Cooperative Hypoxia Assessment and Monitoring Program (CHAMP) Workshop

Christopher Brown presented the Fisheries Monitoring Workgroup (FMW) progress report at the CHAMP Workshop. The FMW is one of eight workgroups of the CHAMP. The purpose of the workshop is to assess progress of these workgroups toward building the CHAMP and further advance strategic planning to meet remaining CHAMP programmatic and financial needs. Chris is co-lead of the FWM as part of his detail at NOAA’s Ocean Service. Goals of the FMW are to 1) integrate fisheries surveys into CHAMP by leveraging and expanding upon current monitoring activities and compiling available data, and 2) serve as a management advisory group for NGOMEX projects to help ensure the effectiveness of project tools and outputs towards fisheries management applications.

Figure: Attendees of the Cooperative Hypoxia Assessment and Monitoring Program (CHAMP) Workshop held 9-10 January 2018 at the Mississippi State University Science & Technology Center in Stennis Space Center, MS.

Importance: Supports the NOAA mission to conserve and manage coastal and marine ecosystems and resources. POC: C. Brown
• **Postcards from GOES-16**: (recommended for NESDIS report)

In the past few weekly reports, we have been featuring CICS-MD Scientist Michael Peterson (STAR/CoRP/SCSB) graphics and animation developed from the Geostationary Lightning Mapper (GLM) on the new GOES-R/GOES-16 satellite. In a new twist, he has designed Postcards with some of these images.

The top postcard features three of this year’s hurricanes and the bottom postcard is a view of lightning from last week’s big Nor’easter storm.

**Importance**: Educating the public about severe weather hazards and the importance of satellite information for forecasting them are important goals at NOAA. **POC**: M. Peterson
• **Improving Air Quality Forecast Models with Aerosol Data Assimilation:**

CICS-MD Scientist Youhua Tang (OAR/ARL) has a new article published last month in *Geoscientific Model Development*, coauthored by CICS-MD Scientists Tiangfeng Chai, Li Pan, Barry Baker, Daniel Tong and Hyun-Cheol Kim. The article compares different method of data assimilation (3D-Var and Optimal Interpolation) of satellite and surface observations of aerosols to improve the Community Multi-scale Air Quality (CMAQ) modeling system, currently used by NCEP to forecast PM$_{2.5}$ (particulate matter with diameter< 2.5 μm). The 3D-Var application that they used was Gridpoint Statistical Interpolation. The satellite data they assimilated was MODIS aerosol optical depth (AOD) on surface aerosols at 18:00UTC and the surface data was surface PM$_{2.5}$ observations at 00:00, 06:00, 12:00 and 18:00 UTC.

![Image showing results of CMAQ model with and without data assimilation](image)

The figure above shows the results for the CMAQ model (a) without data assimilation, (b) with Optimal Interpolation (OI), and with Gridpoint Statistical Interpolation (GSI). Overall, they found that GSI produced more accurate results. One of the differences they found between the two methods is that the satellite data had a stronger impact in OI and surface data had a stronger impact in GSI. *Tang, Youhua*, Mariusz Pagowski, *Tianfeng Chai, Li Pan*, Pius Lee, *Barry Baker*, Rajesh Kumar, Luca Delle Monache, *Daniel Tong* and *Hyun-Cheol Kim*, 2017: A case study of aerosol data assimilation with the Community Multi-scale Air Quality Model over the contiguous United States using 3D-Var and optimal interpolation methods, *Geosci. Model Dev.*, 10, 4743–4758, [https://doi.org/10.5194/gmd-10-4743-2017](https://doi.org/10.5194/gmd-10-4743-2017).

*Importance:* More accurate PM$_{2.5}$ forecasts can result in better air quality warnings so that some of the health impacts are prevented. *POC:* Y. Tang