

Intercomparison of operational wave forecasting systems against
in-situ observations: data from BoM, DMI, DWD, ECCO,
ECMWF, JMA, KMA, LPOS, METEOAM, METFR, METNO,
NCEP, NIWA, NZMS, PRTOS, SHNSM, UKMO.

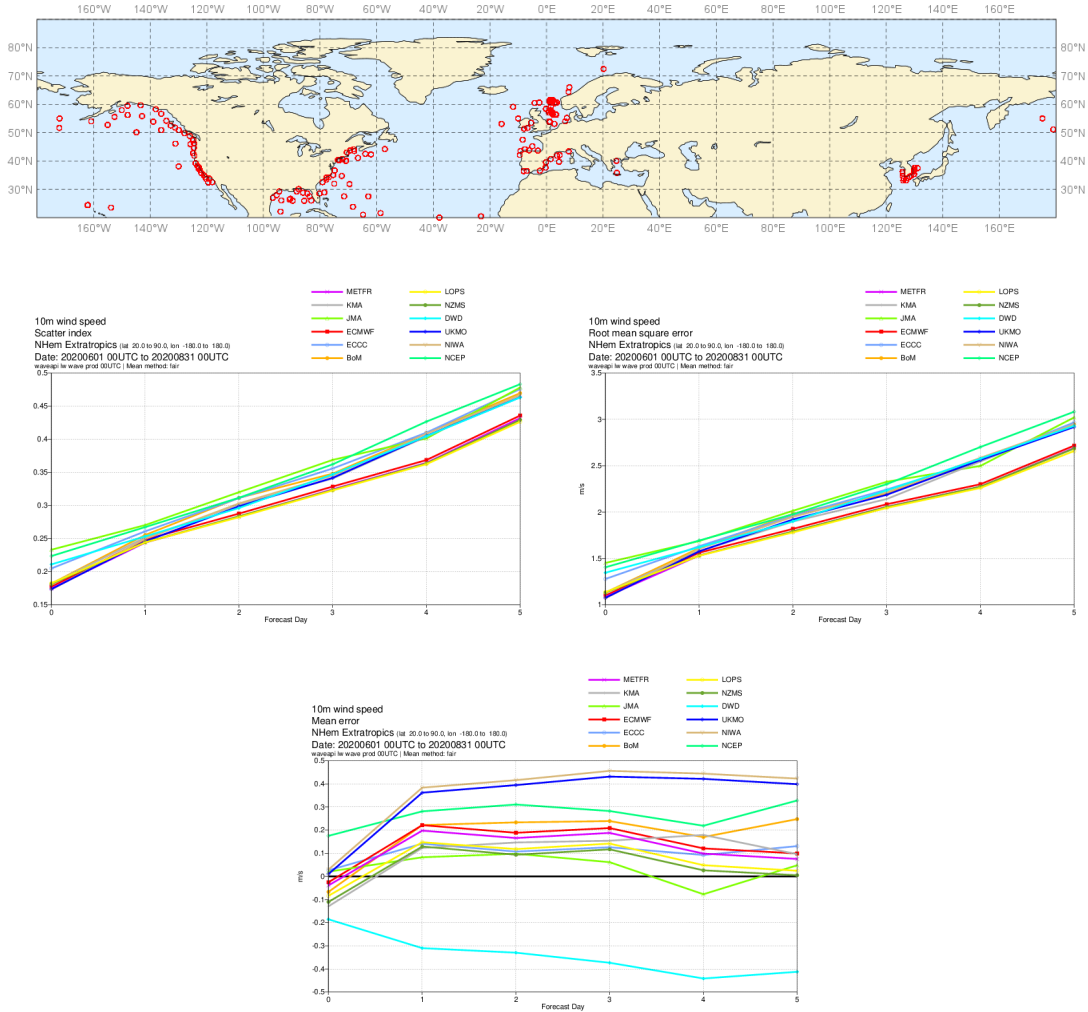
00 UTC runs only

WMO Lead Centre for Wave Forecast Verification LC-WFV,
European Centre for Medium-Range Weather Forecasts ECMWF

September 21, 2020

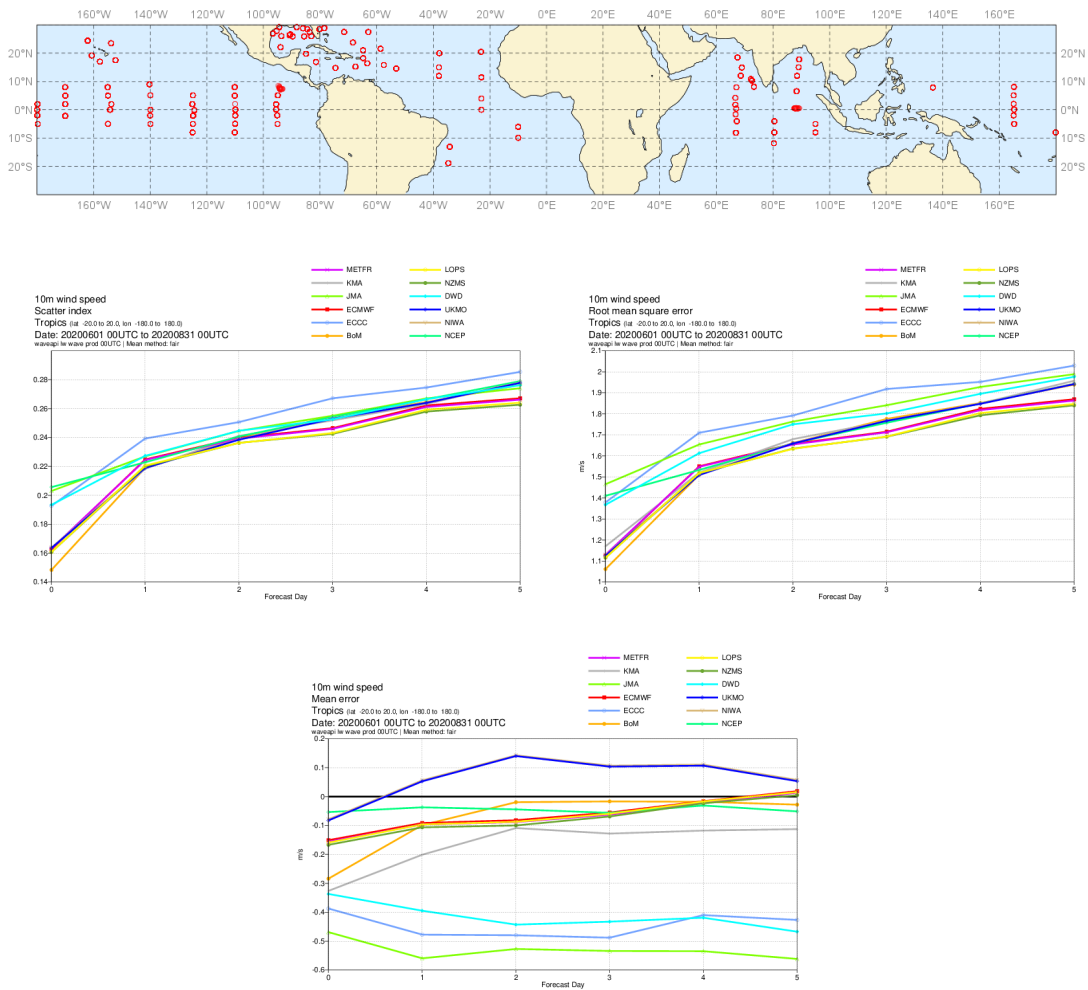
PART III: 10 meter wind speed (10ff)

