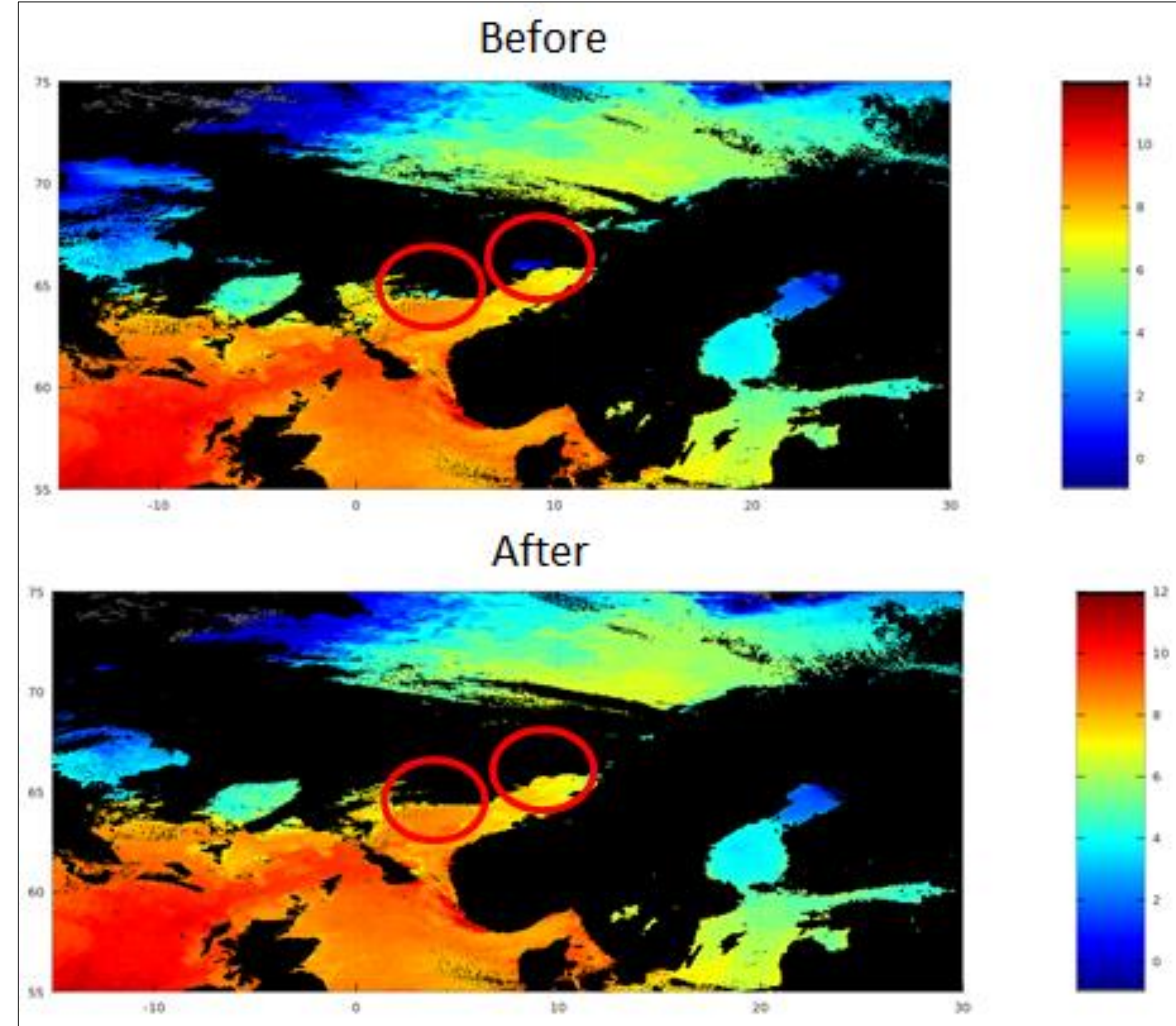# NAVOCEANO SST Processing

Danielle Carpenter, Dan Olszewski, Valinda Kirkland, Michelle Little, Jean-François Cayula, Charlie Barron, Bruce McKenzie
Naval Oceanographic Office, NP321 Remote Sensing Branch

The Naval Oceanographic Office (NAVOCEANO) Data Collection Division is responsible for providing near-real-time sea surface temperature (SST) measurements to the US Navy and national/international partners. The Naval Research Lab (NRL) at Stennis Space Center provides the research and development of the SST processing for numerous satellite data sets that are operationally processed at NAVOCEANO. This SST data is assimilated in the Navy's Global Ocean Forecast System (GOFS) and Global Environmental Model (NAVGEM) and soon in the Navy Global Earth System Prediction Capability (ESPC). NAVOCEANO is a member of the Group for High Resolution SST (GHRSST) science group operationally providing and acquiring GHRSST datasets.
