Secretary's Weekly Report –
National Oceanic and Atmospheric Administration (NOAA)
NESDIS – STAR

Division/Program: CICS

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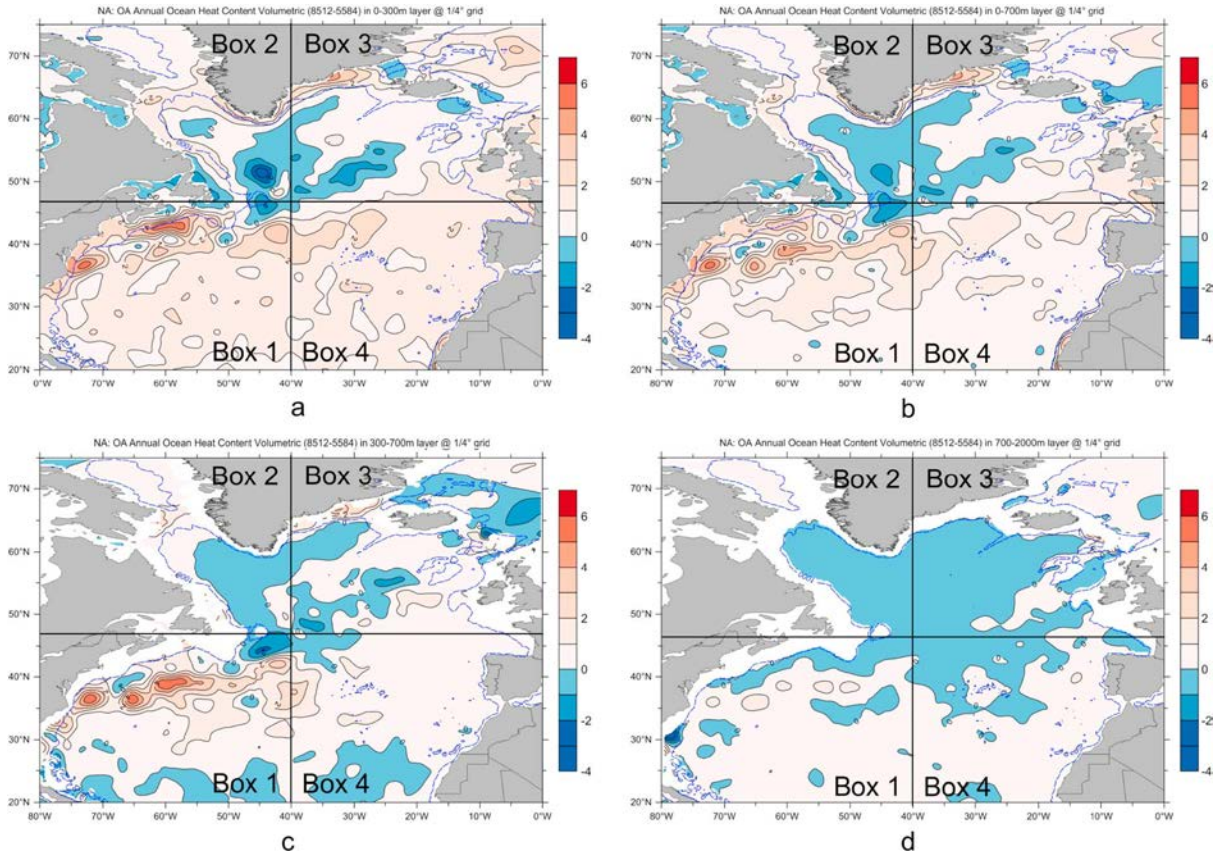
- **The Climate Shift in the North Atlantic Ocean**

  CICS-MD Scientists Alexey Mishonov and James Reagan analyze the multi-decadal variability of the North Atlantic Ocean in their new publication, currently in press at *Geophysical Research Letters*. Using a new NOAA high-resolution ocean climatology, they looked at trends in Ocean Heat Content (OHC).



The figure above shows the volumetric density of the OHC climate shifts between two 30 year climates of 1985–2012 and 1955–1984 (in J/m3) in (a) 0–300 m, (b) 0–700 m, (c) 300–700 m, and (d) 700–2000 m layers. (The boxes 1 to 4 indicate four regions discussed in more detail in the article.)

