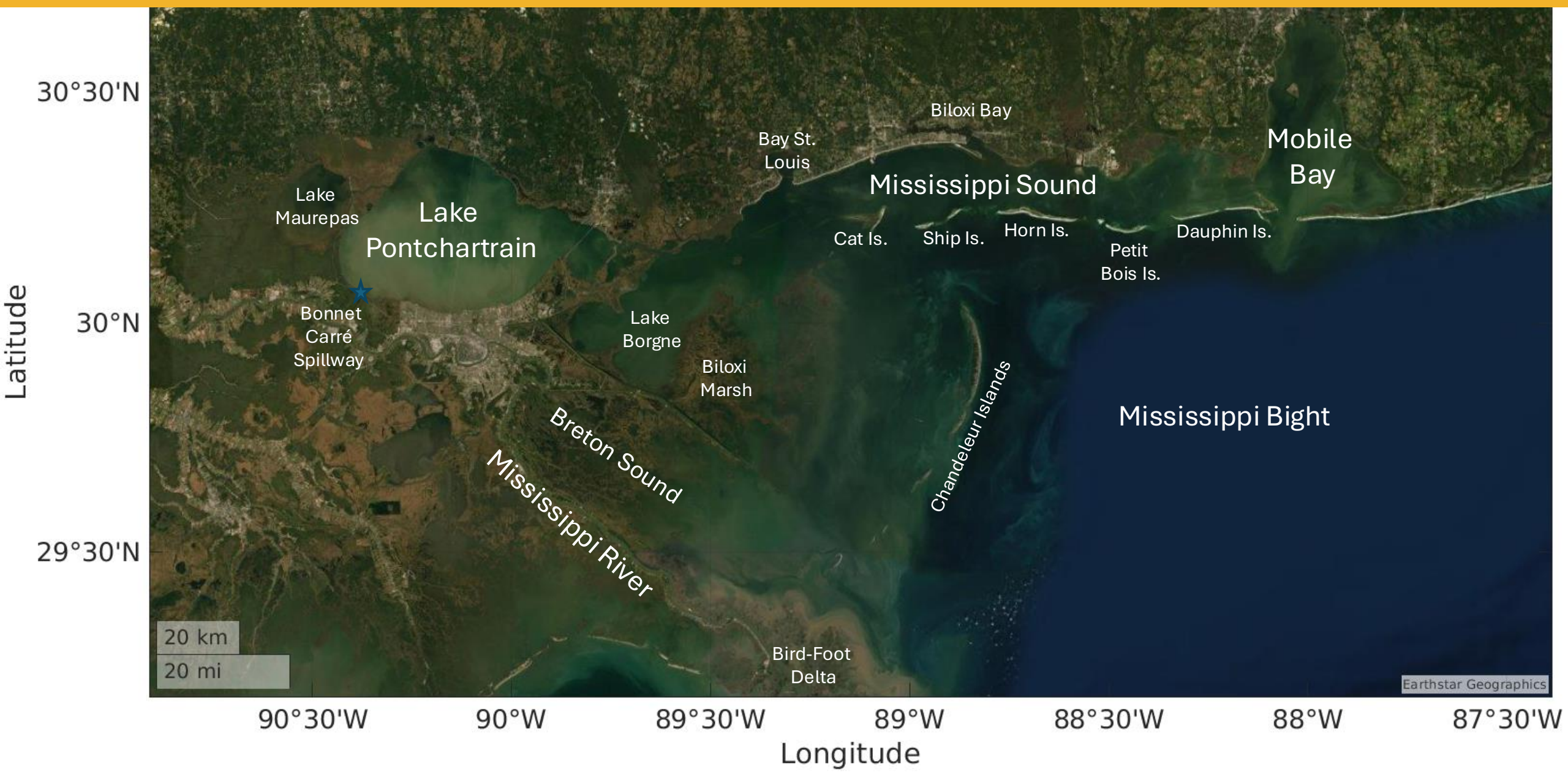


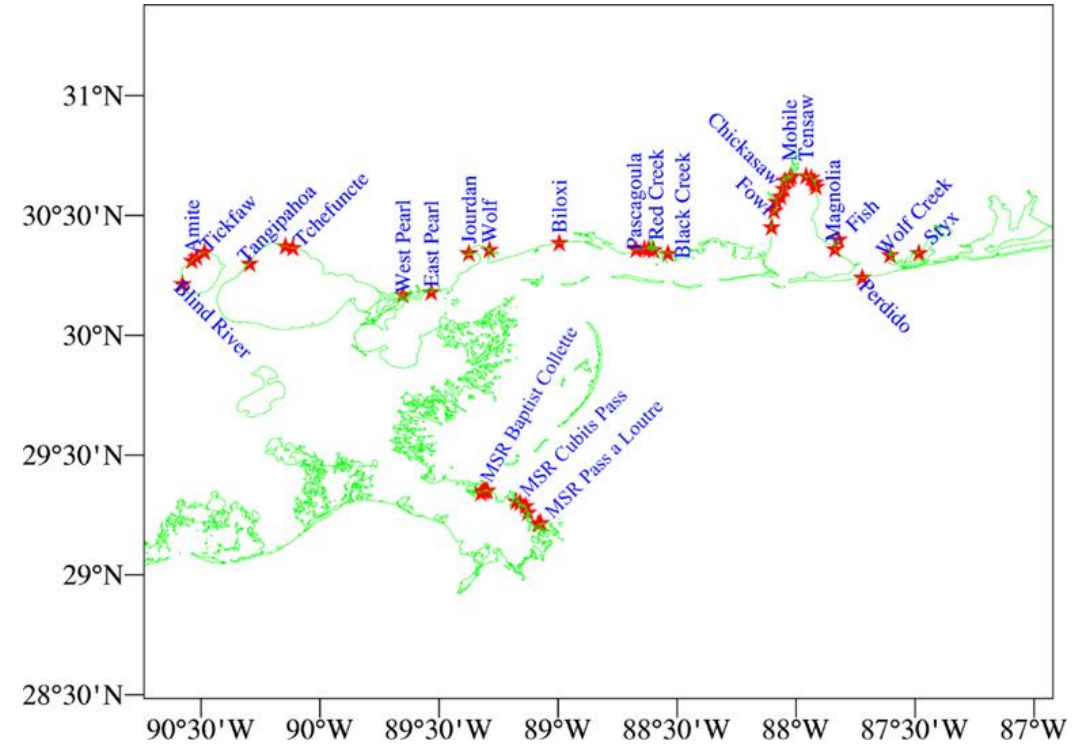
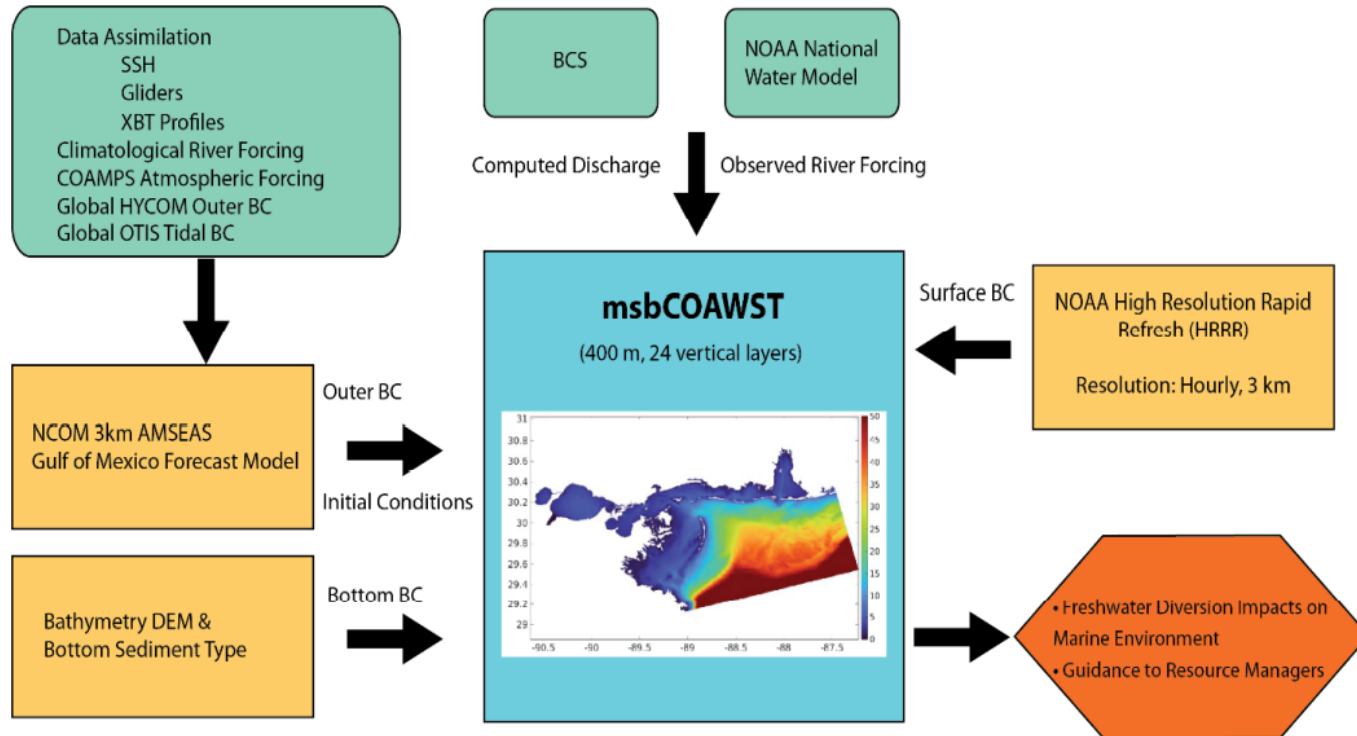
# msbCOAWST: Providing Reliable Science-based Information for Regional Restoration and Coastal Protection Programs