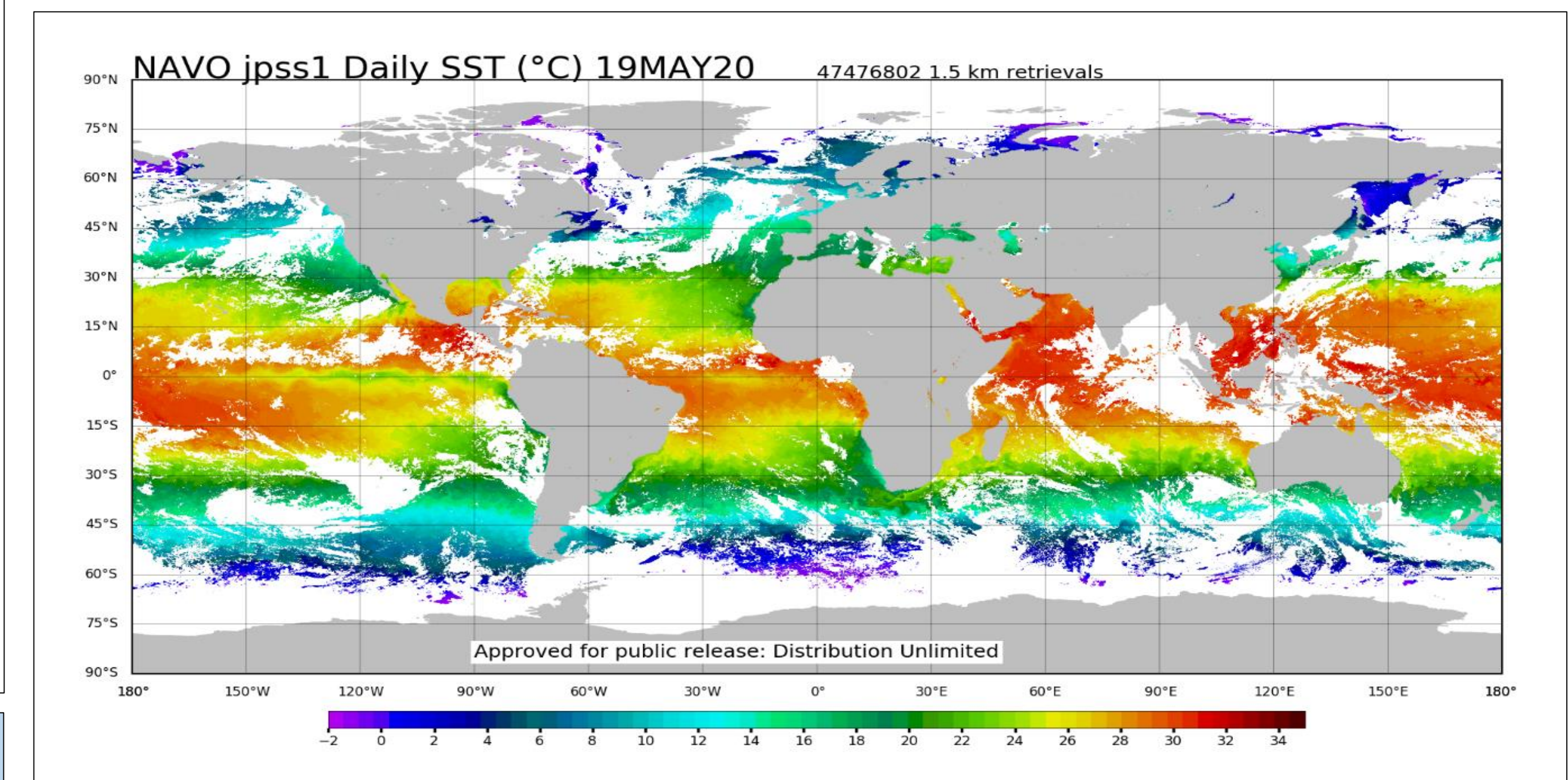
NAVOCEANO operationally processes satellite-derived SSTs, which are ingested into GOFS and NAVGEM to provide forecasts at both the global and regional scale. As a Regional Data Assemble Center (RDAC) for GHRSST, NAVOCEANO provides the following products:

❖ L2P
  ❖ NOAA-19 AVHRR GAC & LAC
  ❖ MetOp-A & MetOp-B AVHRR GAC
  ❖ S-NPP VIIRS
❖ L4 (K10)
  ❖ MetOp-A & MetOp-B FRAC
  ❖ S-NPP VIIRS
  ❖ MSG1 & MSG4 (OSI-SAF)
  ❖ AMSR2 (JAXA)
  ❖ PENTAD Climatology (JPL)
  ❖ Daily Ice Edge (NIC)

The graphic above shows statistical errors for NAVOCEANO GHRSST produced datasets. This includes both currently provided datasets as well as potential future contributions.