Buoys observations - from 20200601 to 20200831 - (10ff)



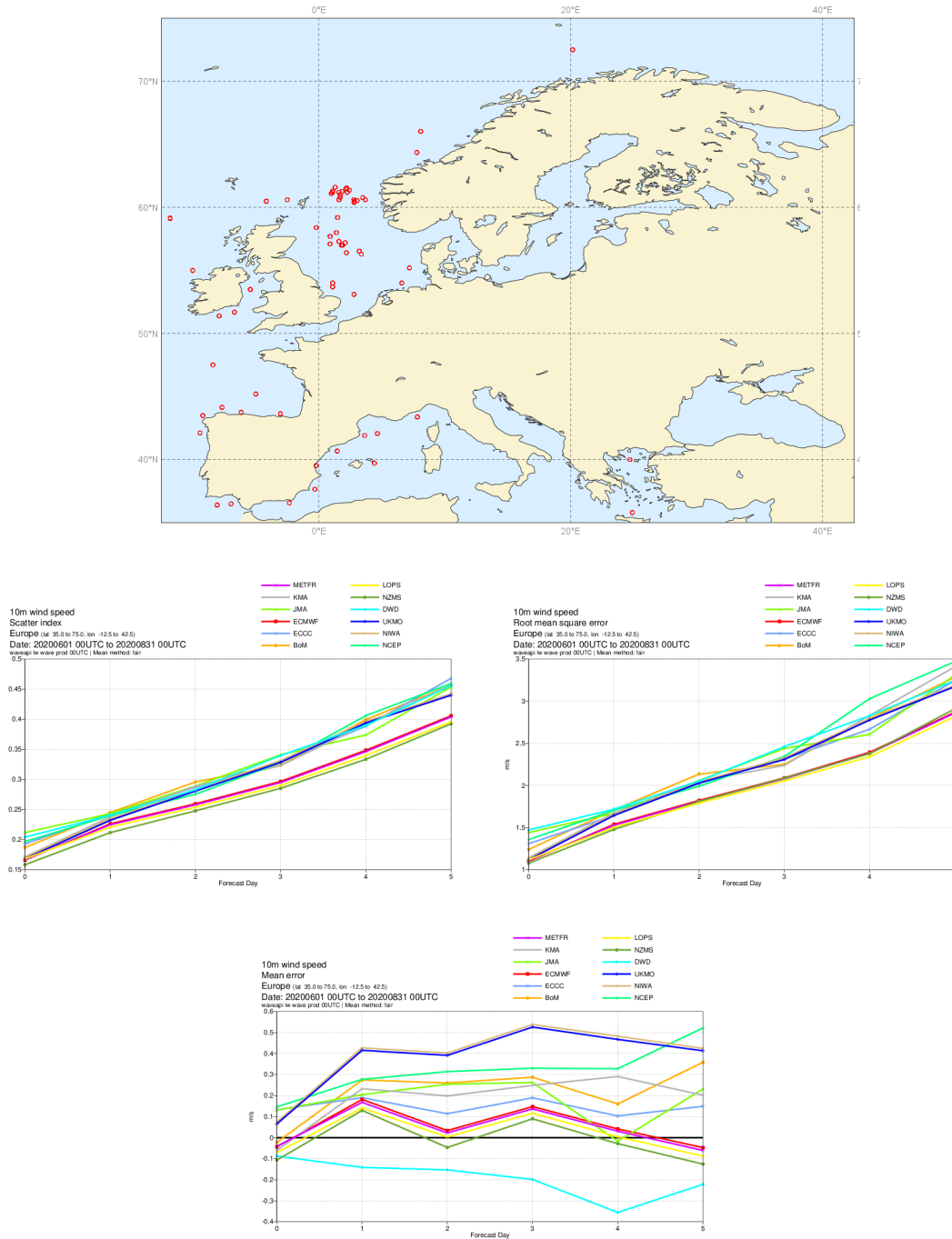
Northern Hemisphere. Top panel: observation distribution. Middle left panel: Forecast scatter index (standard deviation of the difference normalised by the mean of the observations). Middle right panel: Forecast root mean square error (RMSE). Bottom panel: forecast mean error (bias).

Buoys observations - from 20200601 to 20200831 - (10ff)



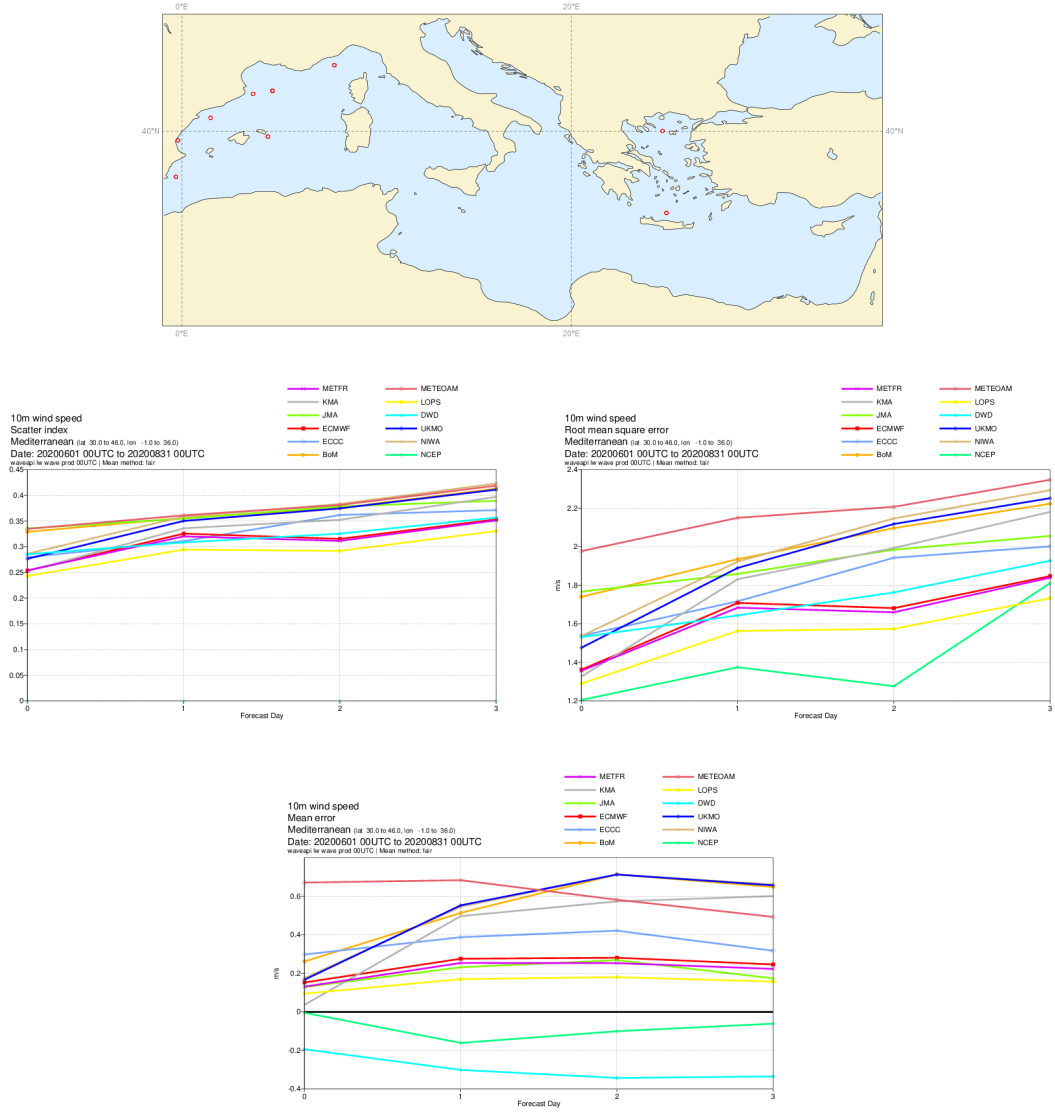
Tropics. Top panel: observation distribution. Middle left panel: Forecast scatter index (standard deviation of the difference normalised by the mean of the observations). Middle right panel: Forecast root mean square error (RMSE). Bottom panel: forecast mean error (bias).

