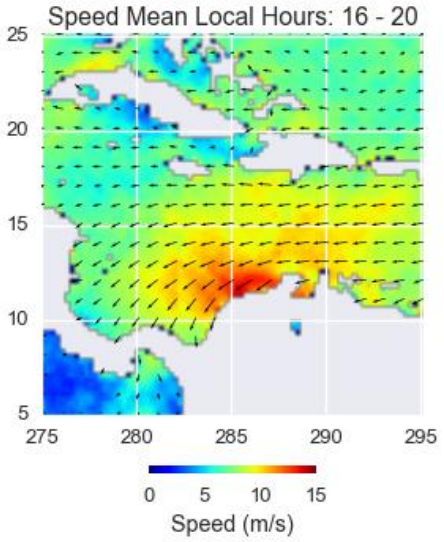
Guajira: February-March

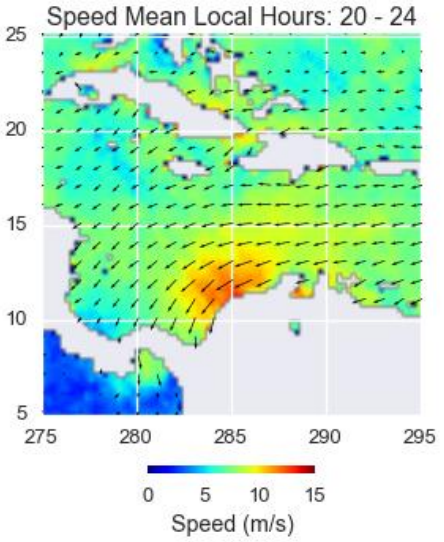




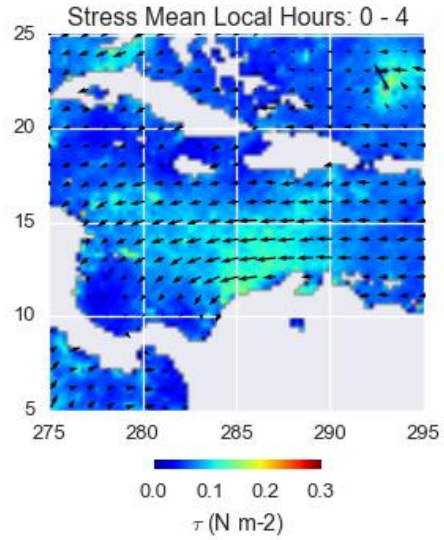


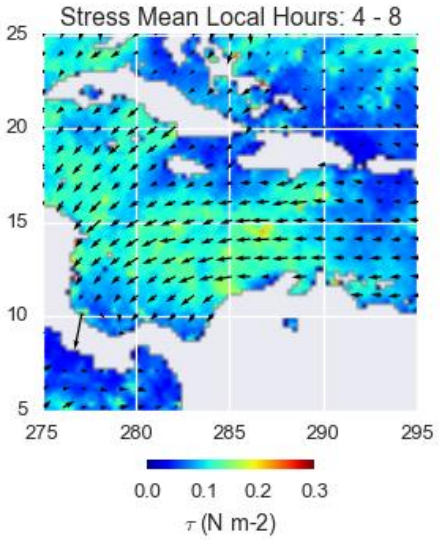


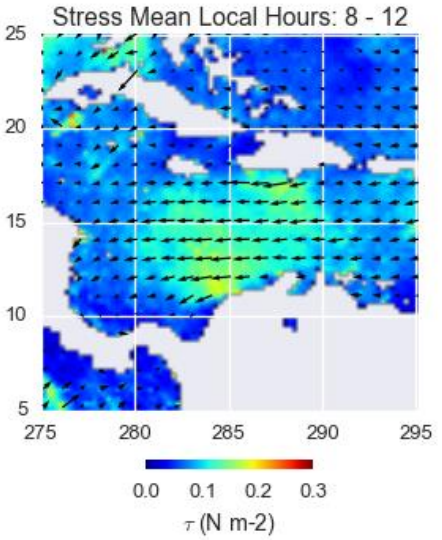


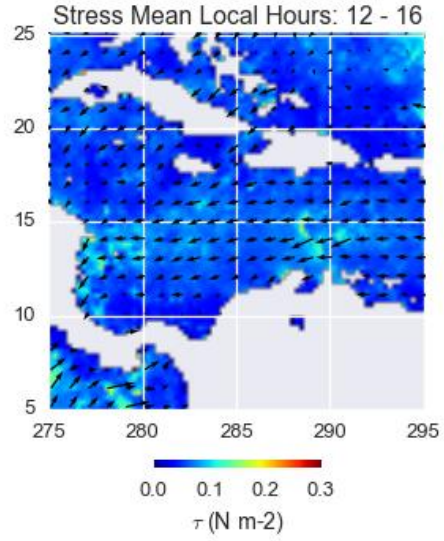


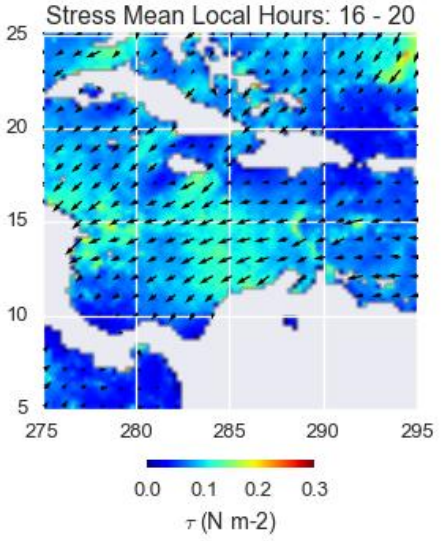
Guajira: October-November

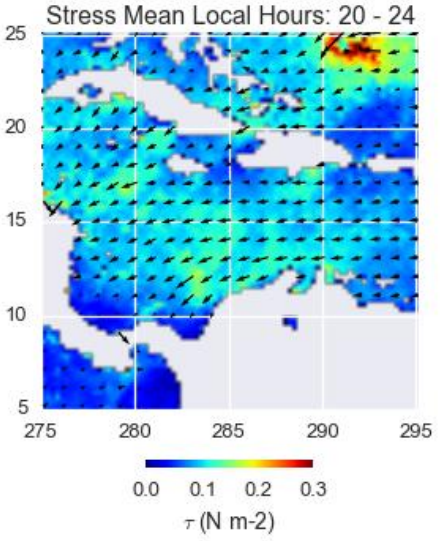