NRL has improved the SST processing suite to address cloud contamination issues seen during low sun elevation. The image above, located west of Norway, shows the before and after using MetOp-C retrievals. The solution was to apply a 4μm brightness temperature nighttime test during these twilight conditions.
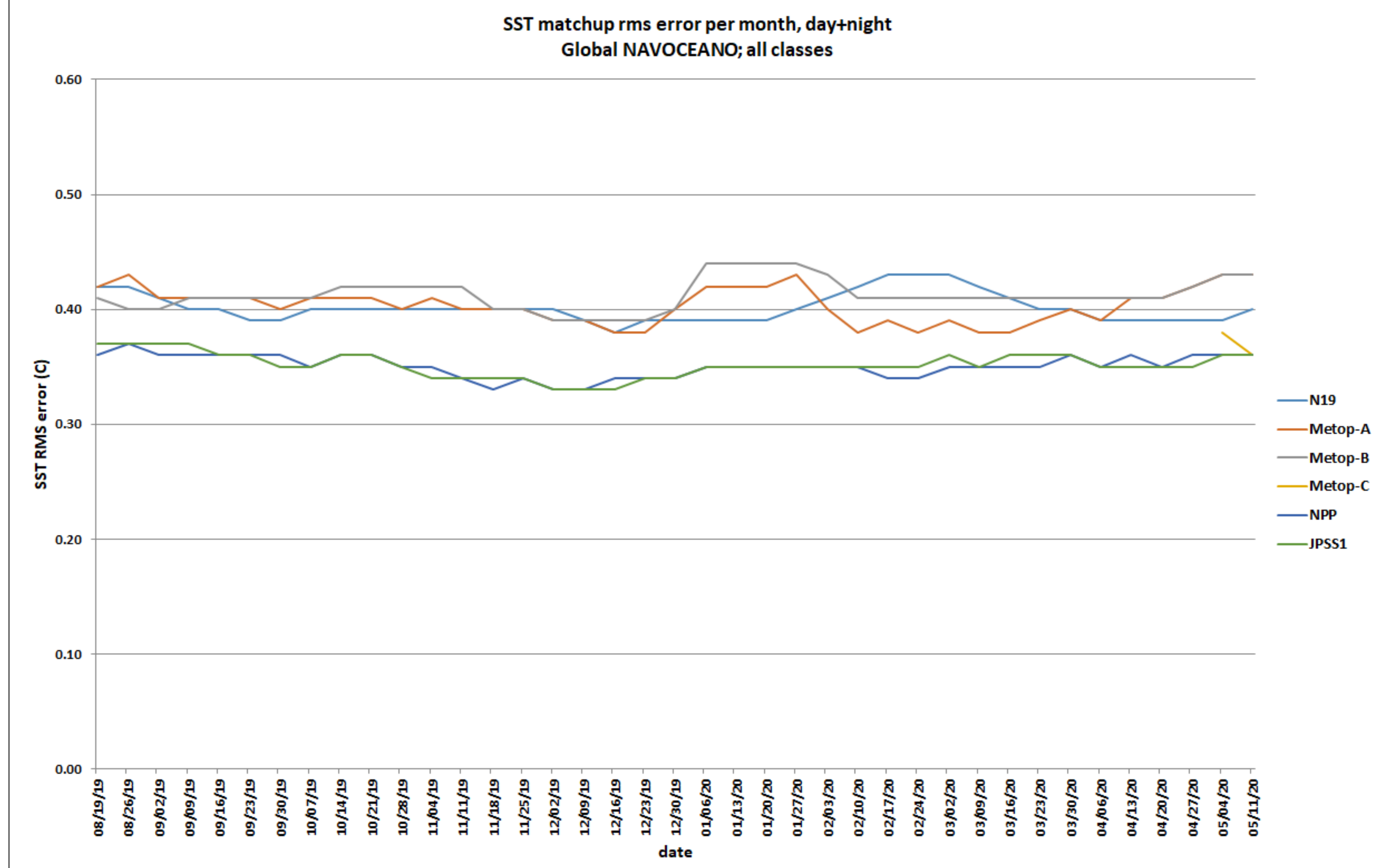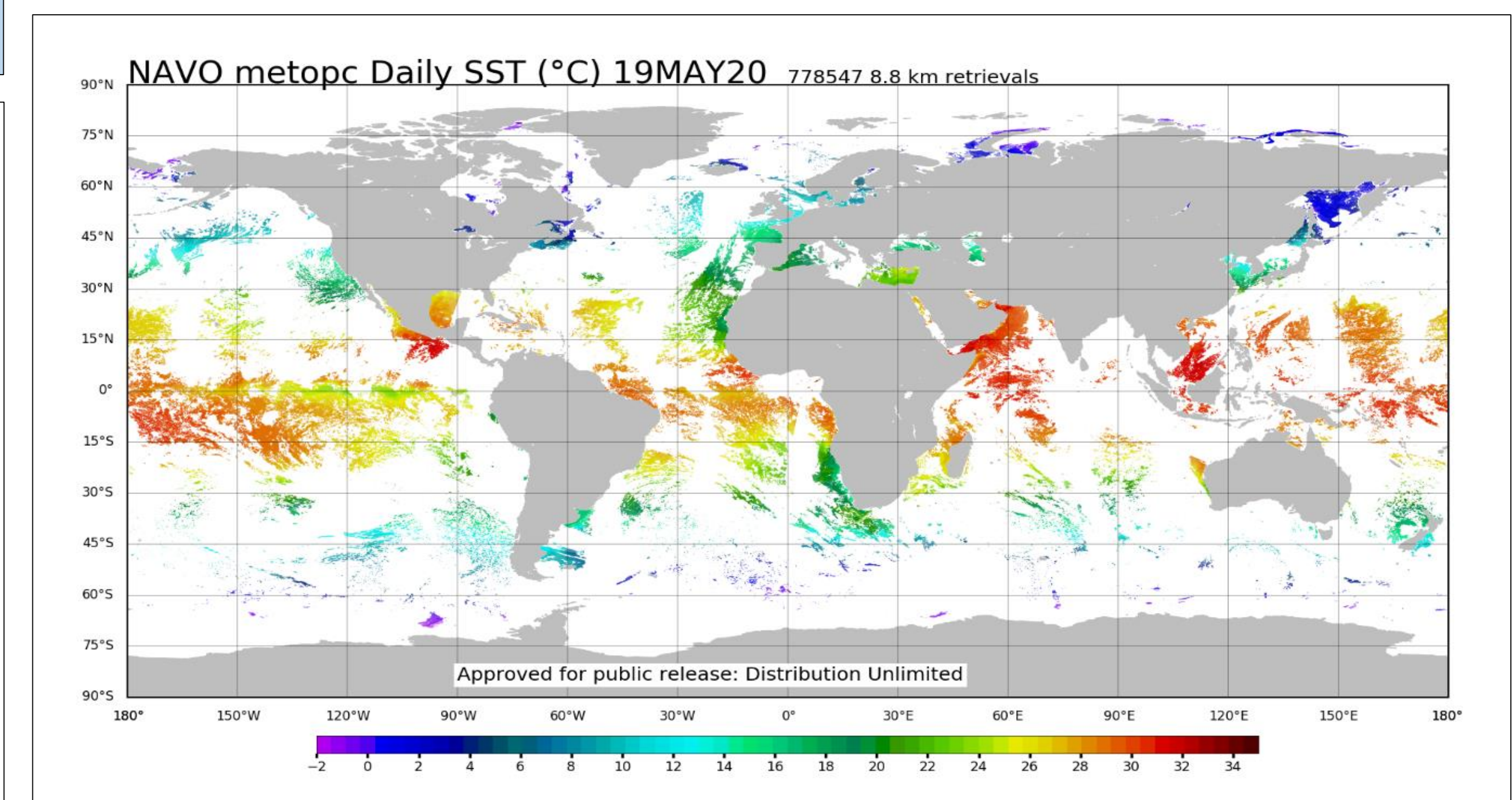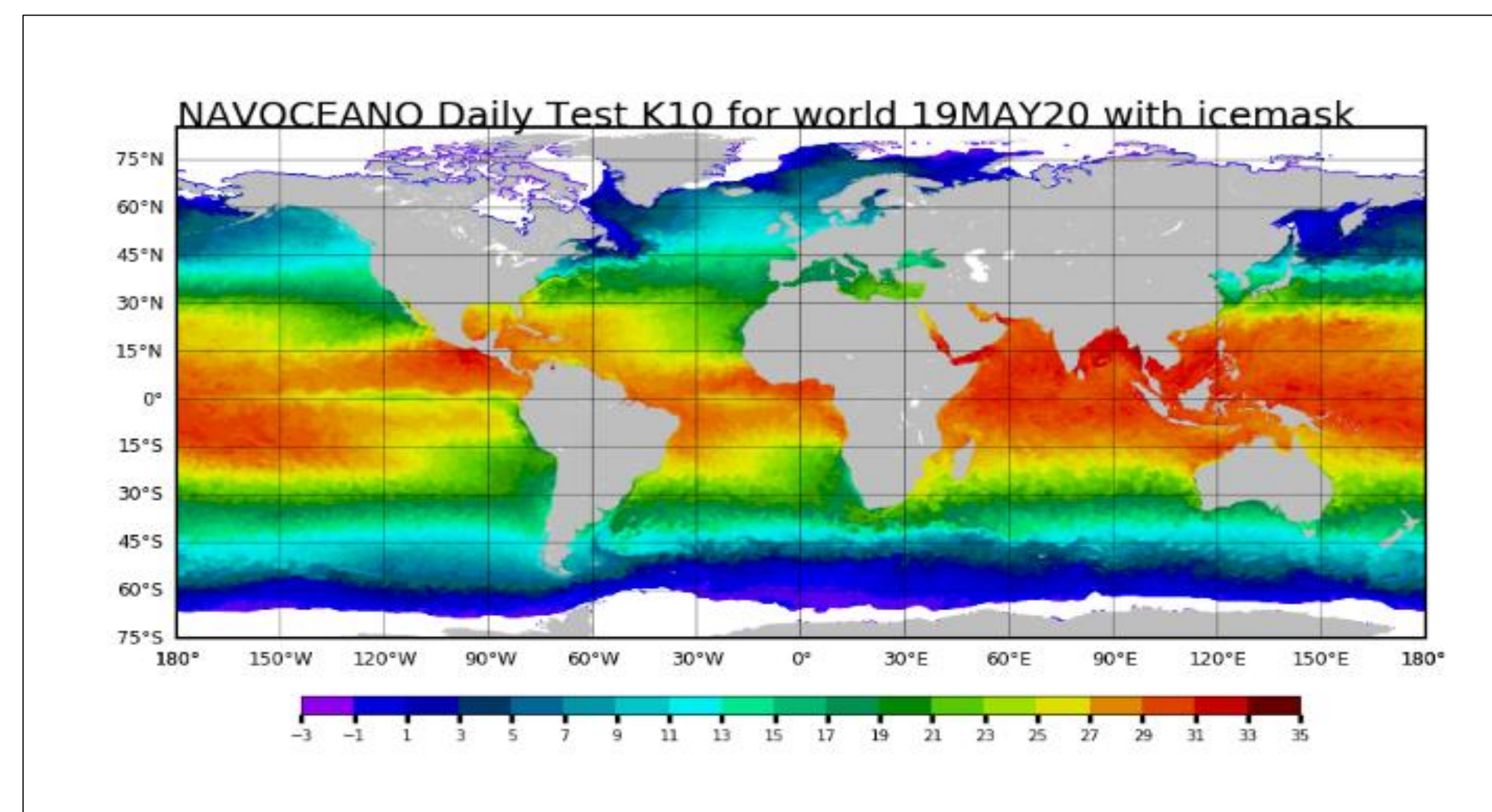

Op-test is currently underway at NAVOCEANO to improve the quality, age/timeliness, and coverage of the K10 product using the additional datasets (example seen in bottom middle):

❖ GOES-16
❖ GOES-17
❖ Himawari-8
❖ NOAA-20

The graphics above and below represent daily coverage for products NAVOCEANO will be able to supply to the JPL PODAAC in the near future.