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## Objective

- Evaluate improvements to model skill for hindcast and forecast data to determine which has more skill and how assimilated data in model forcing influences model skill.

## Atmospheric Forcing:

### High Resolution Rapid Refresh assimilates

- GOES-16 ABI radiances
- N20 CrIS-FSR/ATMS (with direct readout)
- GOES-16 AMVs TC vitals for trop cyclone location/strength
- Aircraft/raob moisture obs for  $p < 300$  hPa
- VIIRS/MODIS fire radiative power

## River Forcing:

### National Water Model

- using the best available observed forcings and streamflow Data Assimilation (DA) to establish initial conditions for forecasting



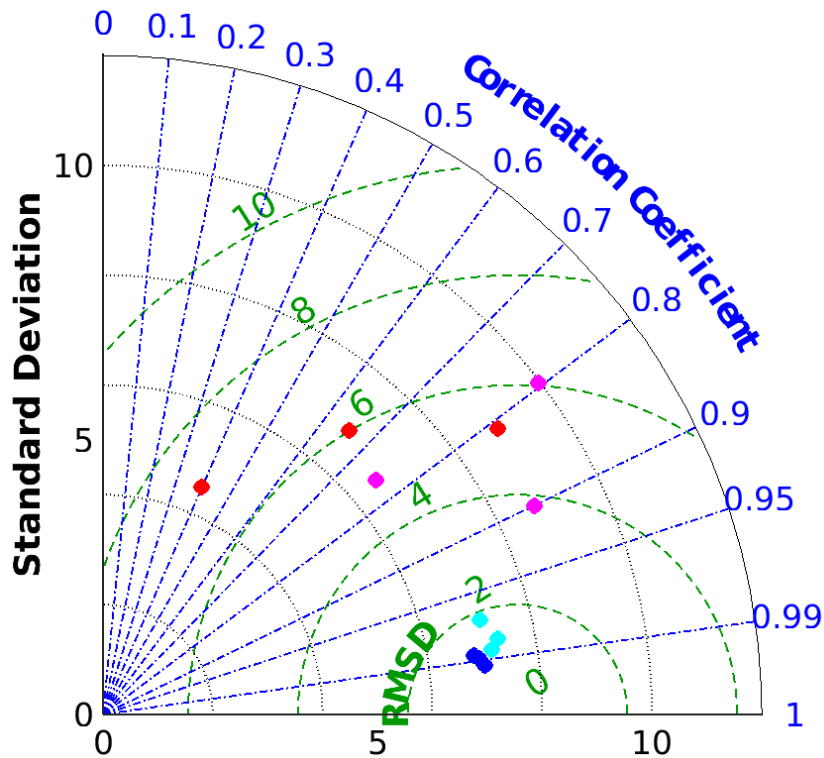
- Daily model extends model coverage
- Just over 10 years of continuous model data

Year (Grid)	Daily hindcast	Historic Hindcast
2015 (Concorde)	N/A	4/1/2015 - 12/31/2015
2016-2018 (Concorde)	N/A	3 Full Years
2019-2021 (msbCOAWST)	N/A	3 Full Years
2022 (msbCOAWST)	6/15/2022-12/31/2022	Full year
2023 (msbCOAWST)	Full Year	Full Year
2024 (msbCOAWST)	Full Year	Planned
2025 (msbCOAWST)	1/1/2025 to present	Planned
Climatology (2011-2021, msbCOAWST)	N/A	Full leap year

