NOUS41 KWBC 141700
PNSWSH

Public Information Statement 24-34
National Weather Service Headquarters Silver Spring MD
100 PM EDT Tue May 14 2024

To: Subscribers:
-NOAA Weather Wire Service
-Emergency Managers Weather Information Network
-NOAAPort
Other NWS Partners, Users and Employees

From: Patrick Burke, Chief
Oceanographic Division
NOS/Center for Operational Oceanographic Products and Services

Subject: Soliciting Comments on Updates to the NOS Operational Forecast System (OFS) Framework Version and the Implementation of the Oceanographic Forecast Modeling Systems for the Salish Sea and Columbia River through June 6, 2024

The National Ocean Service (NOS) is proposing to update the version of the Coastal Ocean Modeling Framework (COMF) and with the NWS/National Centers for Environmental Prediction (NCEP) Central Operations (NCO) will implement the new Salish Sea and Columbia River Operational Forecast System (SSCOFS) in late August 2024. NOS is seeking comments on this proposed upgrade through June 6, 2024. If approved, a Service Change Notice (SCN) will be issued at least 30 days before implementation with more detailed information.

The following changes are proposed:

1. Changes to the existing OFS

With this COMF version update and in accordance with NCO's implementation standards, the proposed changes to all NOS OFS' model output file names will comply with the following new file naming convention. The file contents remain unchanged:

For nowcast and forecast station files:
{OFS}.t{CC}z.{YYYYMMDD}.stations.nowcast.nc
{OFS}.t{CC}z.{YYYYMMDD}.stations.forecast.nc

For the 3D fields' nowcast(n) and forecast(f) files:
{OFS}.t{CC}z.{YYYYMMDD}.fields.n{HHH}.nc
{OFS}.t{CC}z.{YYYYMMDD}.fields.f{HHH}.nc

For the optional 2D nowcast(n) and forecast(f) files:
{OFS}.t{CC}z.{YYYYMMDD}.2ds.n{HHH}.nc
{OFS}.t{CC}z.{YYYYMMDD}.2ds.f{HHH}.nc

Where OFS is OFS name acronym (e.g.,cbofs, dbofs, tbofs, gomofs, ngofs2, leofs, lmhofs, loofs, lsofs, sfbofs, wcofs, ciofs); CC is run cycle (e.g.,

03, 09, 15, 21, and 00,06, 12, 18; YYYYMMDD is timestamp, YYYY(year), MM(month) and DD(day). HHH is the HHH-th simulation hour (e.g., 001, 002).

2. Ice forecasting is reactivated for all Great Lakes OFS

The ice module was turned off in February 2023 because of unrealistic ice thickness forecasts in the Great Lakes OFS during the 2023 winter season. Corrections were added in the ice modules and tested using the 2023 hindcast simulations. These corrections are included in the proposed update to the FVCOM package.

The following ice-related float variables will be added to the field/gridded output files of the four Great Lakes' Operational Forecast Systems of Lake Erie (LEOFS), Lake Michigan and Huron (LMHOFS), Lake Ontario (LOOFS), and Lake Superior (LSOFS): aice, vice, latent_heat_flux, sensible_heat_flux, long_wave, tsfc, uuice, and vvice.

3. Proposed implementation of the Salish Sea and Columbia River Operational Forecast System (SSCOFS)

SSCOFS will provide users with nowcasts (analyses of near present) and forecast guidance of the physical conditions of surface water levels, 3-dimensional water currents, water temperature, and salinity out to 72 hours for the Puget Sound, the San Juan Islands, the Strait of Georgia, the Strait of Juan de Fuca, the Northern Pacific Coast and the lower Columbia River. This new FVCOM based model, with the Columbia River to the Bonneville Dam as part of its domain, will decommission the existing Semi-implicit Eulerian-Lagrangian Finite Element (SELFE) based Columbia River and Estuary Operational Forecast System (CREOFS).

The following files from CREOFS will no longer be available with the proposed implementation of SSCOFS:

nos.creofs.stations.nowcast.{YYYMMDD}.t{CC}z.nc
nos.creofs.stations.forecast.{YYYYMMDD}.t{CC}z.nc
nos.creofs.fields.n{HHH}.{YYYYMMDD}.t{CC}z.nc
nos.creofs.fields.f{HHH}.{YYYYMMDD}.t{CC}z.nc
nos.creofs.obc.{YYYYMMDD}.t{CC}z.tar
nos.creofs.river.{YYYYMMDD}.t{CC}z.th.tar
nos.creofs.met.nowcast.{YYYYMMDD}.t{CC}z.tar
nos.creofs.met.forecast.{YYYYMMDD}.t{CC}z.tar
nos.creofs.init.nowcast.{YYYYMMDD}.t{CC}z.bin
nos.creofs.nowcast.{YYYYMMDD}.t{CC}z.in
nos.creofs.forecast.{YYYYMMDD}.t{CC}z.in

The SSCOFS unstructured triangular mesh will have 239,734 nodes and 433,410 elements. The vertical grid will follow the terrain and consist of 10 spatially-varying sigma-layers. The resolution will vary from 100 m inside the estuaries to 500 m in deeper parts of Puget Sound and the Georgia Basin, and increases to 10 km over the continental shelf. Resolution inside the Columbia River varies between 100 m and 200 m.