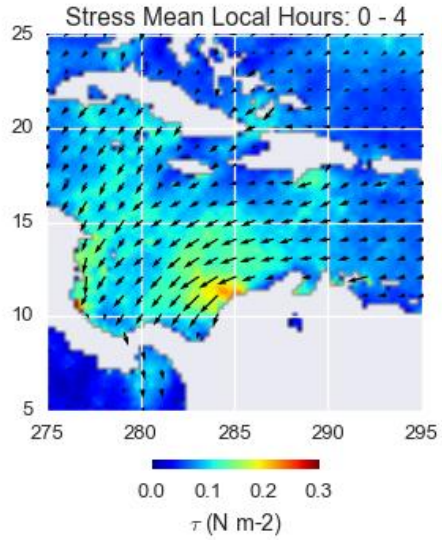


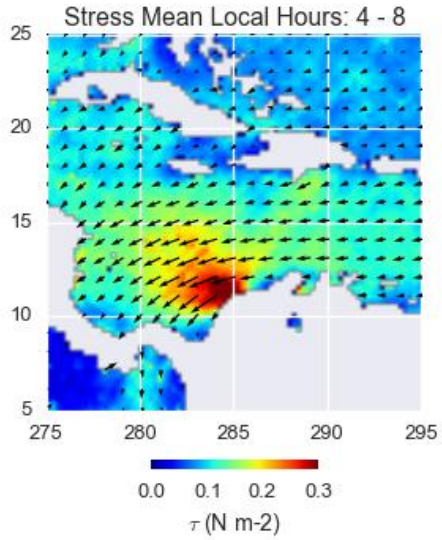


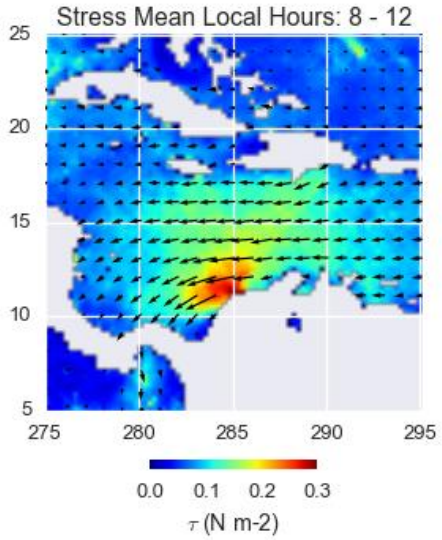


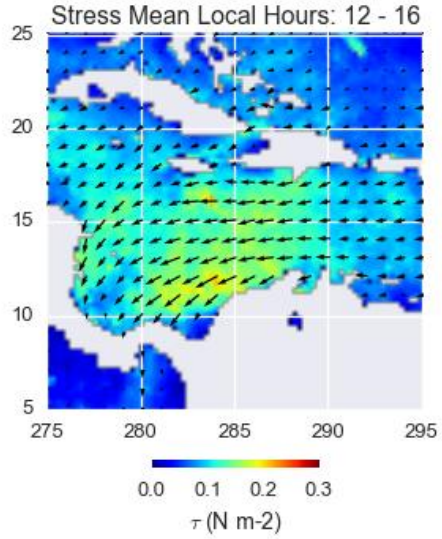


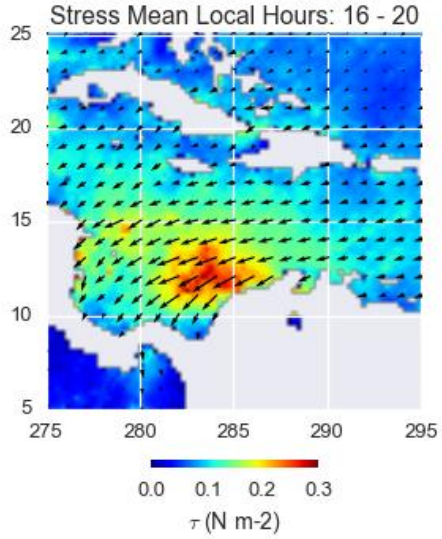
Guajira: December-January

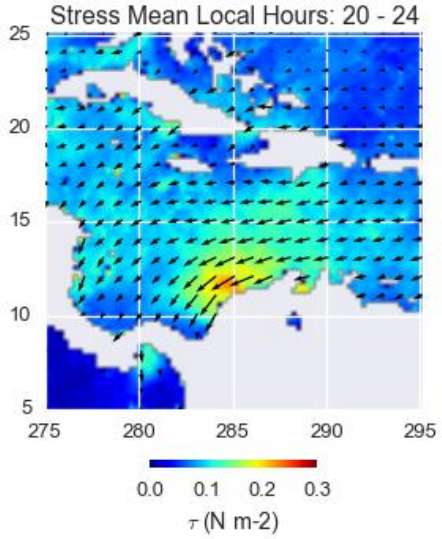




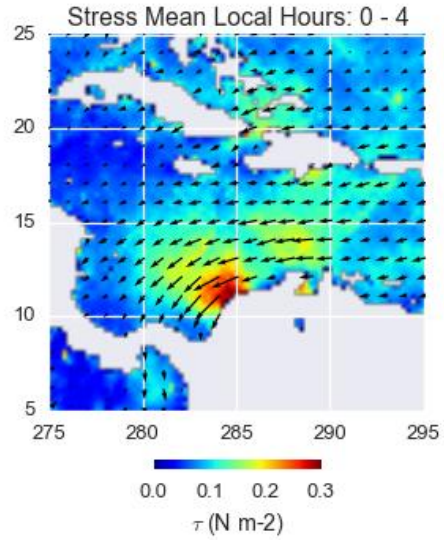


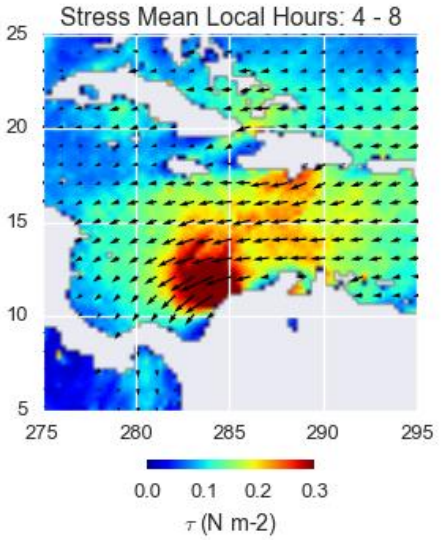


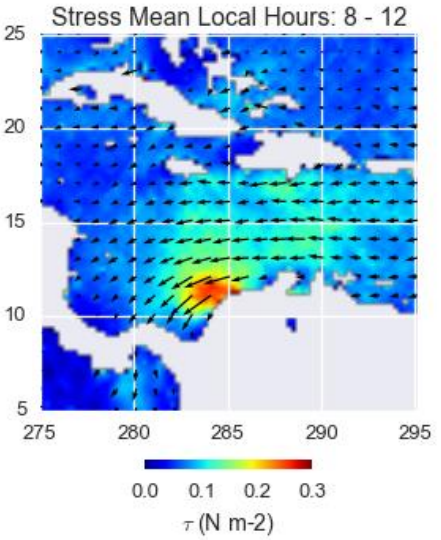