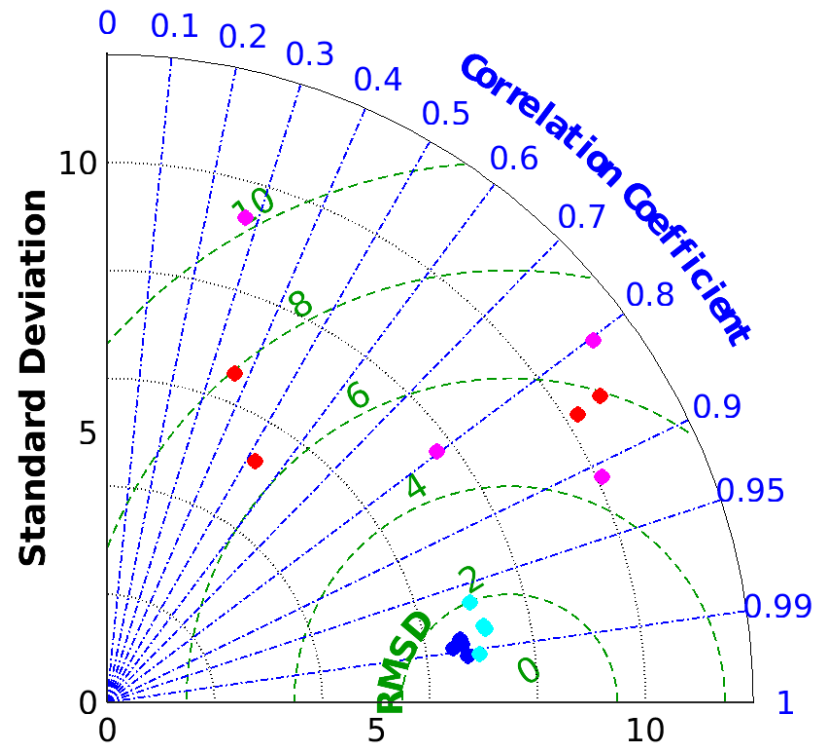
# Daily and Historical Hindcast

Temperature: surface dark blue, bottom light blue  
Salt: surface red, bottom magenta