Buoys observations - from 20200601 to 20200831 - (10ff)



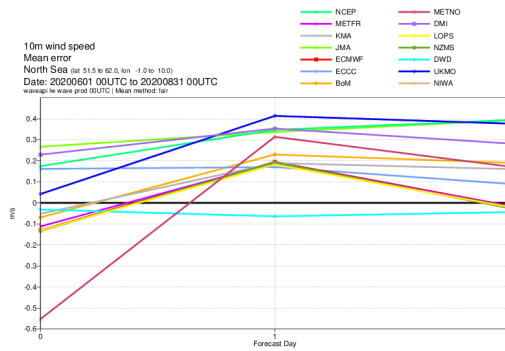
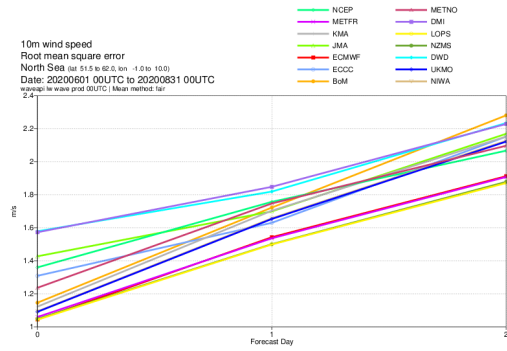
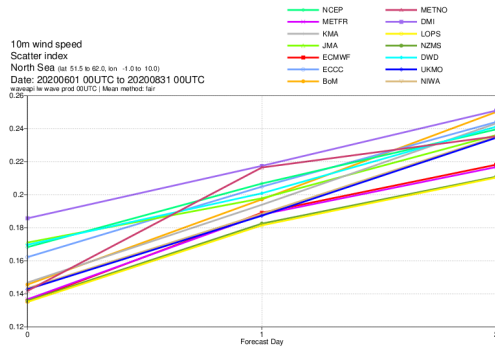
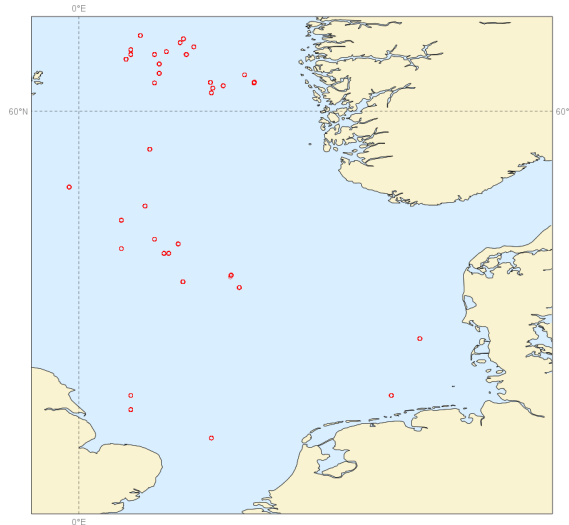
Europe. Top panel: observation distribution. Middle left panel: Forecast scatter index (standard deviation of the difference normalised by the mean of the observations). Middle right panel: Forecast root mean square error (RMSE). Bottom panel: forecast mean error (bias).

Buoys observations - from 20200601 to 20200831 - (10ff)



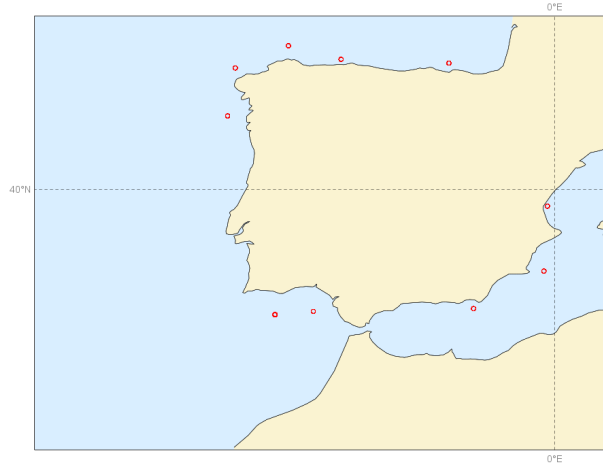
Mediterranean Sea. Top panel: observation distribution. Middle left panel: Forecast scatter index (standard deviation of the difference normalised by the mean of the observations). Middle right panel: Forecast root mean square error (RMSE). Bottom panel: forecast mean error (bias).

Buoys observations - from 20200601 to 20200831 - (10ff)

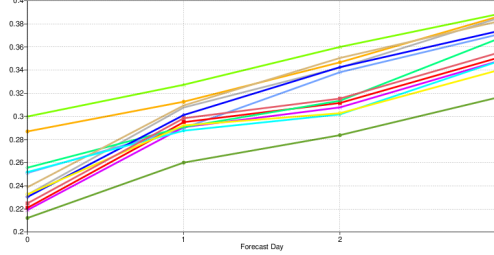


North Sea. Top panel: observation distribution. Middle left panel: Forecast scatter index (standard deviation of the difference normalised by the mean of the observations). Middle right panel: Forecast root mean square error (RMSE). Bottom panel: forecast mean error (bias).

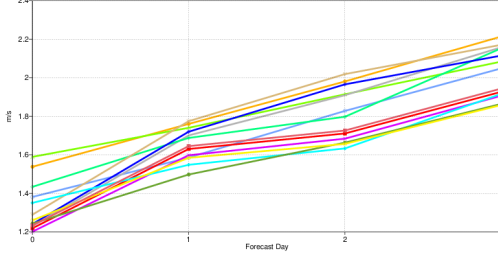
Buoys observations - from 20200601 to 20200831



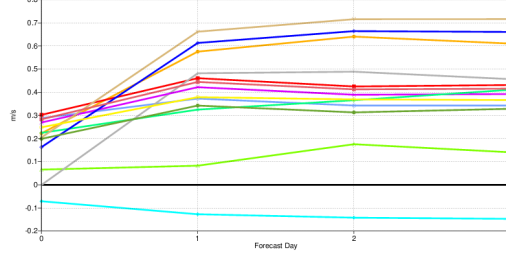
10m wind speed
Scatter index
SW Europe (lat: 32.5 to 45.0, lon: -15.0 to 10.0)
Date: 20200601 00UTC to 20200831 00UTC
average for every grid 00UTC. Mean method: lat



10m wind speed
Root mean square error
SW Europe (lat: 32.5 to 45.0, lon: -15.0 to 10.0)
Date: 20200601 00UTC to 20200831 00UTC
average for every grid 00UTC. Mean method: lat