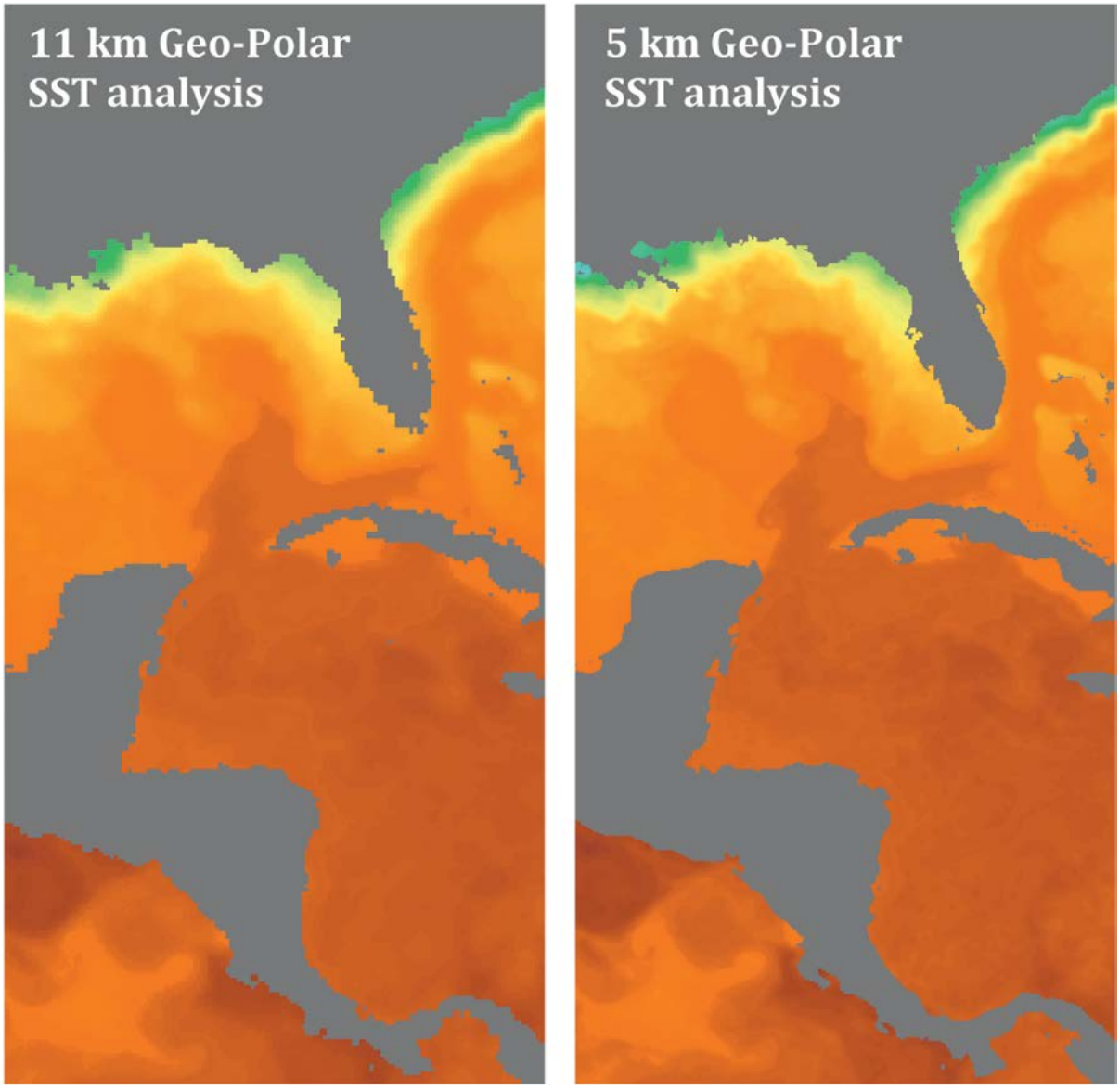
Ocean heat increased in all but the subpolar gyre north of the Gulf Stream Extension. The largest heat gain was southeast of the Gulf Stream between 300 and 700 m depths. They hypothesized that this may have been caused by the Atlantic Meridional Overturning Circulation slowdown in conjunction with the "heaving" of warm subtropical water. Seidov, Dan, Alexey Mishonov,

James Reagan and Rost Parsons, 2017: Multidecadal variability and climate shift in the North Atlantic Ocean, *Geophys. Res. Lett*., **44**, http://dx.doi.org/10.1002/2017GL073644, in press.

Importance: More research is still needed for better understanding of how oceanic heat is accumulated and redistributed on decadal and longer timescales. *POC*: A. Mishonov & J. Reagan

- **A New Blended Sea Surface Temperature Product**

  CICS-MD Scientist Andrew Harris coauthored a new article in the May issue of *Bulletin of the American Meteorological Society* announcing a new high-resolution sea surface temperature blended analysis now available from NOAA. This new operational analysis combines polar-orbiting and geostationary data to provide daily global fields of sea surface temperature on a 0.05° (~5 km) grid for a range of applications in climate, ecosystems, weather, and mesoscale oceanography. It includes data from the Advanced Very High Resolution Radiometer (AVHRR), the Visible and Infrared Imaging Radiometer Suite (VIIRS), and the Spinning Enhanced Visible and Infrared Imager (SEVIRI).



The image above shows the improvement that the 5-km resolution makes in the the Caribbean, Gulf Loop Current, and Gulf Stream.

Maturi, Eileen, **Andy Harris**, Jonathan Mittaz, John Sapper, Gary Wick, Xiaofang Zhu, Prasanjit Dash, and Prabhat Koner, 2017: A new high-resolution sea surface temperature blended analysis, *Bull. Amer. Meteor. Soc.*, **98**(5), 1015–1026, http://dx.doi.org/10.1175/BAMS-D-15-00002.1 .

Importance: This new blended analysis exploits the best characteristics of SST observations from geostationary and polar-orbiting thermal infrared sensors in a combined high-resolution analysis. *POC*: A. Harris

- **GEO Blue Planet Symposium:**

  CICS-MD Scientist Emily Smail was one of the organizers for the **3rd GEO Blue Planet Symposium**, held this week at NCWCP. The theme this year was "The Role of the Oceans in Earth's Life Support System."

  CICS-MD/ESSIC hosted the Steering Committee Meeting, the Welcoming Reception, and the Poster Session for the Conference.

  Importance: Hosting conferences is a good way for NOAA to share its knowledge with other scientists. POC: E. Smail