

Transition of Expanded SPoRT SSTs in the WRF EMS

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Background:

Currently, WRF Environmental Modeling System (EMS) users are able to initialize ocean surface temperatures using a 1-km resolution sea surface temperature (SST) composite generated four times per day by the NASA Short-term Prediction Research and Transition (SPoRT) Center. Beginning 15 April 2012, the current SST composite product will be turned off and replaced with an expanded, twice-daily 2-km resolution SST composite product. Therefore, users of the SPoRT SSTs in the WRF EMS are required to update their EMS installation to transition to the expanded SST product (see instructions below). The expanded SST composite product covers a domain extending from approximately 0°N to 80°N latitude and 150°E to 10°E longitude, which includes much of the Pacific and Atlantic basins in the northern hemisphere. This larger domain enables users outside of the Continental U.S. (CONUS) to incorporate the SPoRT SST composite product for their modeling applications.

The expanded SPoRT SST composite is a blend of the following SST products:

- NASA's Moderate Resolution Imaging Spectroradiometer (MODIS) aboard the Earth Observing System (EOS) Terra and Aqua satellites.
- The National Environmental Satellite, Data, and Information Service (NESDIS) Center for Satellite Applications and Research POES-GOES blended SST product generated from the Advanced Very High Resolution Radiometers on the NOAA polar orbiting satellites and GOES Imagers on the NOAA geostationary satellites,
- The European Operational Sea Surface Temperature and Sea Ice Analysis (i.e. OSTIA), and
- Over the Great Lakes, a unique analysis that blends lake surface temperatures (LSTs) from MODIS and the Remote Sensing Systems (i.e. REMSS) LST analyses, as well as ice analyses from the Great Lakes Environmental Research Laboratory. The Great Lakes LSTs and ice analysis are seamlessly incorporated into the overall SPoRT SST composite.

The NESDIS POES-GOES product fills in the gaps caused by MODIS being unable to sense in cloudy regions, and replaces the recently-lost Advanced Microwave Scanning Radiometer for EOS with negligible loss in product fidelity. Another change to the SST composite product is that it is run only twice per day for Terra and Aqua combined data collections from 0000 to 1200 UTC and from 1200 to 0000 UTC, with valid analysis times at 0600 and 1800 UTC. The twice-daily compositing technique reduces the overall latency of the previous version while still representing the diurnal cycle characteristics. The composites are available at approximately four hours after the end of each collection period (i.e. 1600 UTC for the nighttime analysis and 0400 UTC for the daytime analysis).

Instructions for WRF EMS Users:

Current users of the SPoRT SST option (i.e. “*SFC = sstsport,ssthr*” in *ems_autorun.conf*) will be required to update the WRF EMS installations by 15 April to make a seamless transition to the expanded SST product. Both the 1-km CONUS and 2-km hemispheric products will be produced in parallel through 15 April (Figure 1). After 15 April, the 1-km CONUS SSTs will be turned off permanently. The SPoRT Center has prepared updated gribinfo files that can be simply copied and renamed into the appropriate directory of the WRF EMS installation for versions 3.1.1.5.1 and 3.2.1beta.

For users of the EMS versions listed above, the following steps must to be taken by 15 April 2012:

- Back-up the original sstsport gribinfo file:
 - `cd $EMS/conf/grib_info`
 - `cp -p sstsport_gribinfo.conf sstsport_gribinfo.conf.ORIG`
- Place the new gribinfo file accompanying this document into a temporary directory.
- Copy the new gribinfo file into *\$EMS/conf/grib_info/*
 - For EMS v3.1.1.5.1:
`cp sstsportnhemi31151_gribinfo.conf $EMS/conf/grib_info/sstsport_gribinfo.conf`
 - For EMS v3.2.1beta:
`cp sstsportnhemi321beta_gribinfo.conf $EMS/conf/grib_info/sstsport_gribinfo.conf`
 - In both instances, the file should be renamed to “*sstsport_gribinfo.conf*”, in order to replace the existing file.
- Ensure that the SFC option in the *ems_autorun.conf* file is set to use the SPoRT SSTs:
 - “*SFC = sstsport,ssthr*”
 - This is the same setting that is currently used to invoke SPoRT SSTs.
- For any future EMS releases, no action is necessary.

Please contact the NASA SPoRT Center for further assistance in making this transition, if required. Jonathan Case, Jonathan.Case-1@nasa.gov, 256-961-7504.

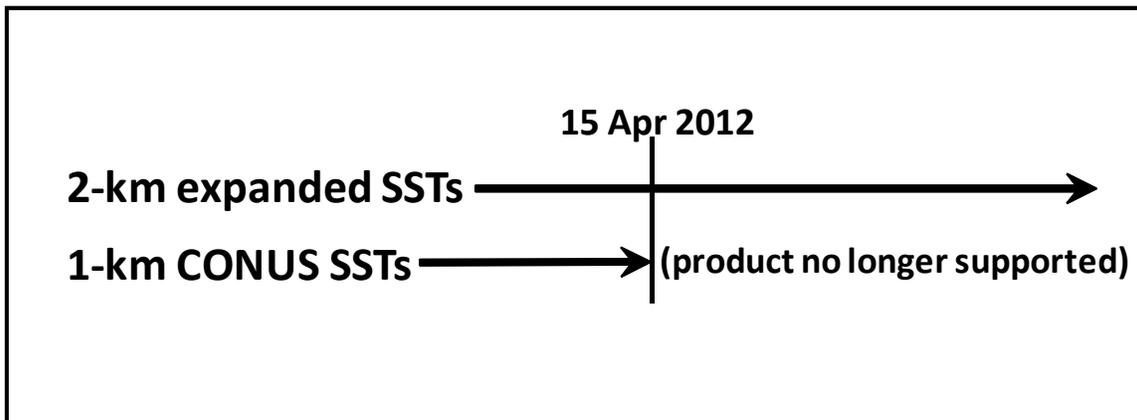


Figure 1. Timeline of the transition from the 1-km CONUS SPoRT SSTs to the expanded 2-km SPoRT SSTs.