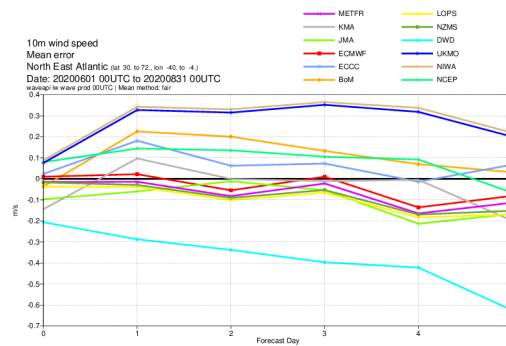
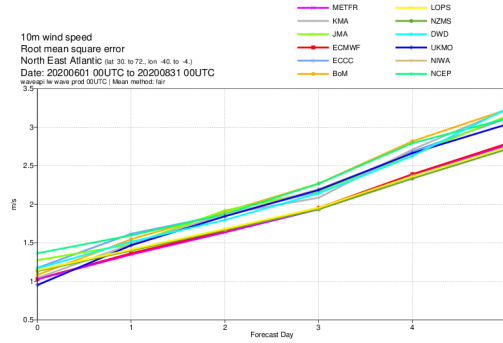
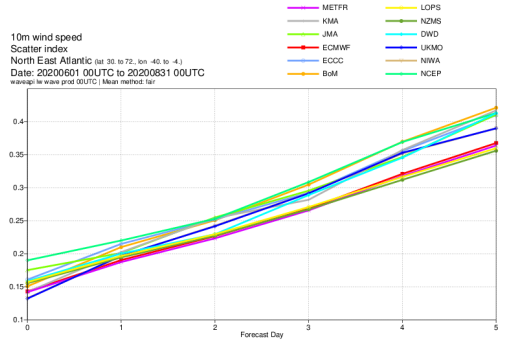
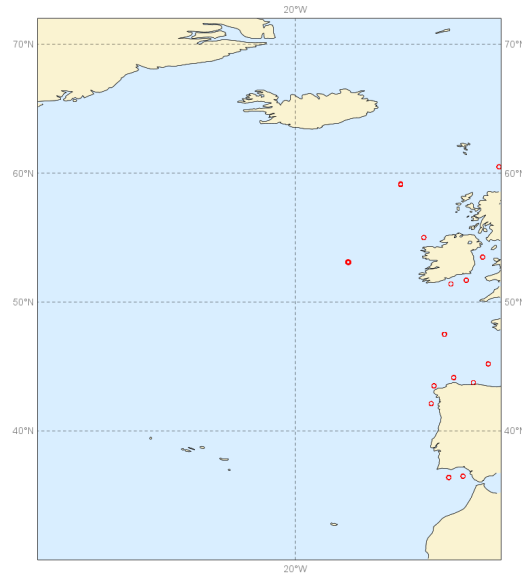


10m wind speed
Mean error
SW Europe (lat: 32.5 to 45.0, lon: -15.0 to 10.0)
Date: 20200601 00UTC to 20200831 00UTC
average for every grid 00UTC. Mean method: lat



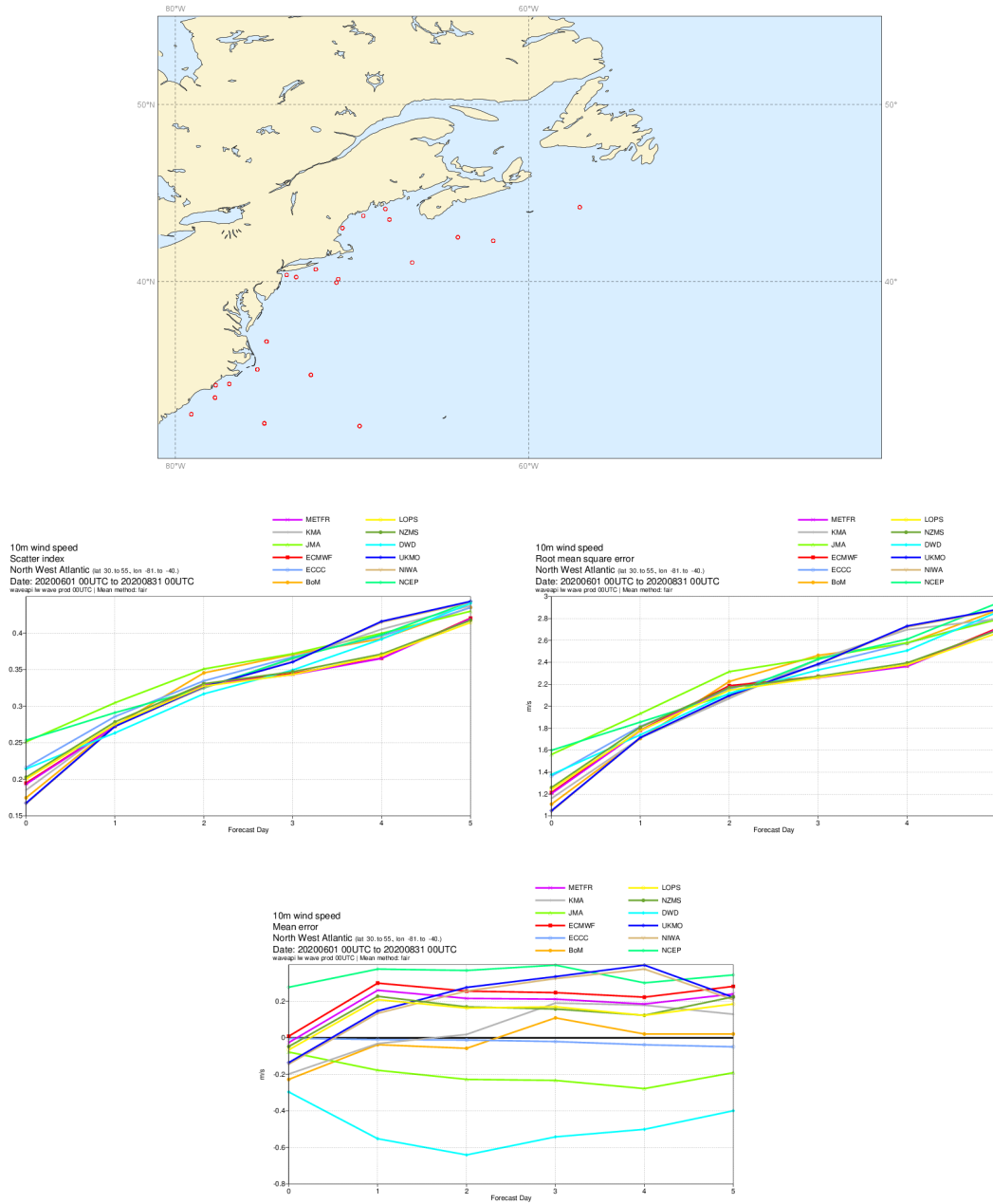
South West Europe. Top panel: observation distribution. Middle left panel: Forecast scatter index (standard deviation of the difference normalised by the mean of the observations). Middle right panel: Forecast root mean square error (RMSE). Bottom panel: forecast mean error (bias).