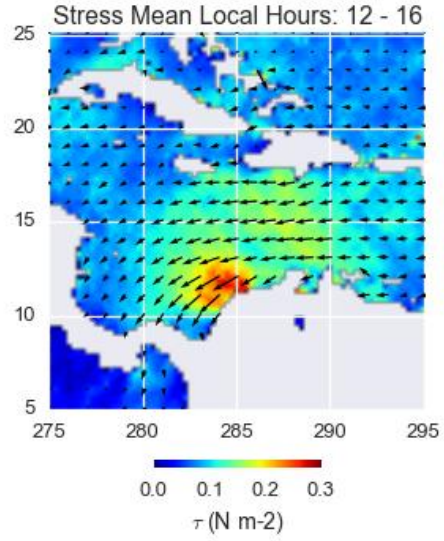


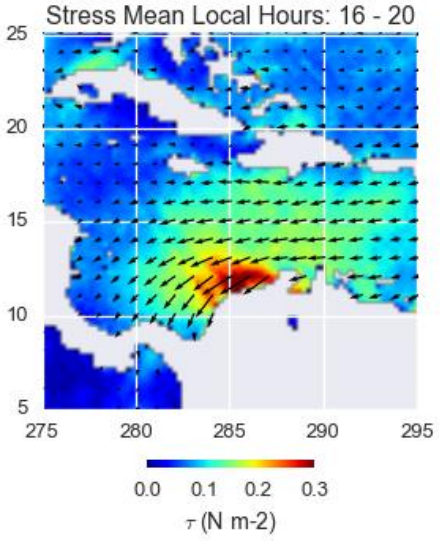
Guajira: February-March

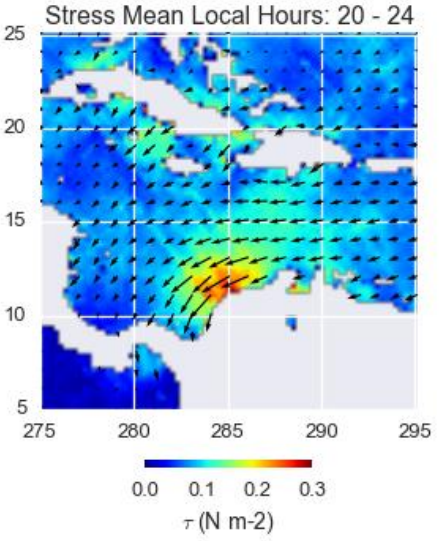




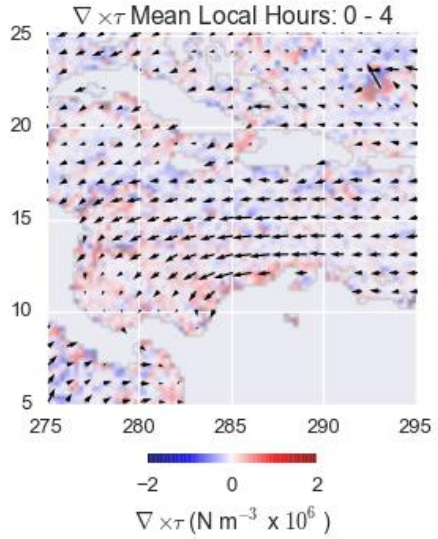


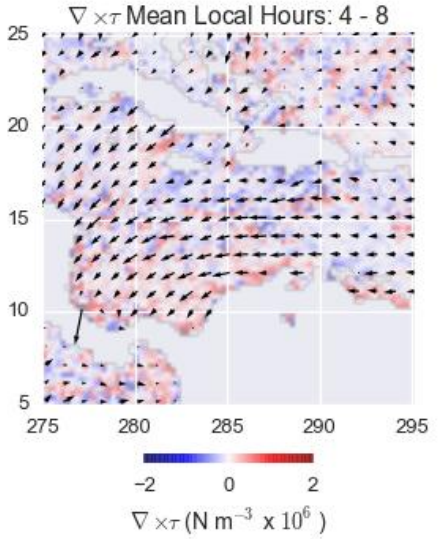


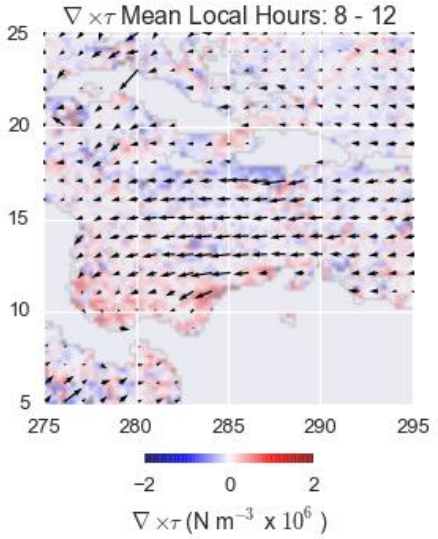


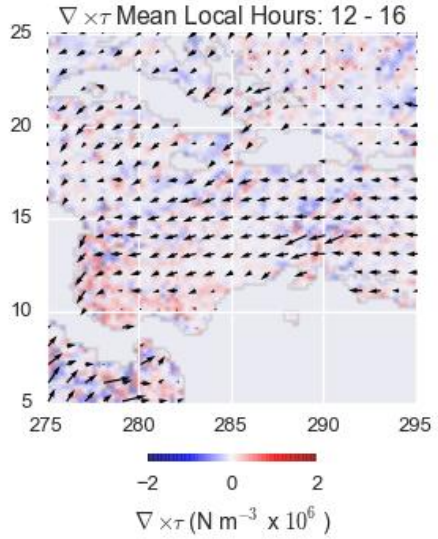


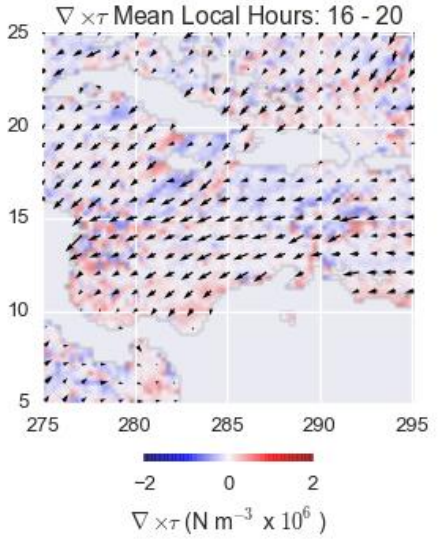
Guajira: October-November