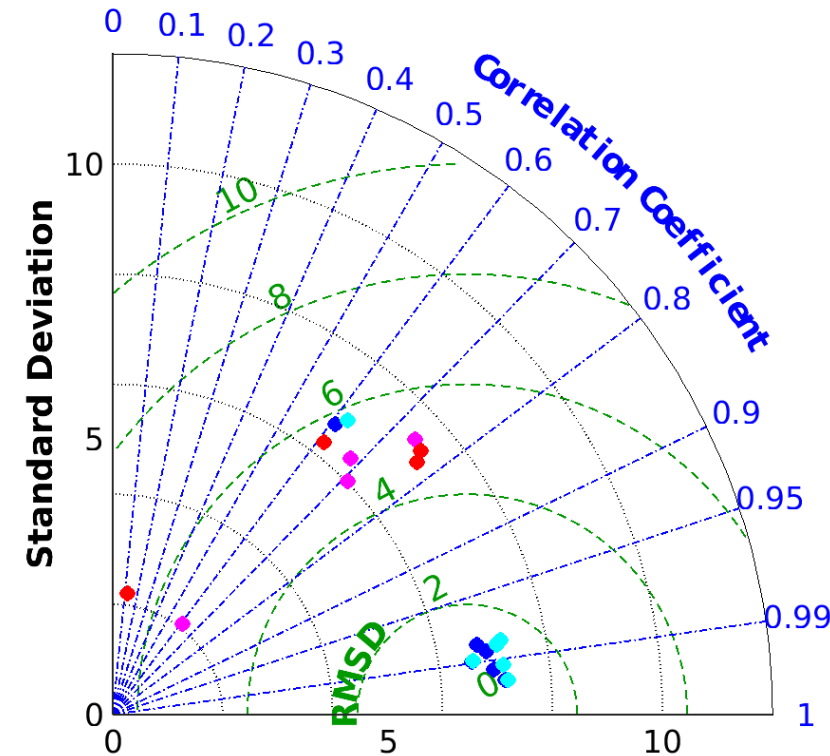
## Historic 2023

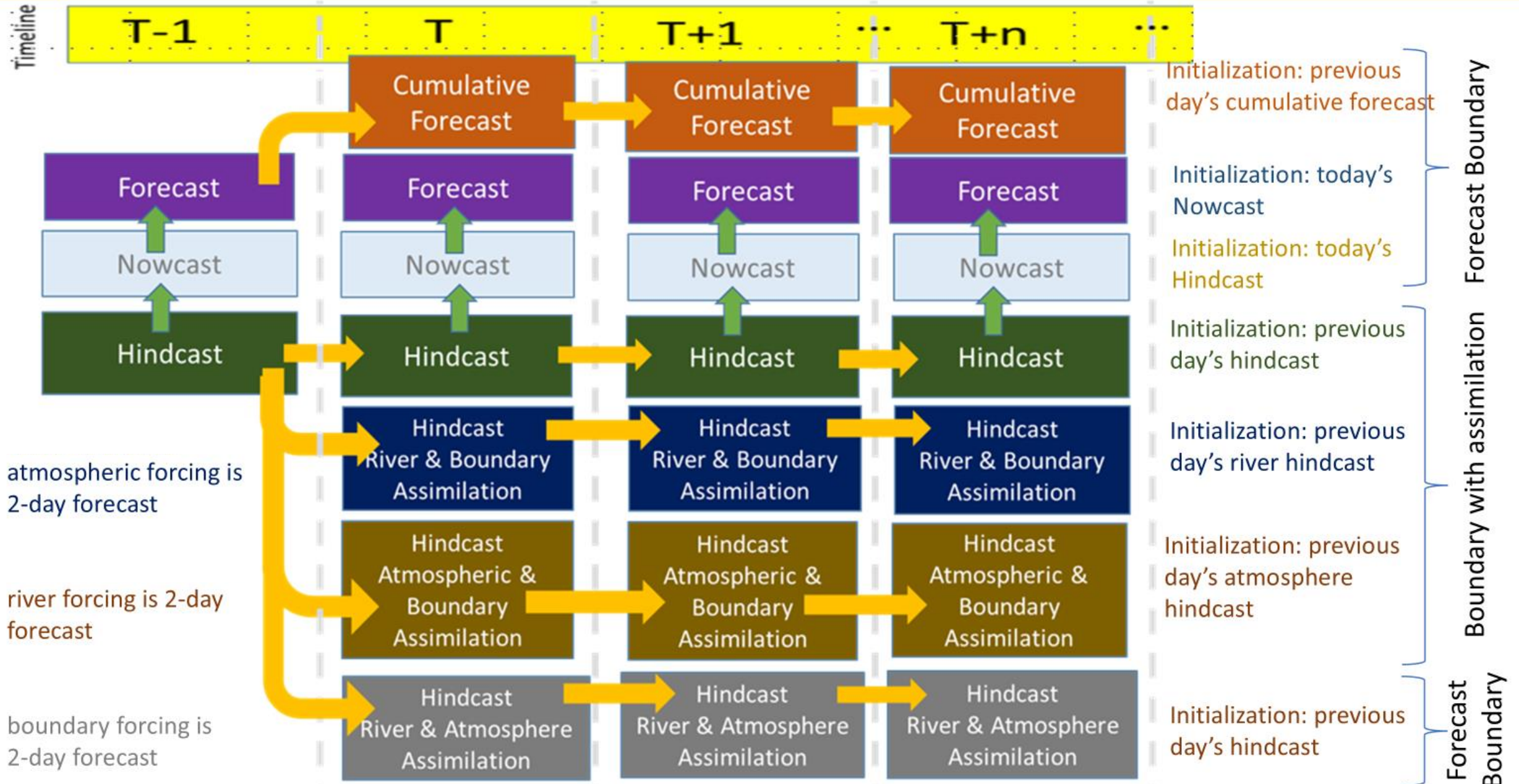


## Daily 2023



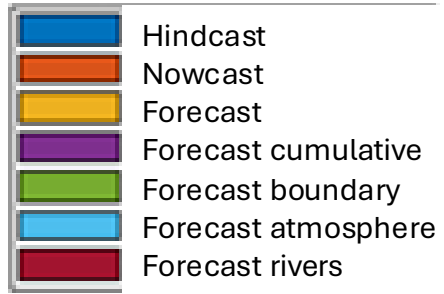
## Daily 2024



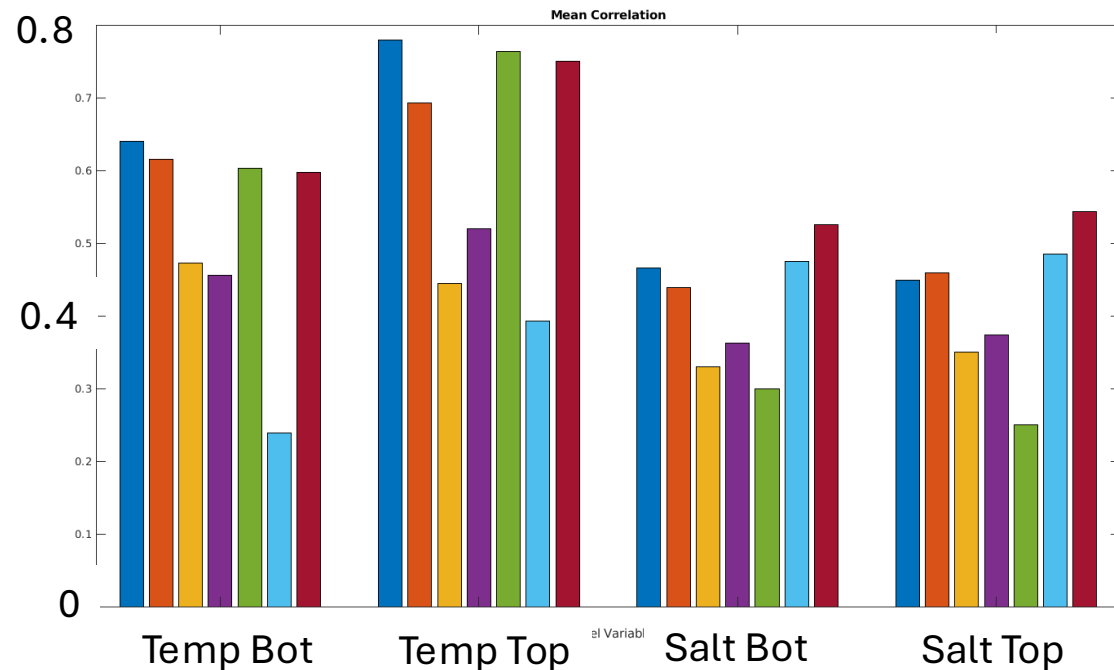


# Sensitivity Analysis

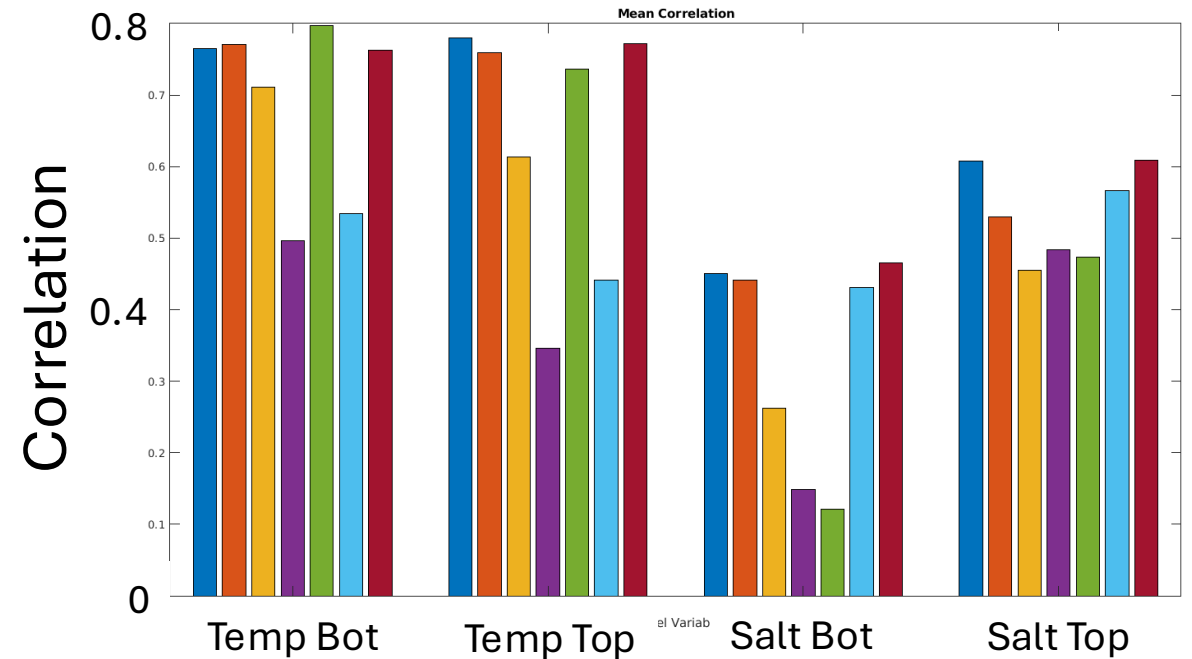
- Correlation with all MDMR stations that have data
- Forecast boundary conditions (green) has a negative impact on Salinity correlations
- Forecast atmospheric conditions (light blue) has a negative impact on Temperature correlations.