Buoys observations - from 20200601 to 20200831 - (10ff)



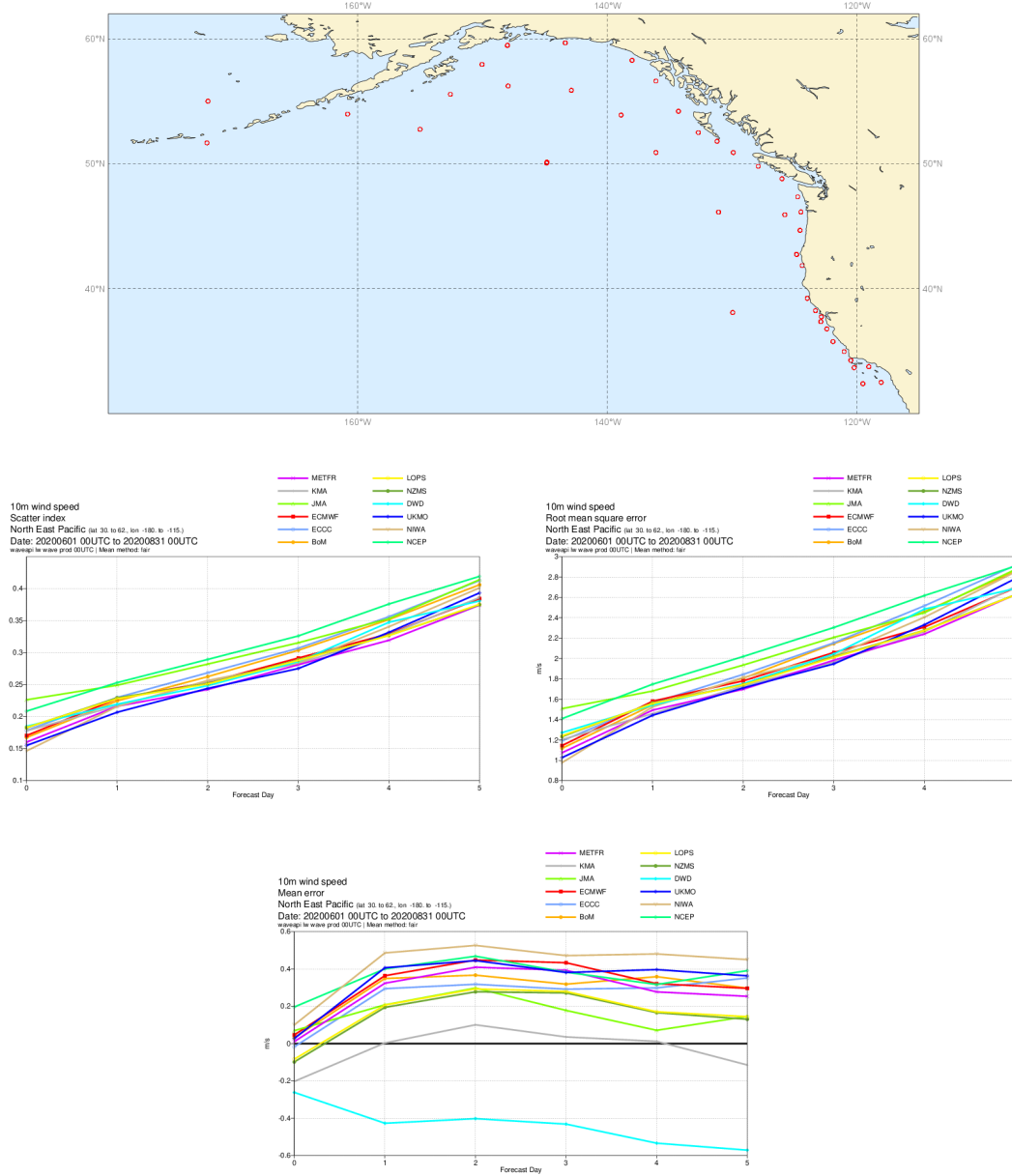
North East Atlantic. Top panel: observation distribution. Middle left panel: Forecast scatter index (standard deviation of the difference normalised by the mean of the observations). Middle right panel: Forecast root mean square error (RMSE). Bottom panel: forecast mean error (bias).

Buoys observations - from 20200601 to 20200831 - (10ff)



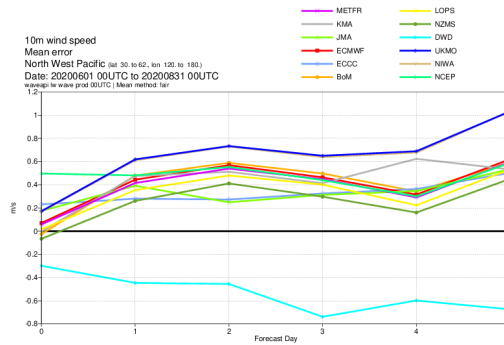
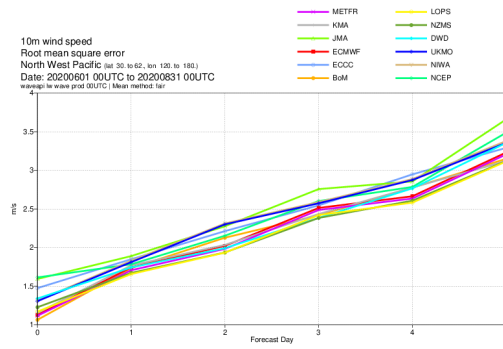
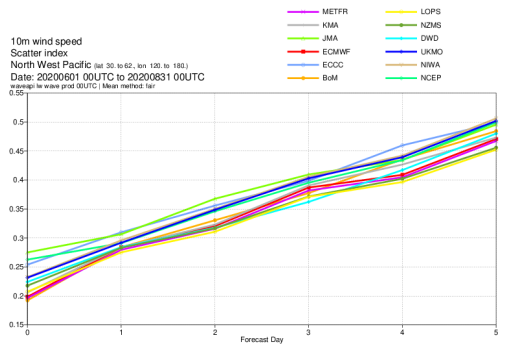
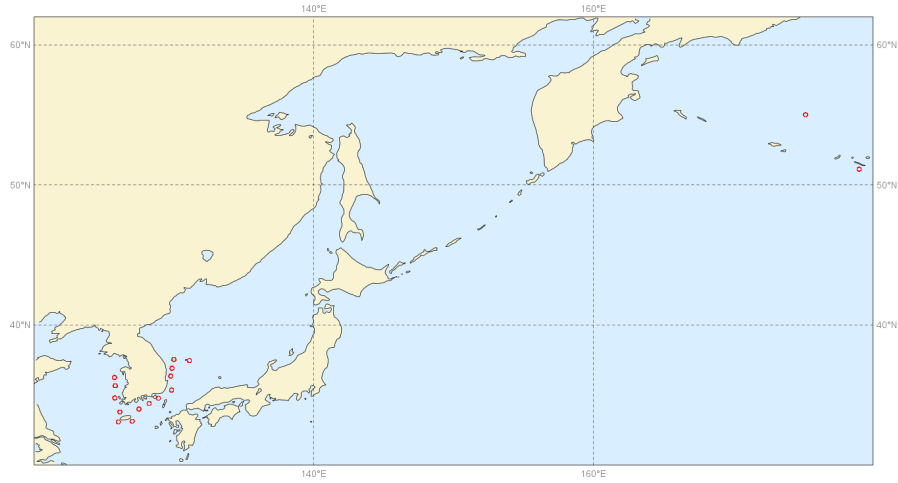
North West Atlantic. Top panel: observation distribution. Middle left panel: Forecast scatter index (standard deviation of the difference normalised by the mean of the observations). Middle right panel: Forecast root mean square error (RMSE). Bottom panel: forecast mean error (bias).