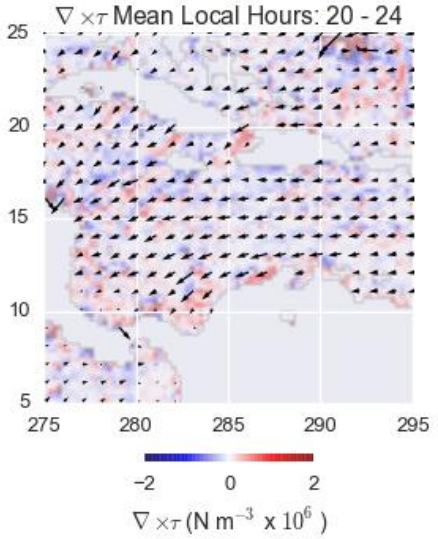




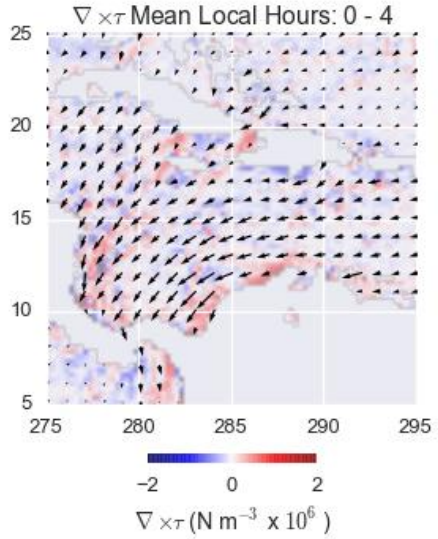


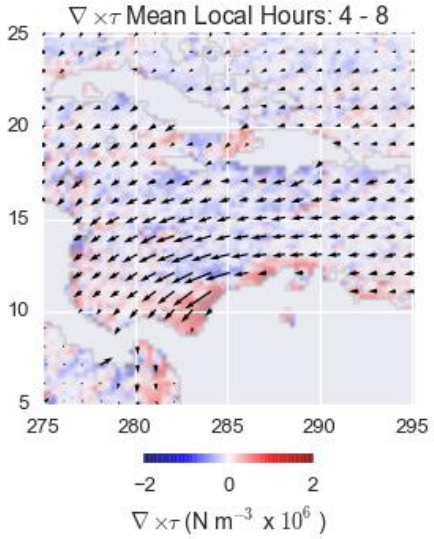


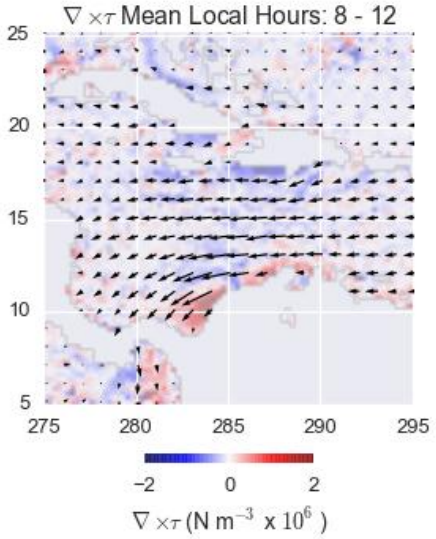


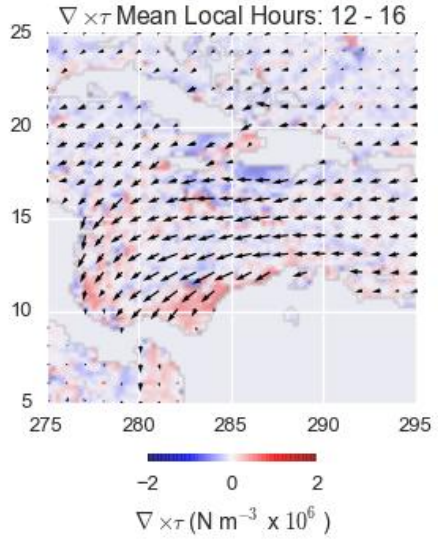


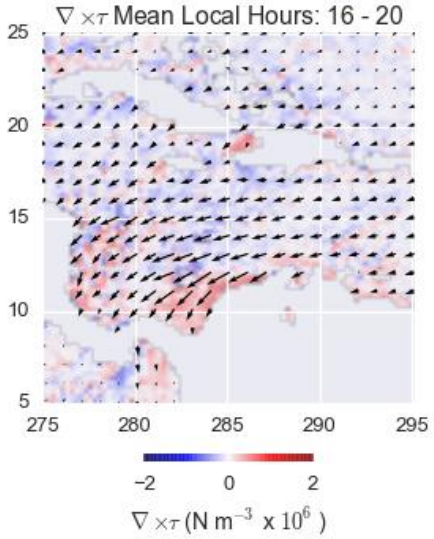
Guajira: December-January

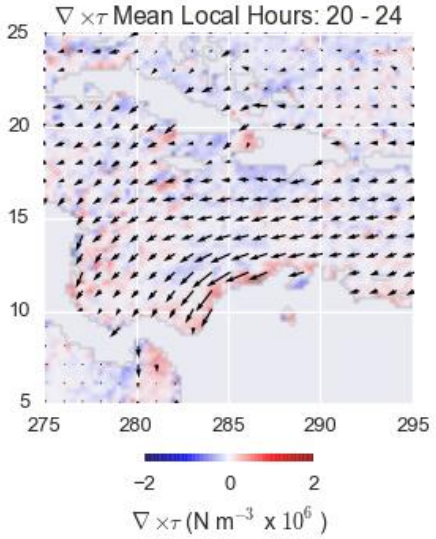




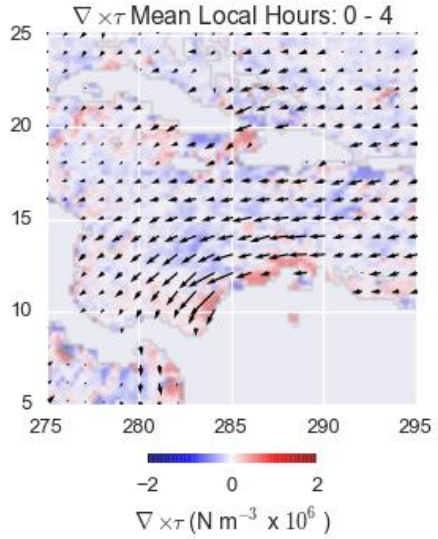


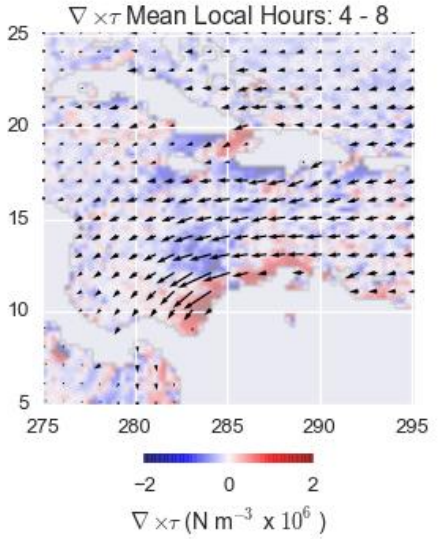