March

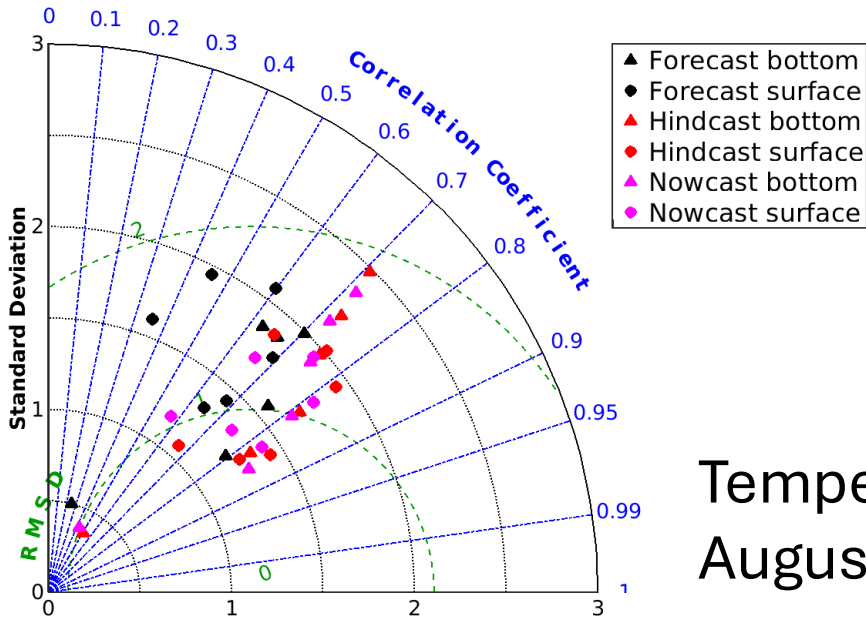


August

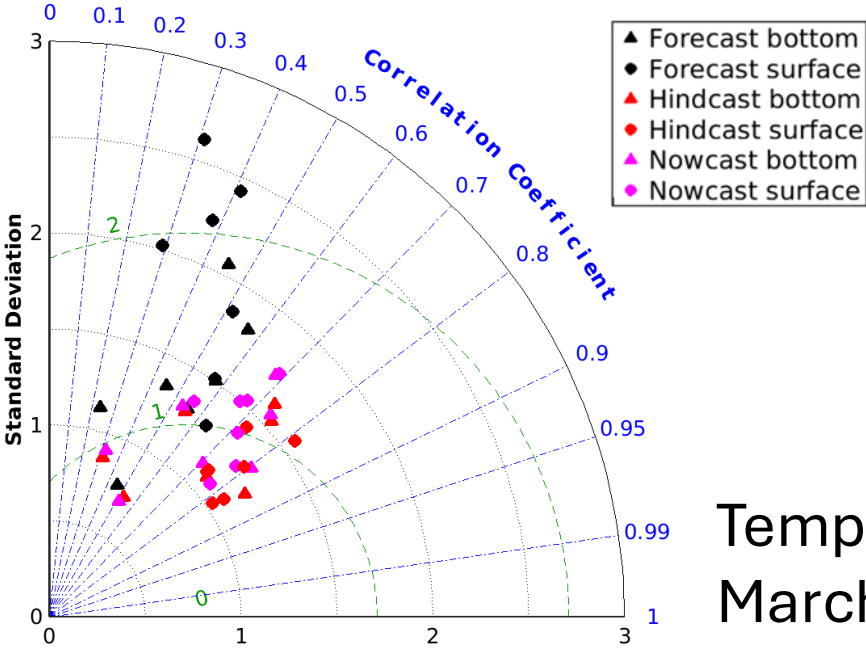




# Daily Forecast

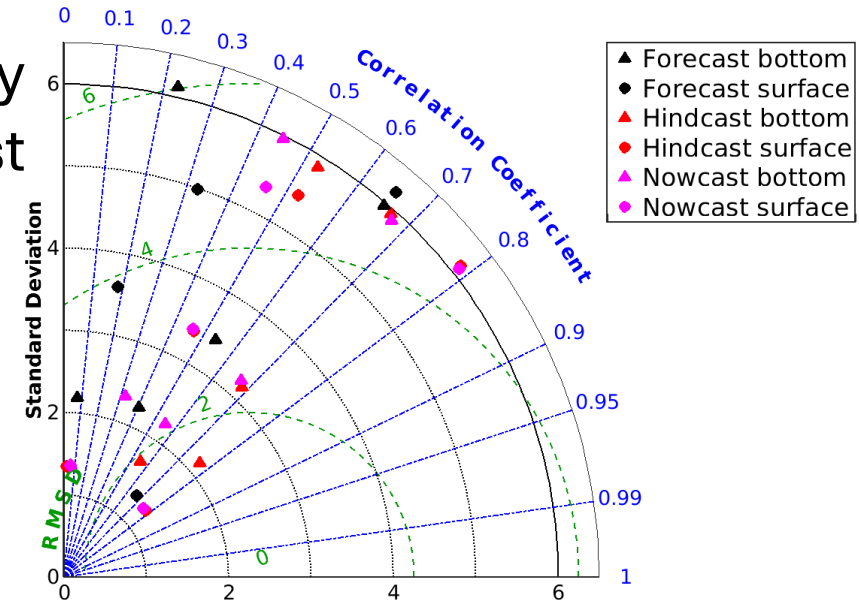