Buoys observations - from 20200601 to 20200831 - (10ff)



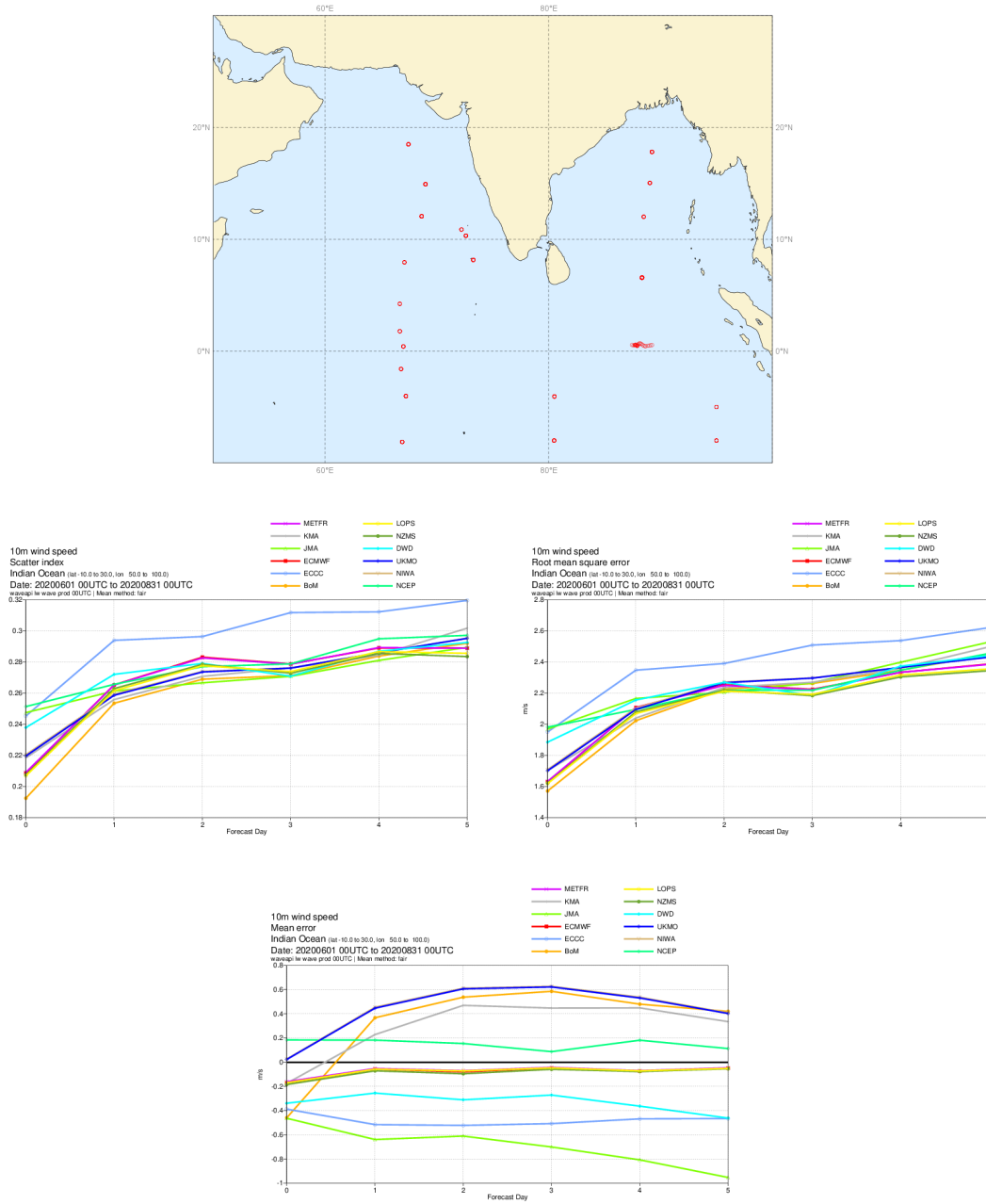
North East Pacific. Top panel: observation distribution. Middle left panel: Forecast scatter index (standard deviation of the difference normalised by the mean of the observations). Middle right panel: Forecast root mean square error (RMSE). Bottom panel: forecast mean error (bias).

Buoys observations - from 20200601 to 20200831 - (10ff)



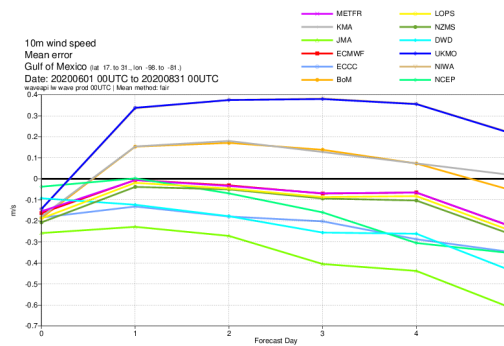
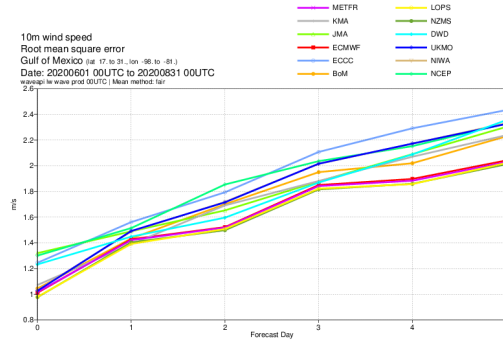
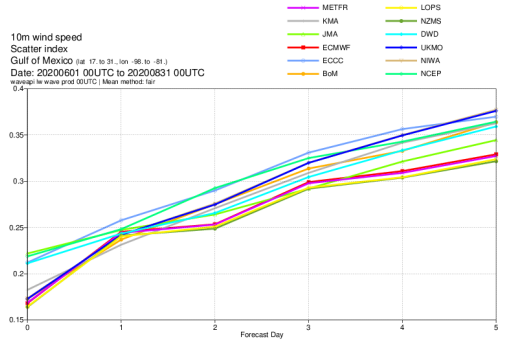
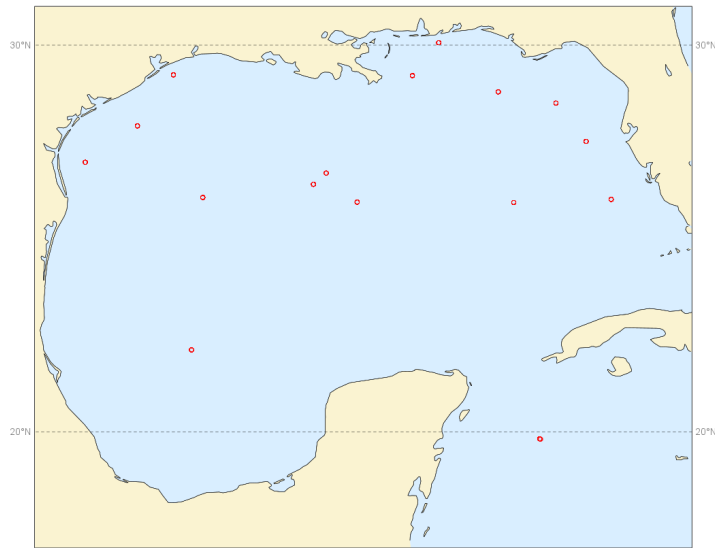
North West Pacific. Top panel: observation distribution. Middle left panel: Forecast scatter index (standard deviation of the difference normalised by the mean of the observations). Middle right panel: Forecast root mean square error (RMSE). Bottom panel: forecast mean error (bias).