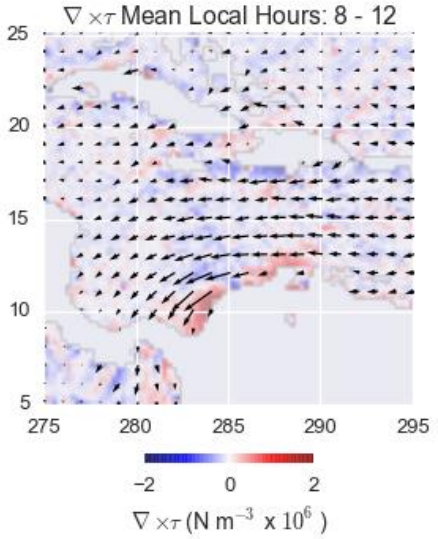


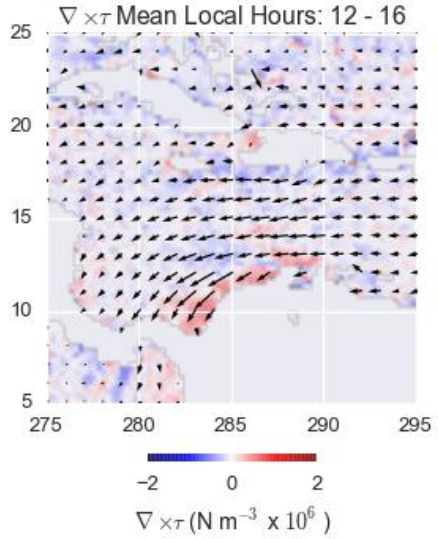


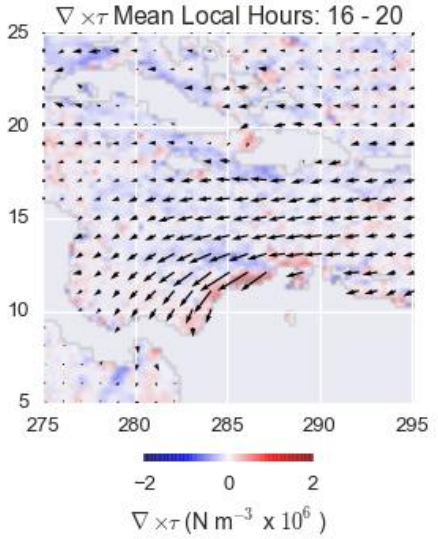
Guajira: February-March

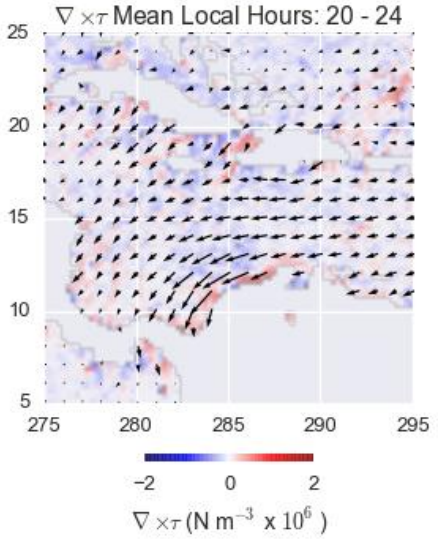




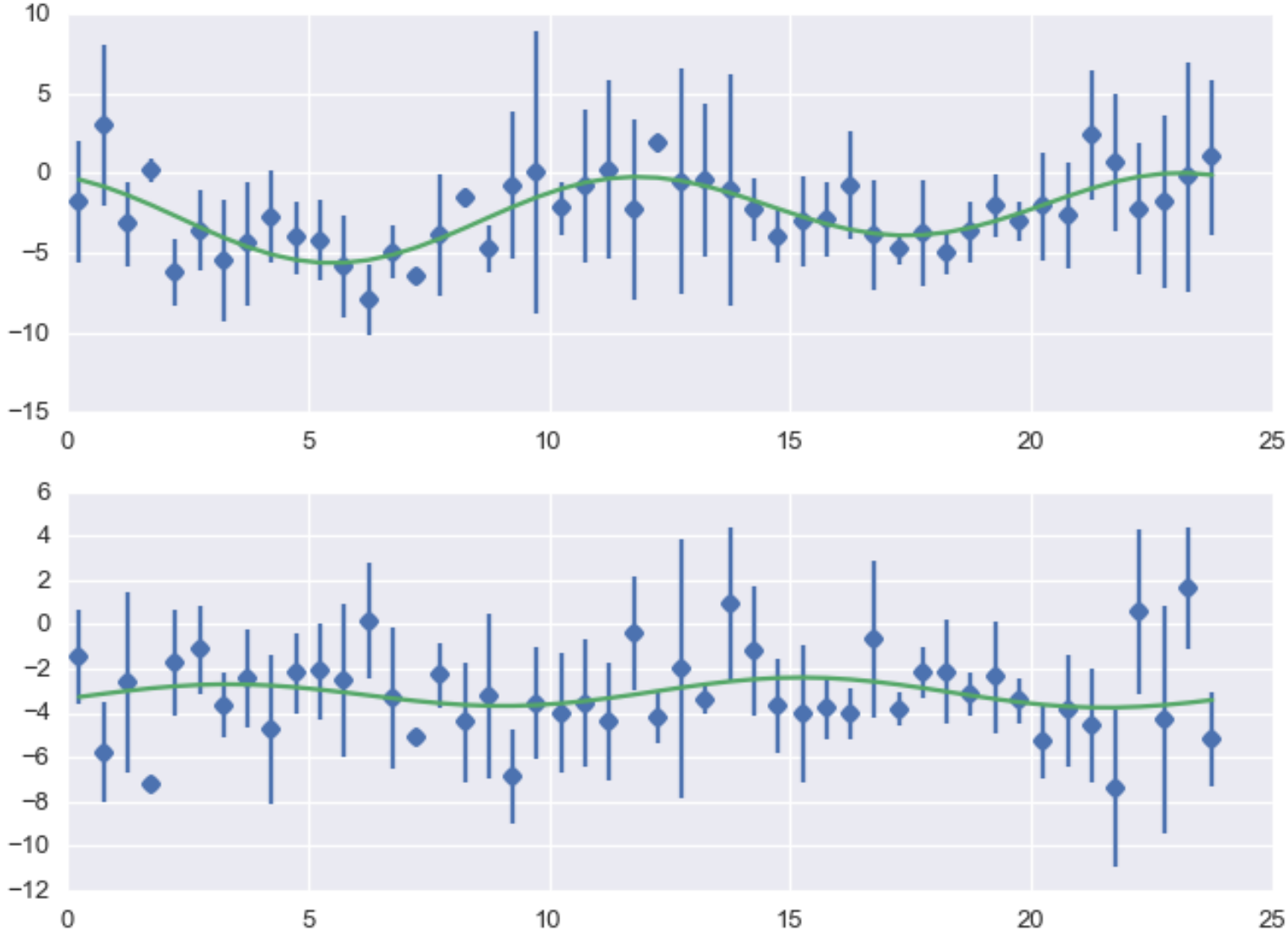






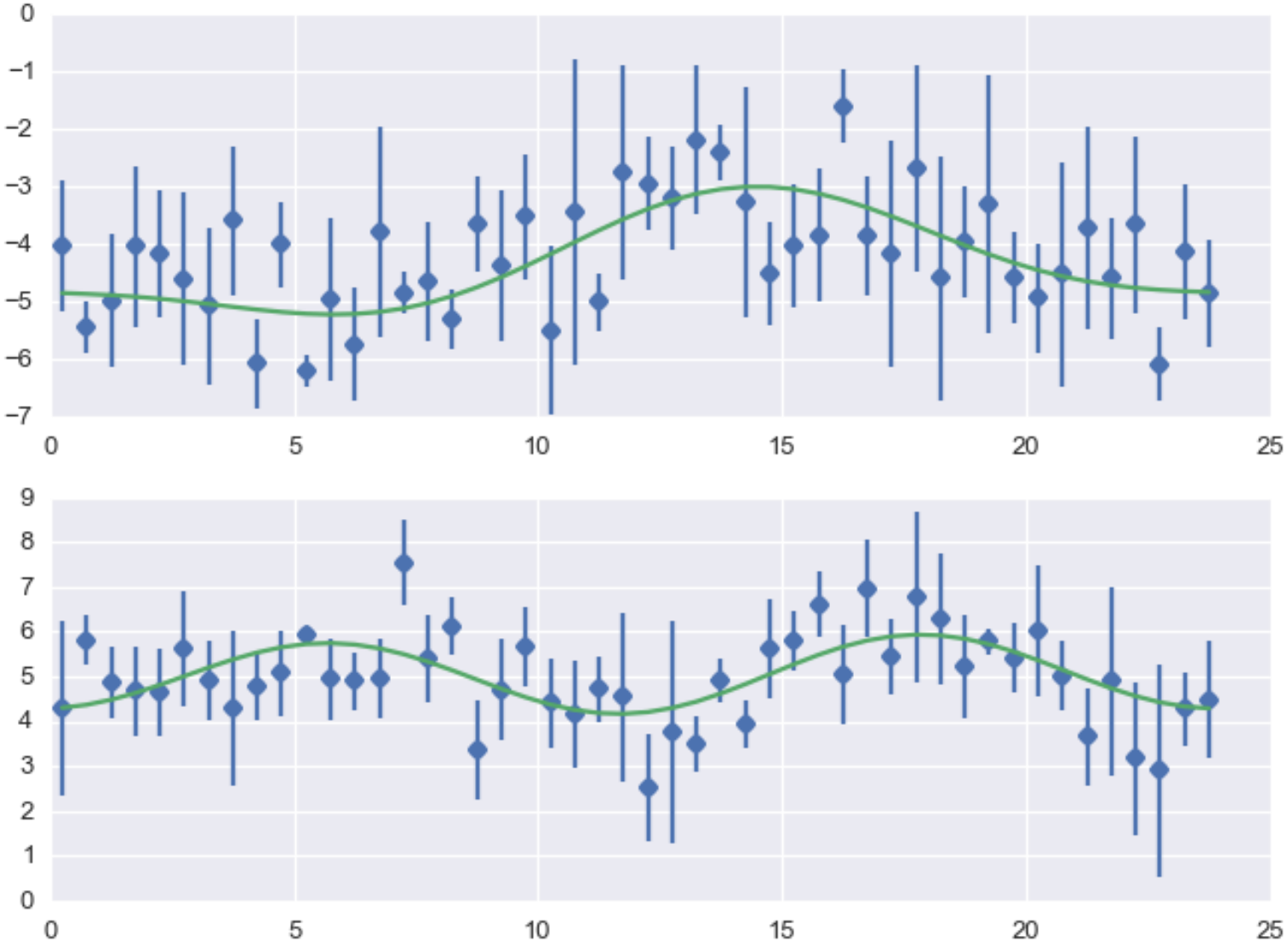


Semi-Diurnal Variability
Tropical Example



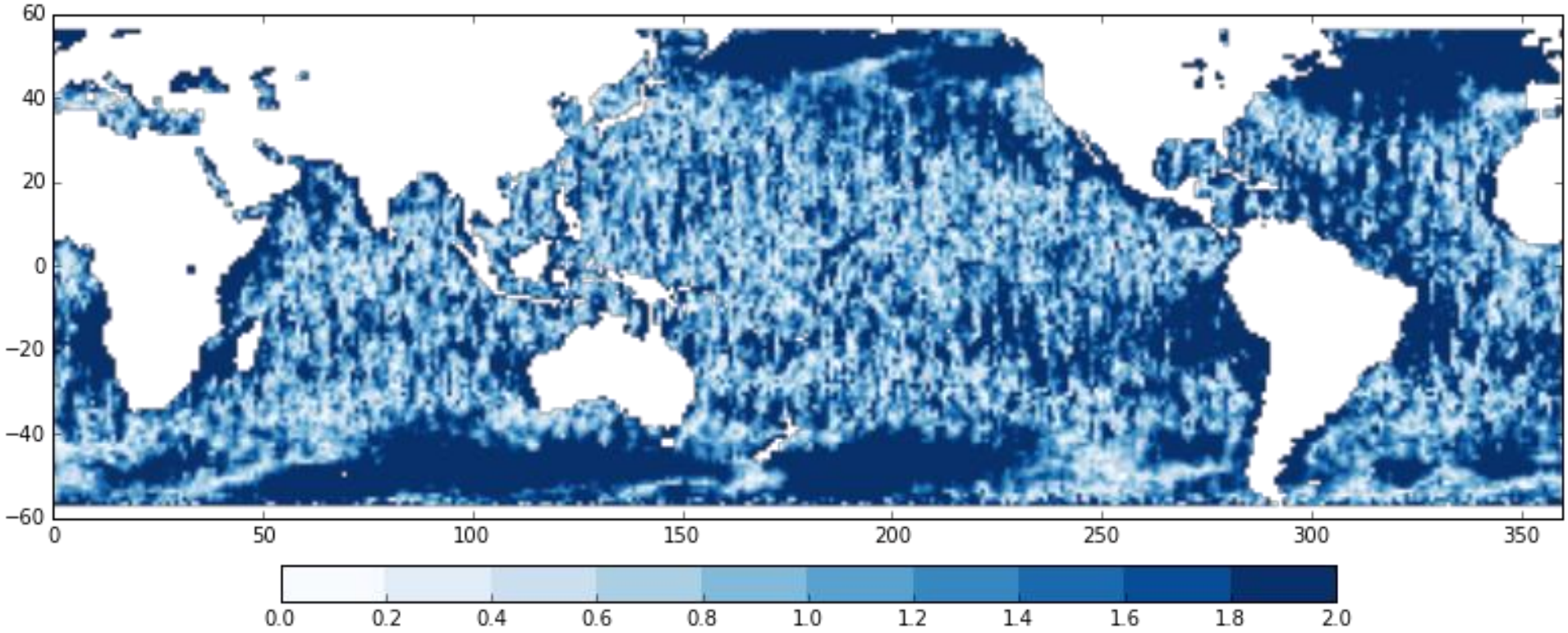