The proposed SSCOFS will operate within the NOS Coastal Ocean Modeling Framework (COMF3.6) and have four daily nowcast and forecast cycles at 03, 09, 15, and 21 Coordinated Universal Time (UTC).

The meteorological forcing used to run SSCOFS will be based on the National Weather Service (NWS) North American Mesoscale (NAM) weather prediction model winds (for both nowcast and forecast). The NCEP's operational meteorological forecast products of Global Forecast System (GFS) will be used as a backup for the NAM.

SSCOFS will rely on the Global Real-Time Ocean Forecast System (G-RTOFS) to provide open boundary temperature, salinity and sub-tidal water level, and North Pacific Tidal Database (ENPAC2015) from the ADvanced CIRCulation (ADCIRC) model will be used to generate tidal forcing. The National Water Model's river discharge outputs will provide freshwater inputs at the selected rivers.

Similar to the existing OFS, SSCOFS will have two types of NetCDF output files. One is a field/gridded file with a 1-hour time interval and the other is a station/point output file with a six (6) minute time interval. In these files, water level, water temperature, water salinity and currents will be the model output variables. Other variables, such as wind speed and heat flux, which will be used to drive the model, will also be included in the files.

Proposed SSCOFS Product Outputs:
Gridded fields and station/point nowcast/forecast guidance will be available on the CO-OPS THREDDS server:

http://opendap.co-ops.nos.noaa.gov/thredds/catalog.html

and on NCEP Web services under sscofs.YYYYMMDD:

https://nomads.ncep.noaa.gov/pub/data/nccf/com/nosofs/v3.6
https://nomads.ncep.noaa.gov/pub/data/nccf/com/nosofs/prod
https://ftpprd.ncep.noaa.gov/data/nccf/com/nosofs/v3.6
https://ftpprd.ncep.noaa.gov/data/nccf/com/nosofs/prod
ftp://ftpprd.ncep.noaa.gov/pub/data/nccf/com/nosofs/v3.6
ftp://ftpprd.ncep.noaa.gov/pub/data/nccf/com/nosofs/prod

Parallel data will be available in the following locations:

https://nomads.ncep.noaa.gov/pub/data/nccf/com/nosofs/v3.6
https://nomads.ncep.noaa.gov/pub/data/nccf/com/nosofs/para
https://ftpprd.ncep.noaa.gov/data/nccf/com/nosofs/v3.6
https://ftpprd.ncep.noaa.gov/data/nccf/com/nosofs/para
ftp://ftpprd.ncep.noaa.gov/pub/data/nccf/com/nosofs/v3.6
ftp://ftpprd.ncep.noaa.gov/pub/data/nccf/com/nosofs/para
NOTE: The ftpprd link only works for FTP-enabled web browsers.

Where YYYYMMDD is year, month, and day.

In addition to the model's output files, its input files will also be found in the above ftp site. The input files' names also follow the new file naming convention as previously mentioned.

Model Input Files:
Initial files for nowcast:
sscofs.t{CC}z.{YYYYMMDD}.init.nowcast.nc

Surface meteorological forcing files:
sscofs.t{CC}z.{YYYYMMDD}.met.nowcast.nc
sscofs.t{CC}z.{YYYYMMDD}.met.forecast.nc
sscofs.t{CC}z.{YYYYMMDD}.hflux.nowcast.nc
sscofs.t{CC}z.{YYYYMMDD}.hflux.forecast.nc

OBC forcing files:
sscofs.t{CC}z.{YYYYMMDD}.obc.nc

River forcing files:
sscofs.t{CC}z.{YYYYMMDD}.river.nc.tar

Runtime input files:
sscofs.t{CC}z.{YYYYMMDD}.nowcast.in
sscofs.t{CC}z.{YYYYMMDD}.forecast.in

Log files:
sscofs.t{CC}z.{YYYYMMDD}.corms.log
sscofs.t{CC}z.{YYYYMMDD}.jlogfile.log
sscofs.t{CC}z.{YYYYMMDD}.nowcast.log
sscofs.t{CC}z.{YYYYMMDD}.forecsat.log

SSCOFS web product are displayed on the CO-OPS webpage:
at https://tidesandcurrents.noaa.gov/ofs/sscofs/sscofs.html.

Additional information about SSCOFS will be available after operational implementation at:
https://tidesandcurrents.noaa.gov/ofs/sscofs/sscofs_info.html

NCEP urges all users to ensure their decoders can handle changes in content order and volume changes. These elements may change with future NCEP model implementations. NCEP will make every attempt to alert users to these changes before implementation.

Send comments on this proposal for the upgrade of changes to the existing OFS and the implementation of SSCOFS by June 6, 2024, to:

Dr. Aijun Zhang
NOS/Center for Operational Oceanographic Products and Services
Silver Spring, MD
Email: aijun.zhang@noaa.gov

For questions regarding the dataflow aspects, please contact:

Tony Salemi
NCEP/NCO Dataflow Team Lead (Acting)
College Park, MD
Email: ncep.pmb.dataflow@noaa.gov

National Public Information Statements are online at:

https://www.weather.gov/notification/

NNNN