Buoys observations - from 20200601 to 20200831 - (10ff)



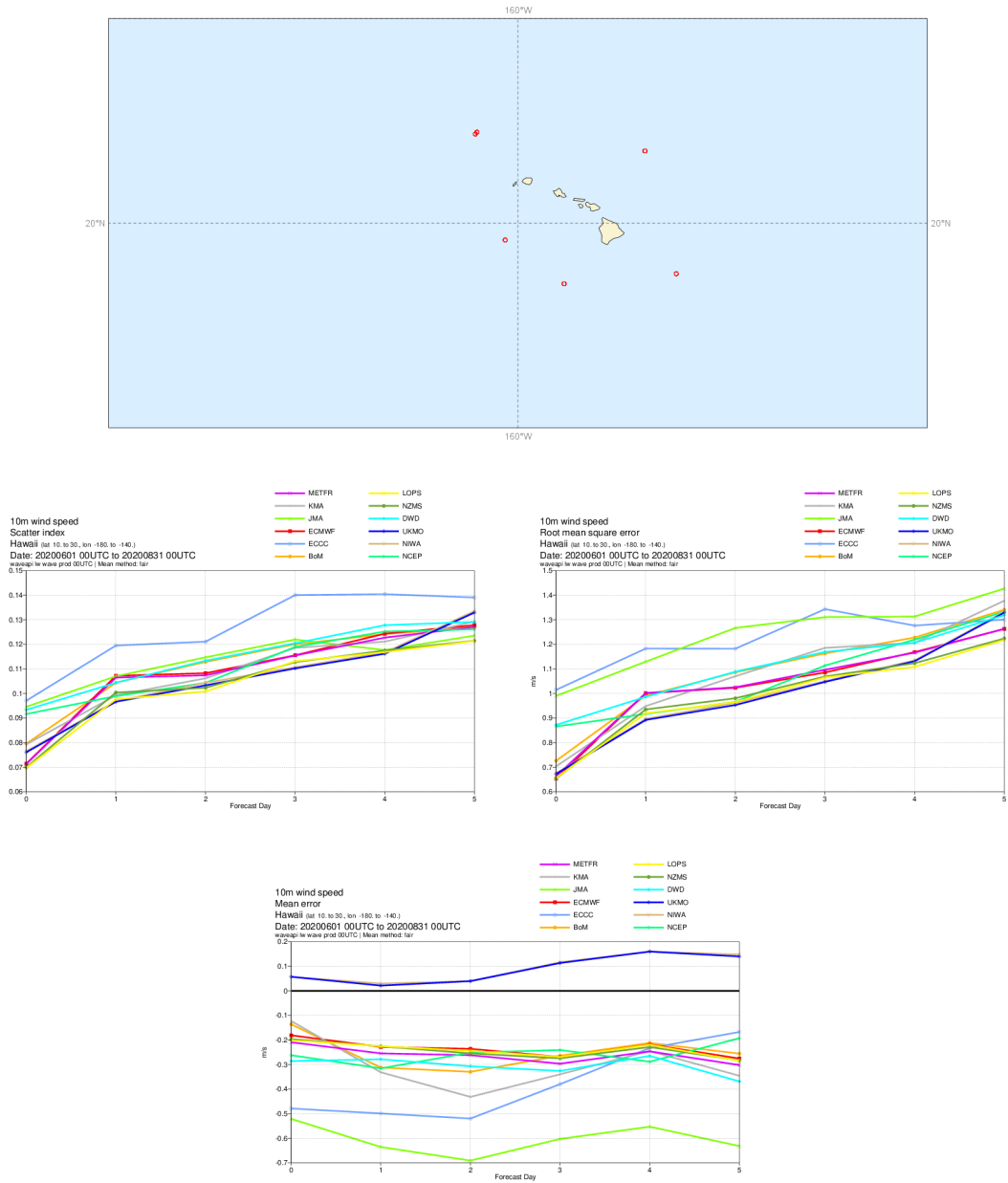
Indian Ocean. Top panel: observation distribution. Middle left panel: Forecast scatter index (standard deviation of the difference normalised by the mean of the observations). Middle right panel: Forecast root mean square error (RMSE). Bottom panel: forecast mean error (bias).

Buoys observations - from 20200601 to 20200831 - (10ff)



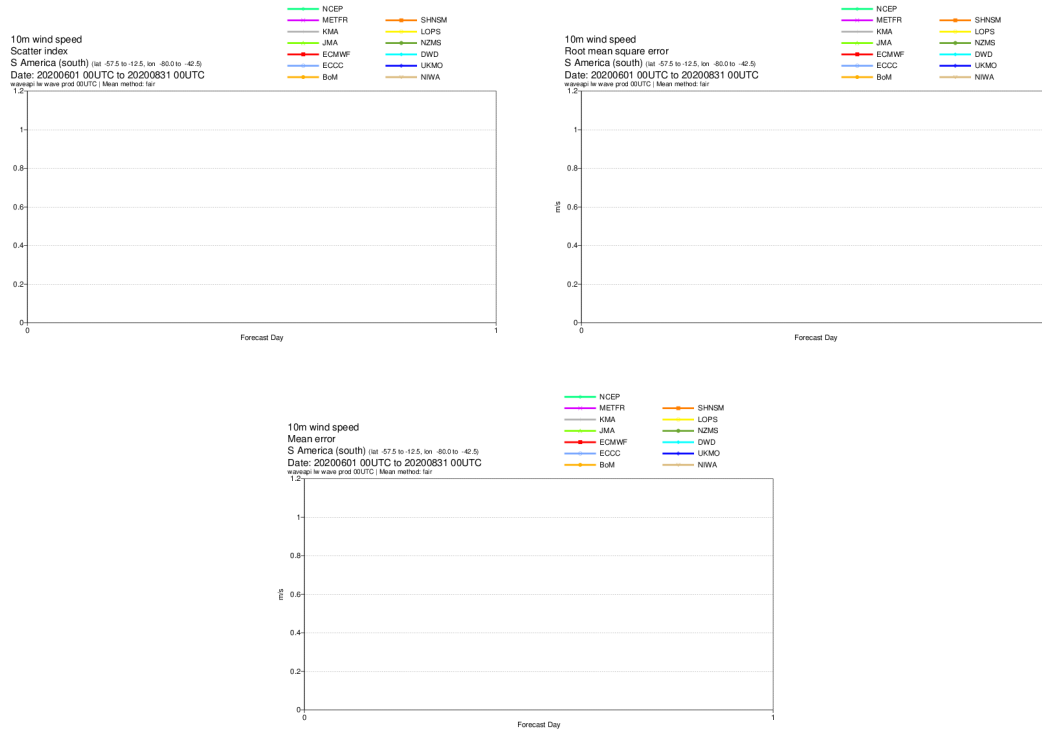
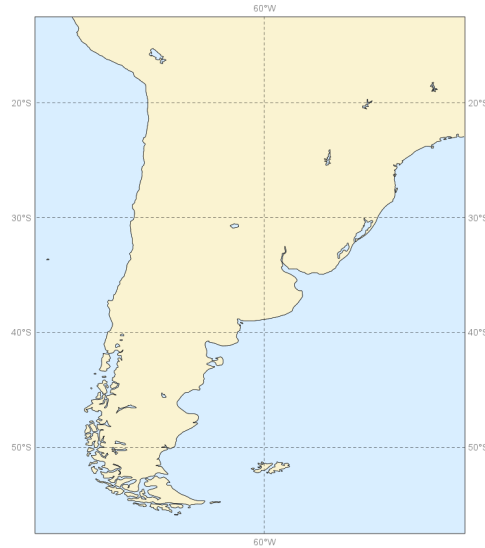
Gulf of Mexico. Top panel: observation distribution. Middle left panel: Forecast scatter index (standard deviation of the difference normalised by the mean of the observations). Middle right panel: Forecast root mean square error (RMSE). Bottom panel: forecast mean error (bias).