Latitude: 10° S, Longitude: 200° E

Diurnal & Semi-Diurnal Variability
Sub-Tropical Example

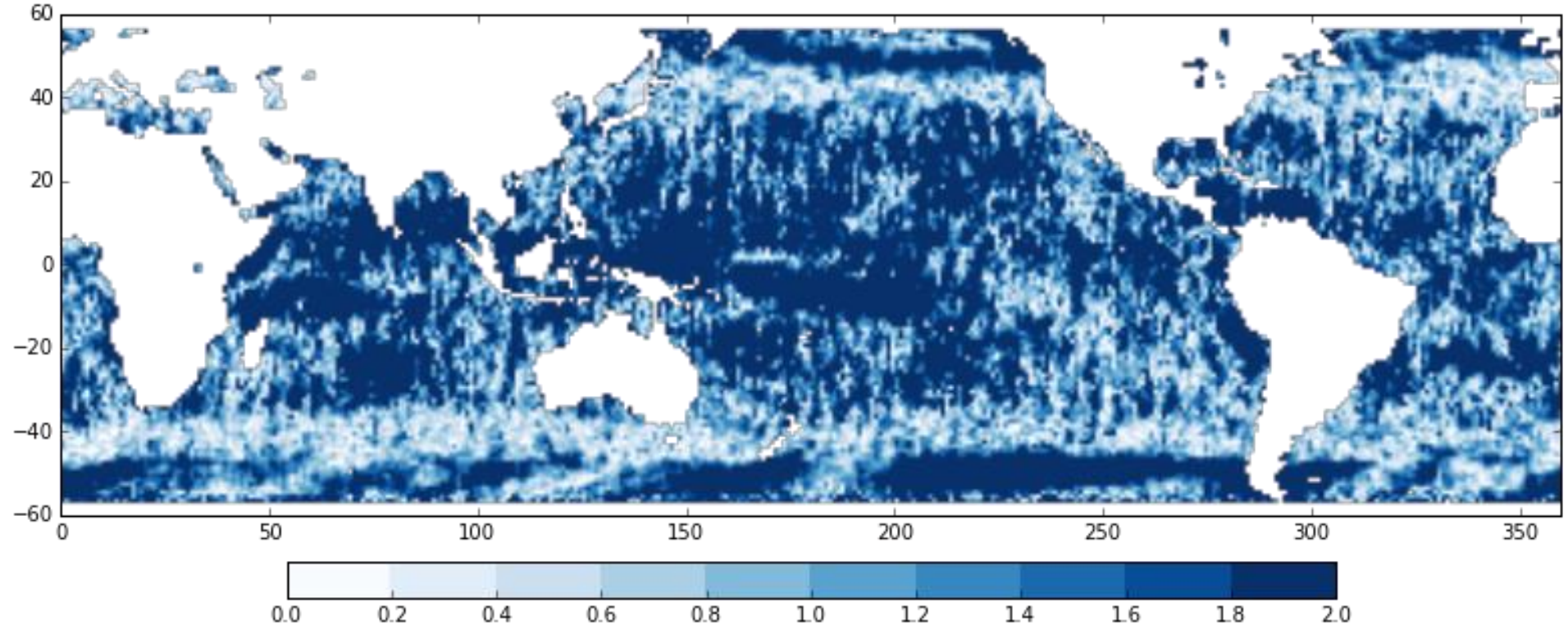


Latitude: 20° S, Longitude: 280° E

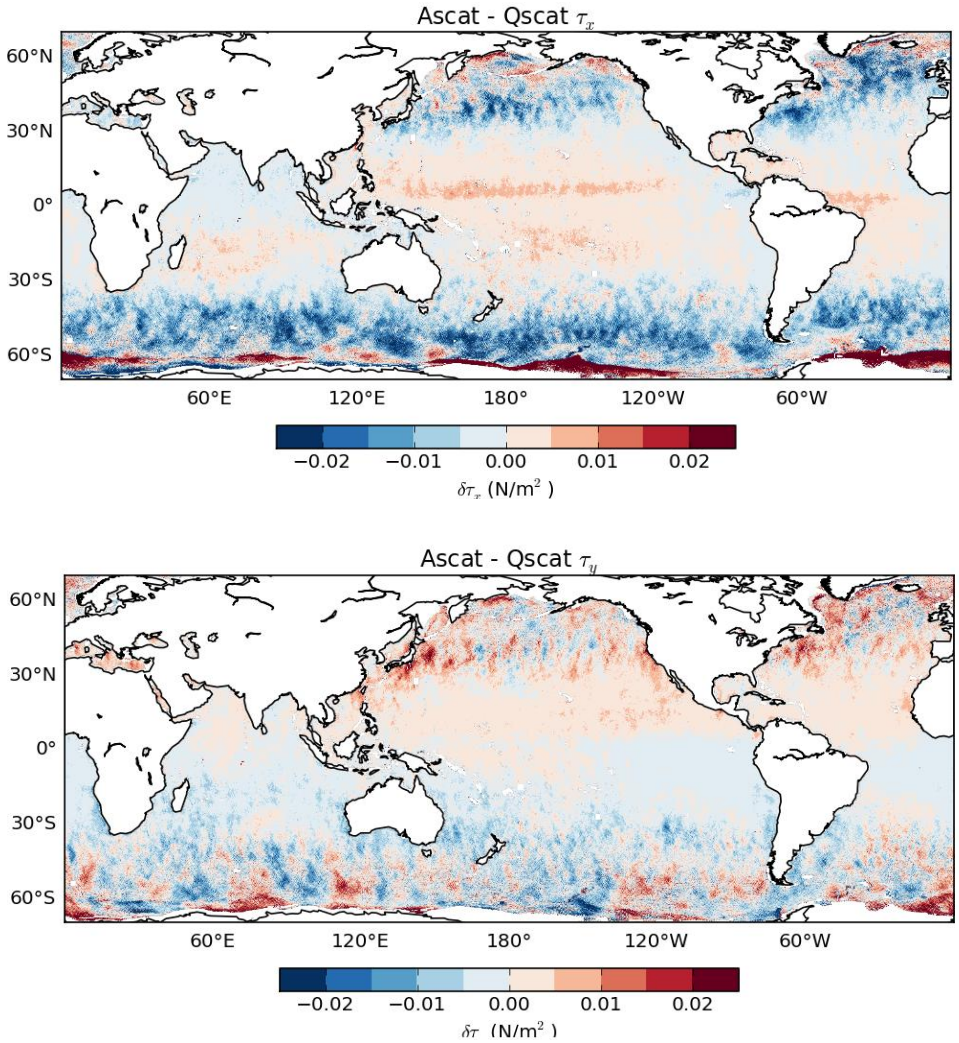
U Diurnal Amplitude SNR

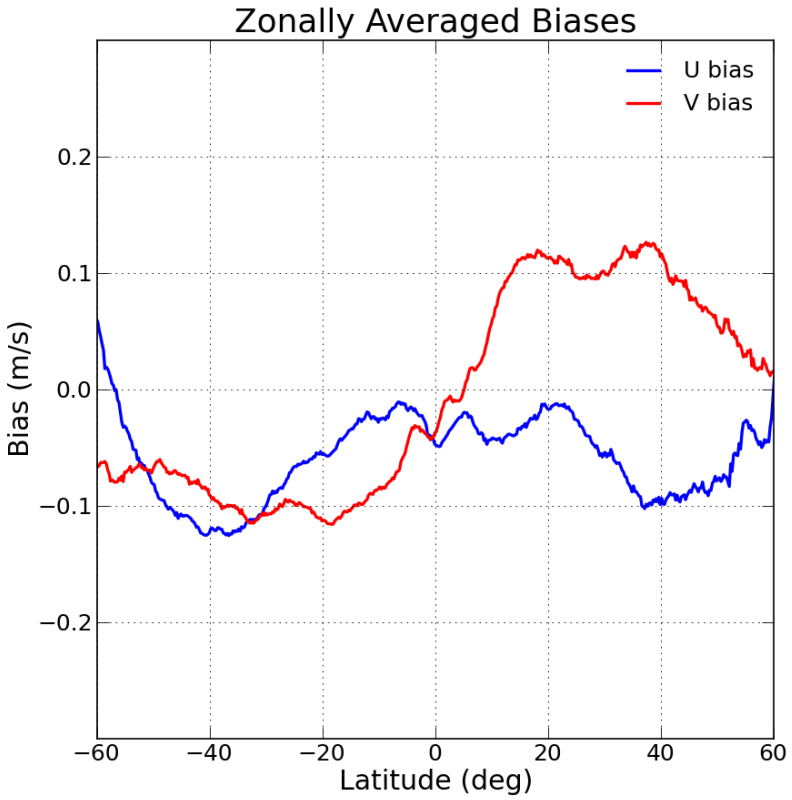


U Semi-Diurnal Amplitude SNR

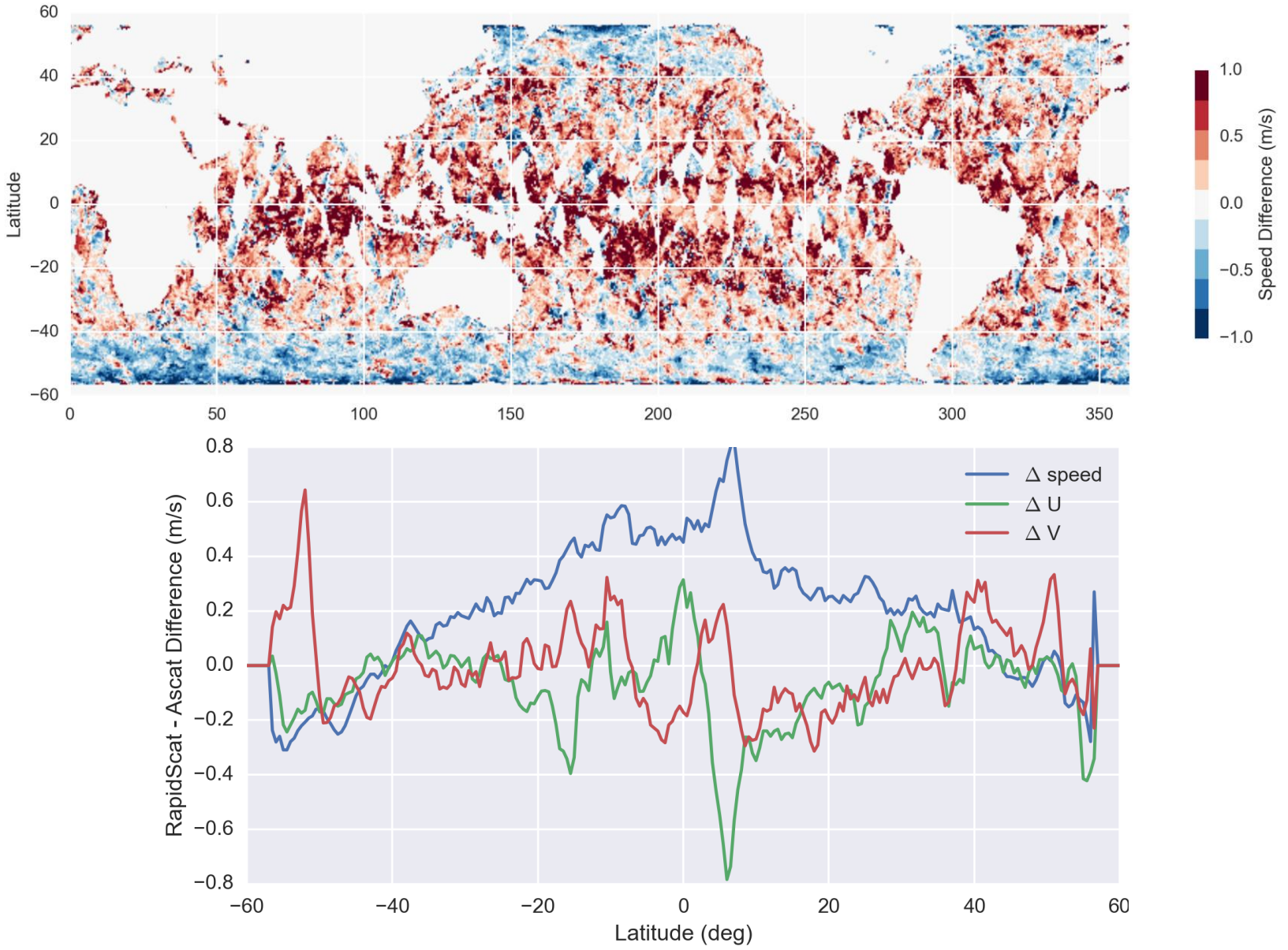


QuikSCAT-ASCAT Differences

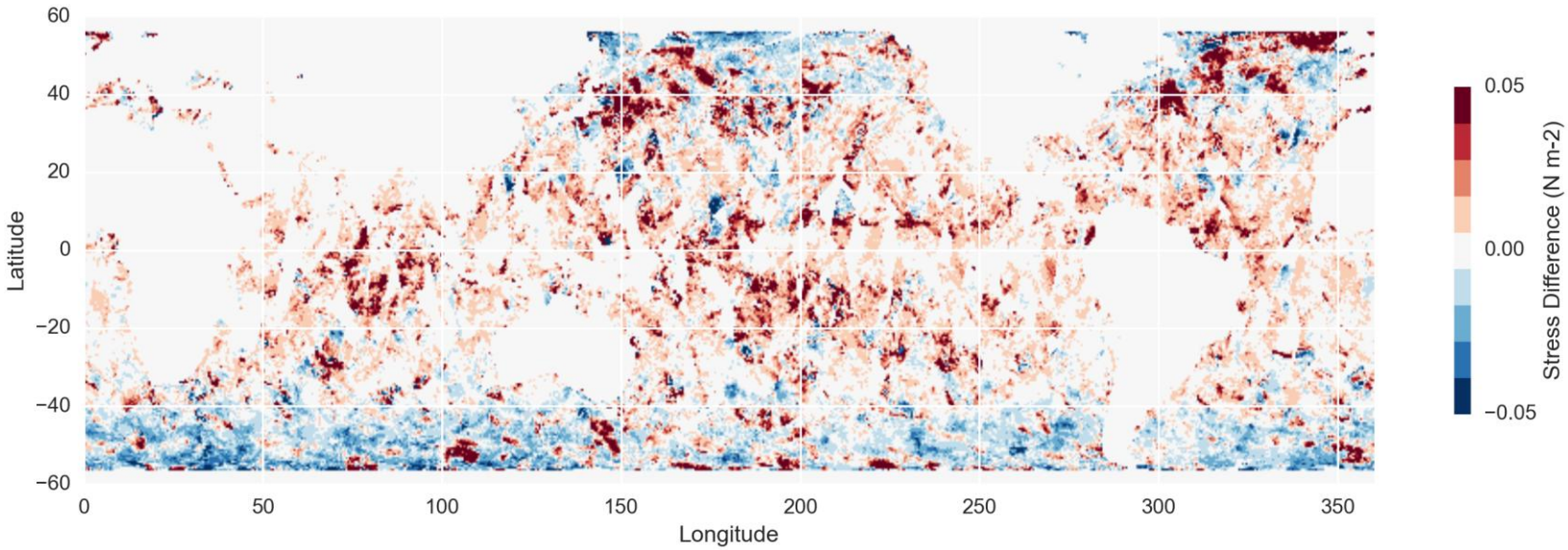