### Temperature August 2024

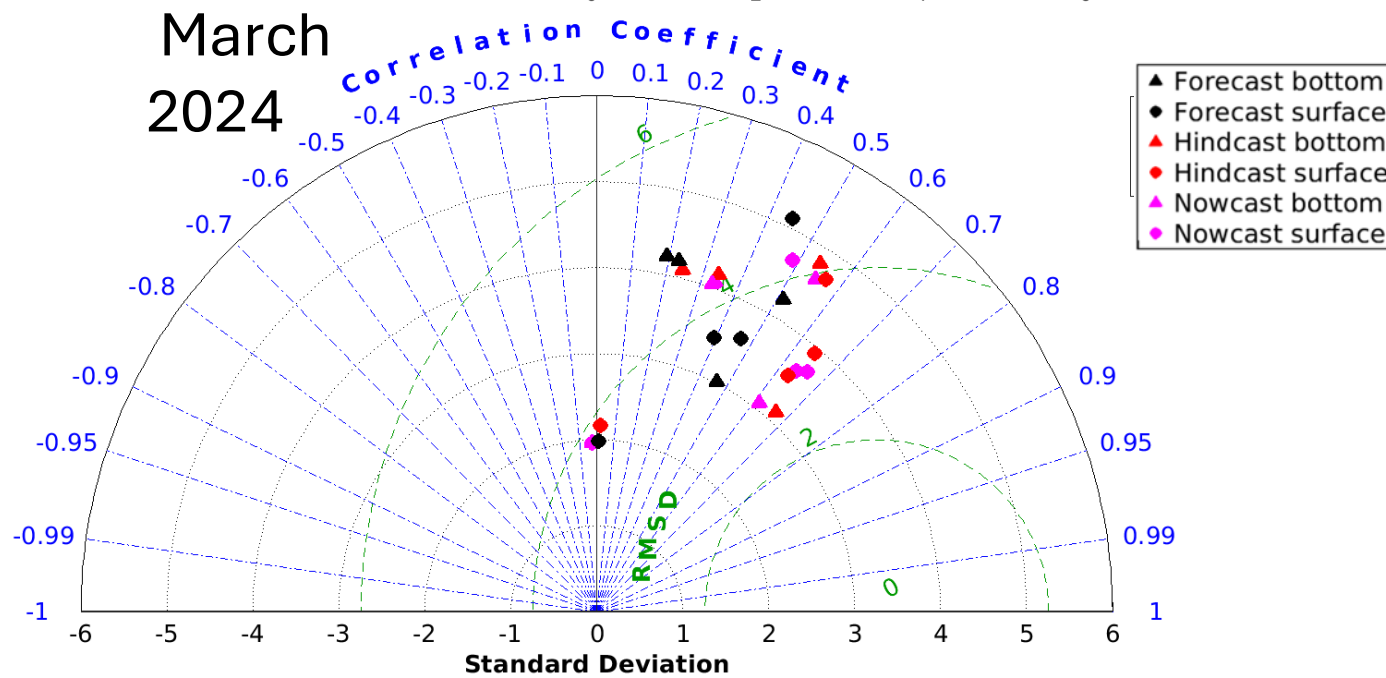


### Temperature March 2024

### Salinity August 2024



### Salinity March 2024



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