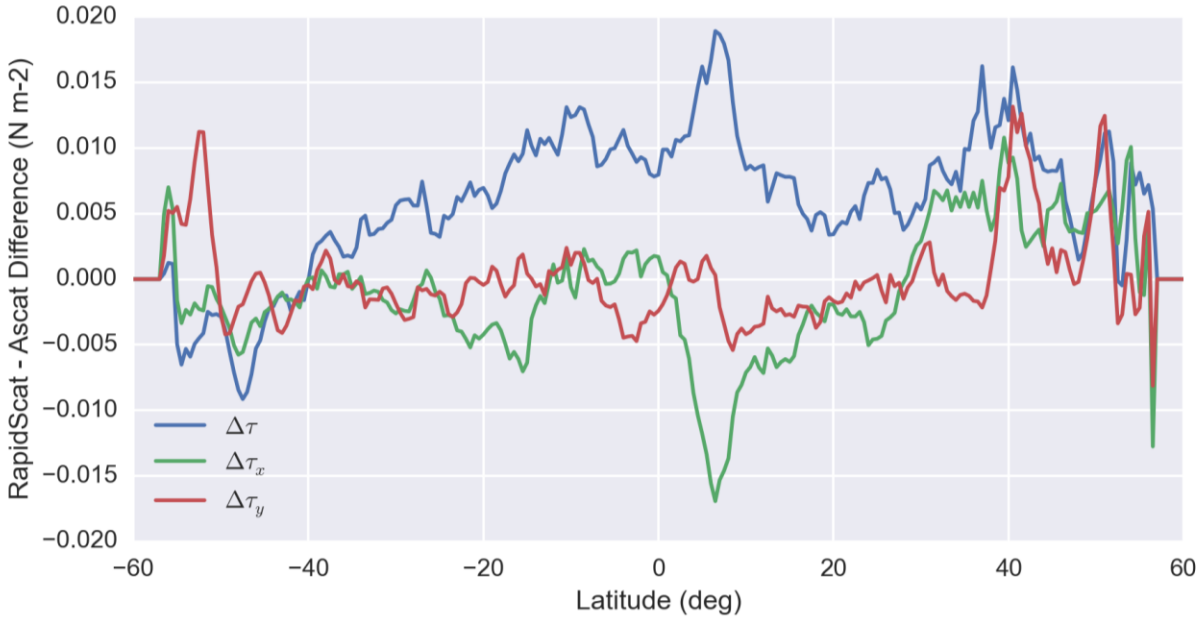


RapidScat-Ascat Wind Speed Difference Geographic Distribution

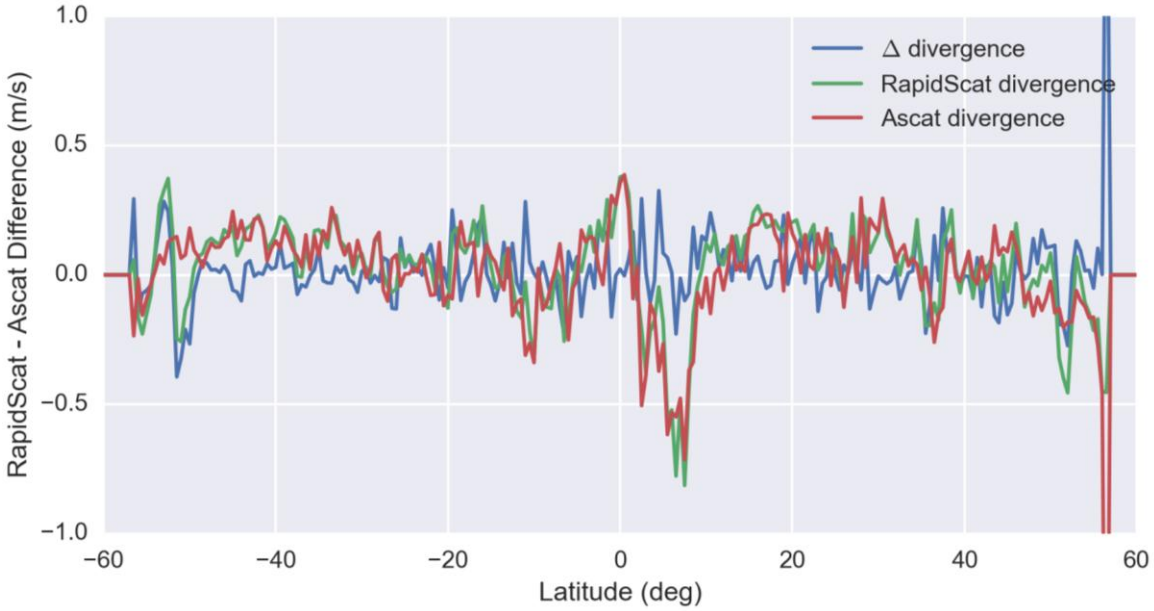


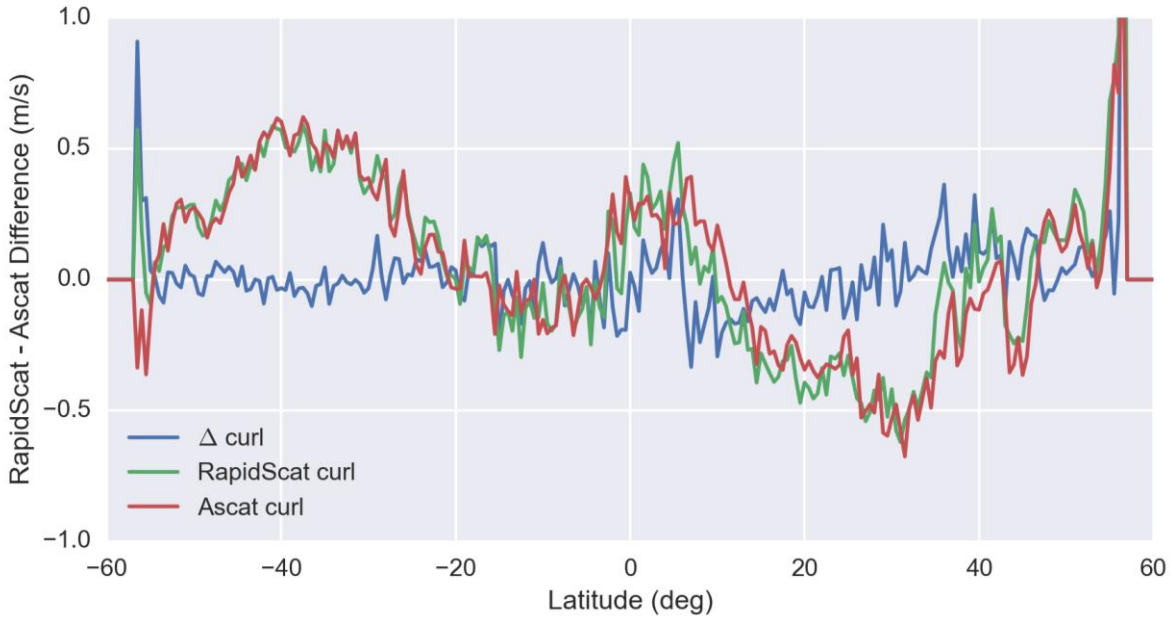
RapidScat-Ascat Wind Stress Difference Geographic Distribution



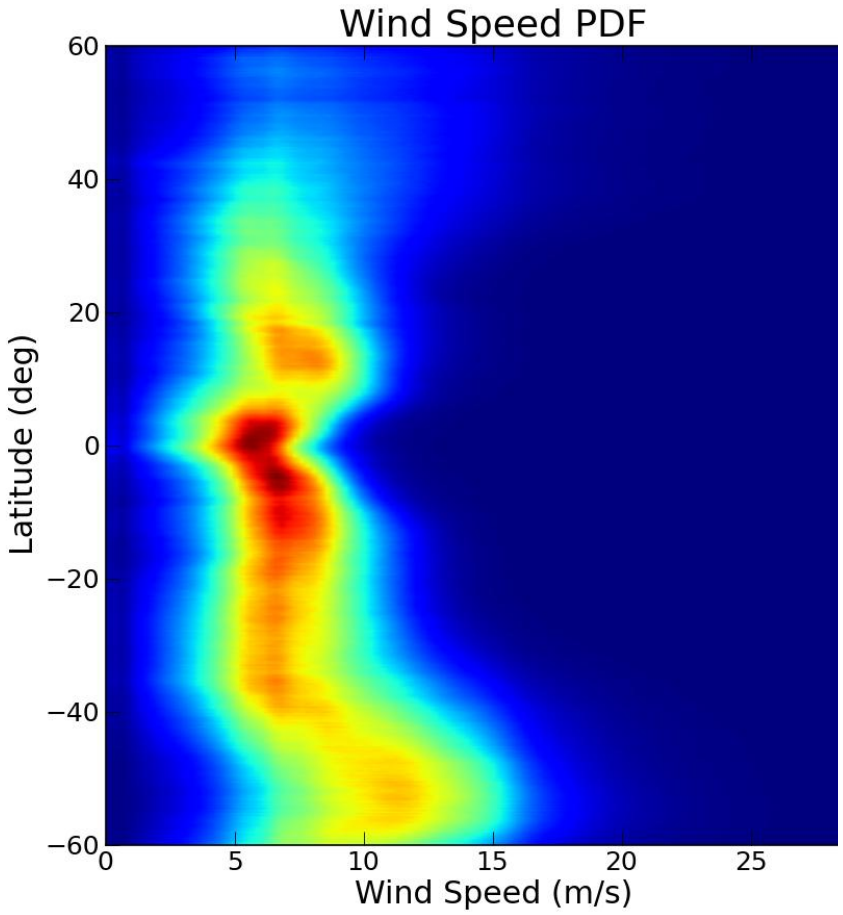


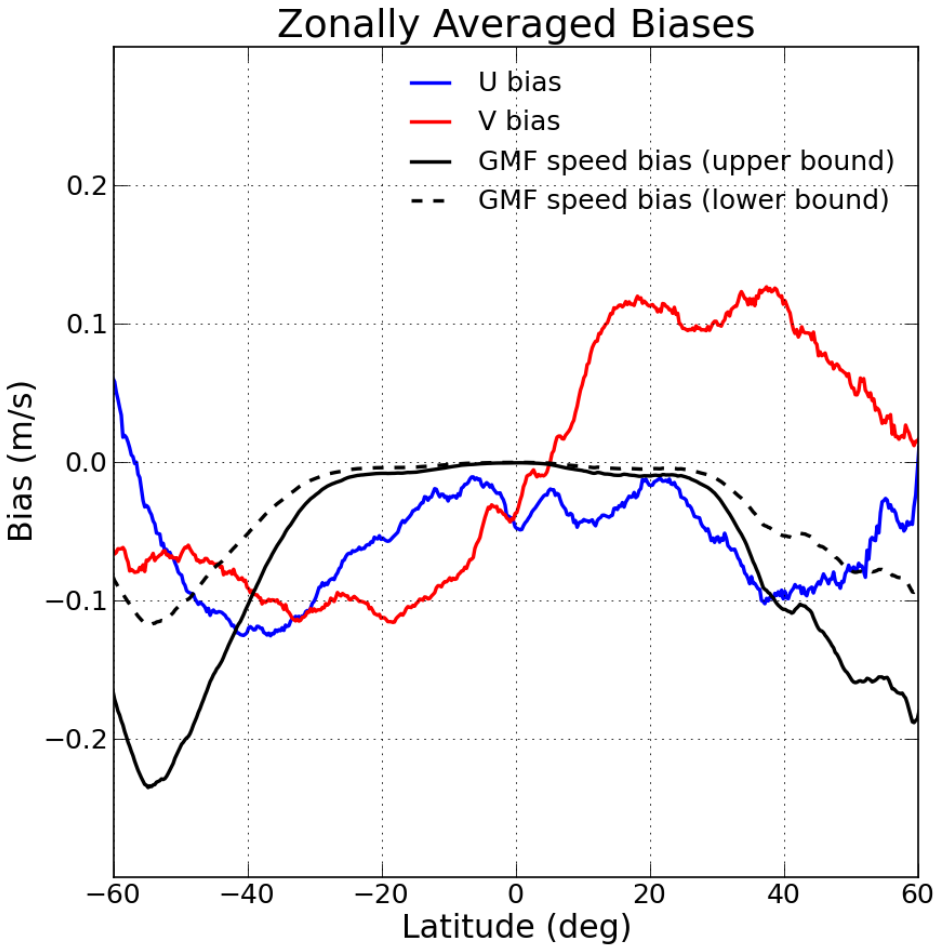
Zonally Averaged Wind Divergence and Curl



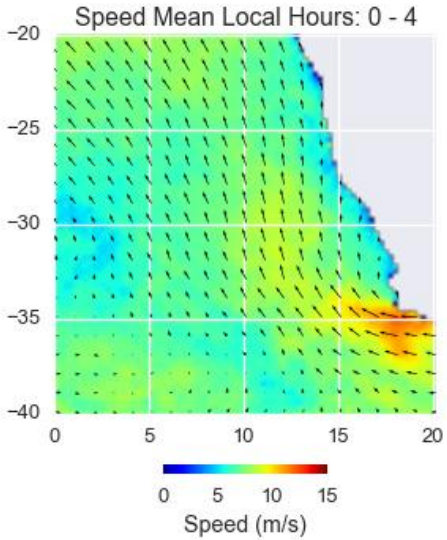


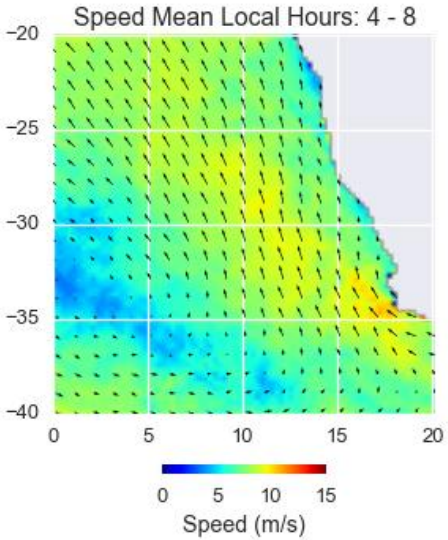
GMF Effects do not replicate the signature

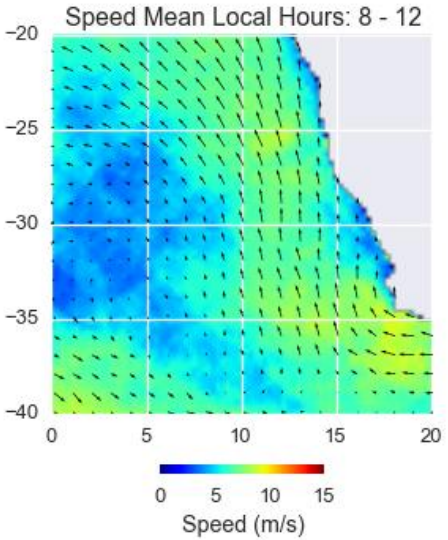


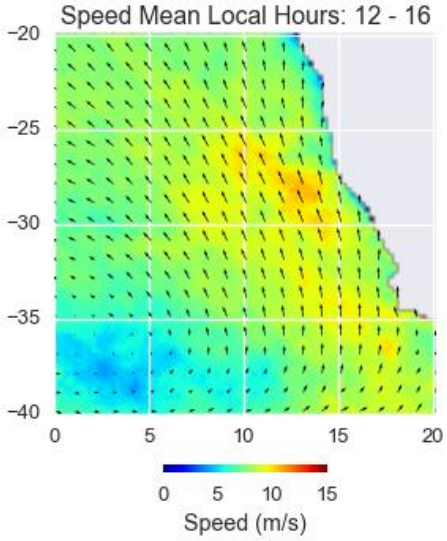


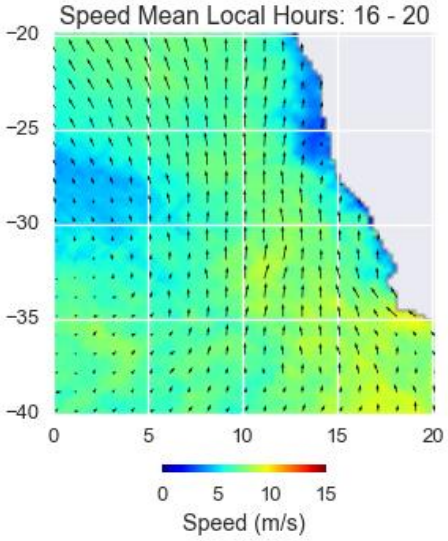
Benguela: October-November

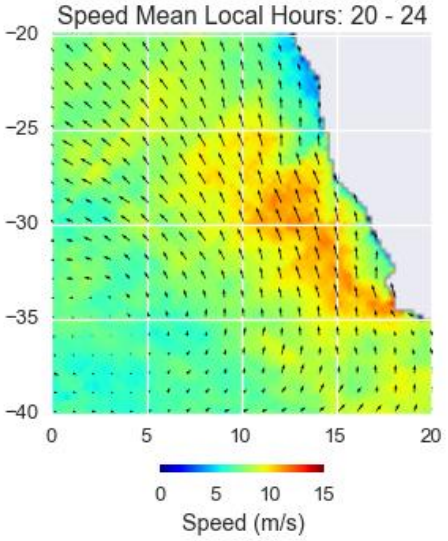




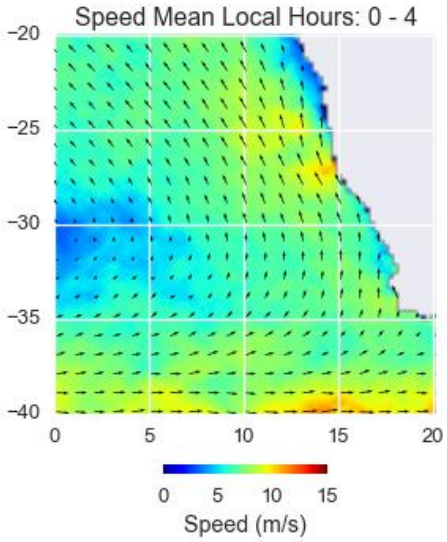


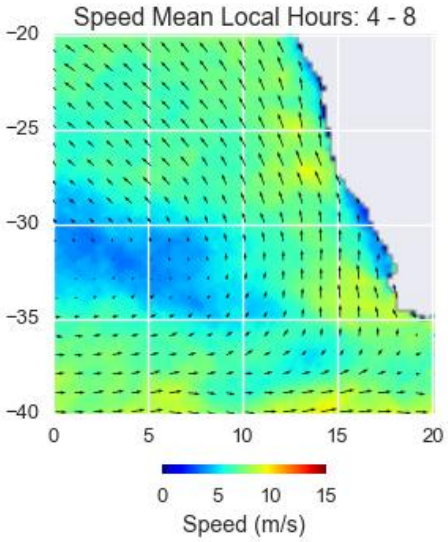


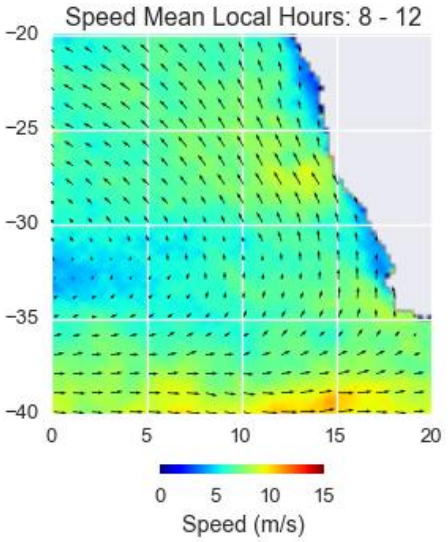


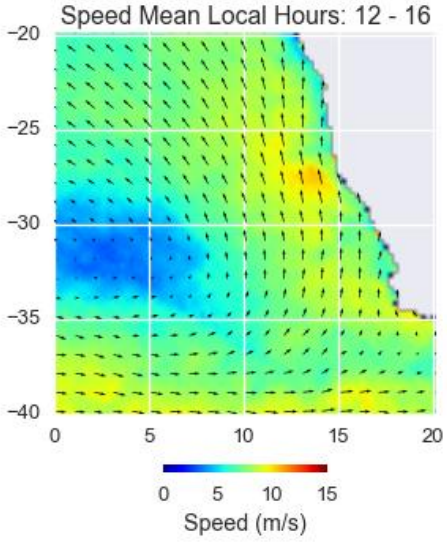


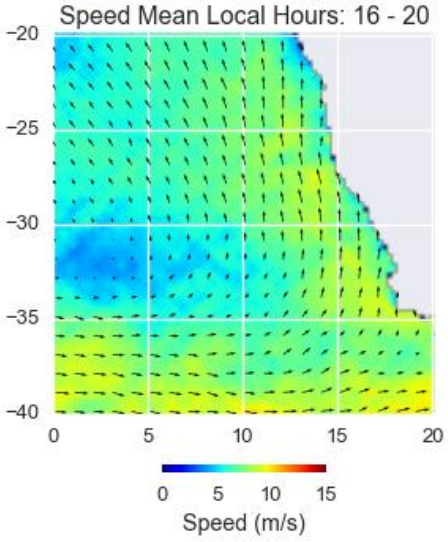
Benguela: December-January

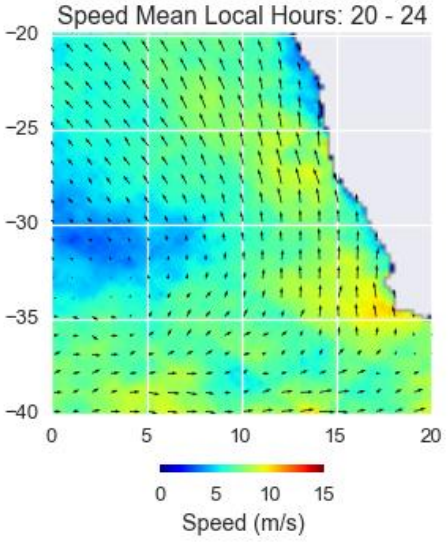












Benguela: February-March