Buoys observations - from 20200601 to 20200831 - (10ff)



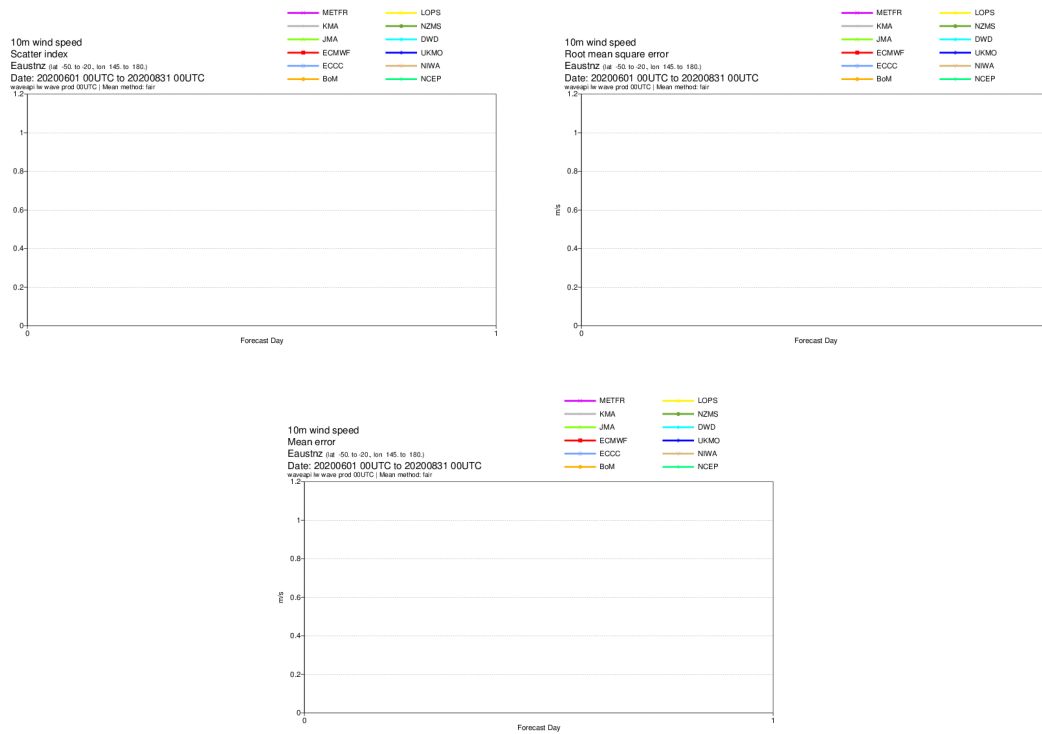
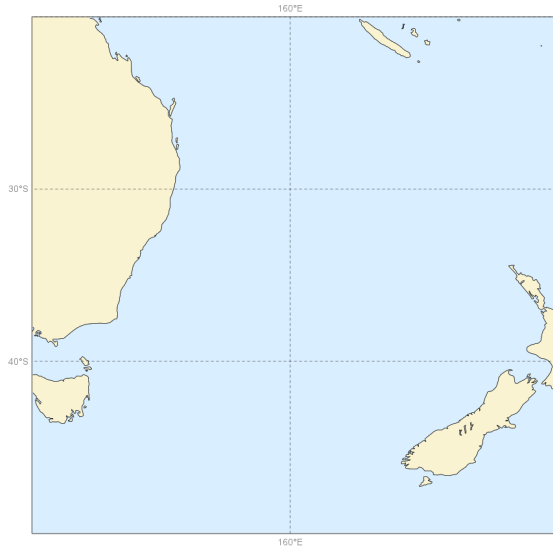
Hawaii. Top panel: observation distribution. Middle left panel: Forecast scatter index (standard deviation of the difference normalised by the mean of the observations). Middle right panel: Forecast root mean square error (RMSE). Bottom panel: forecast mean error (bias).

Buoys observations - from 20200601 to 20200831 - (10ff)



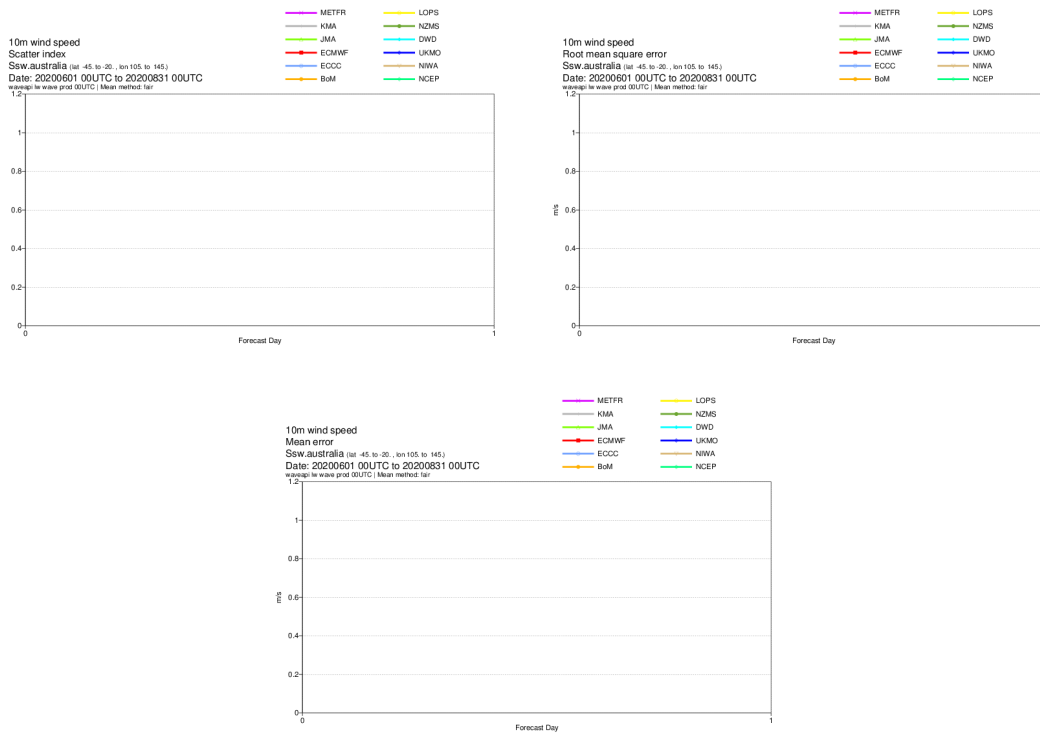
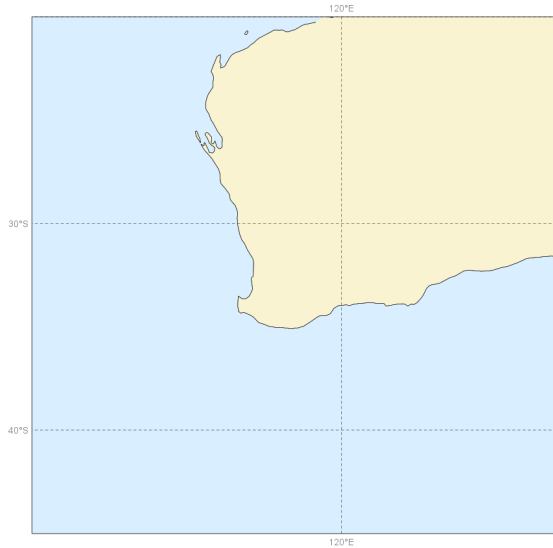
South of South America. Top panel: observation distribution. Middle left panel: Forecast scatter index (standard deviation of the difference normalised by the mean of the observations). Middle right panel: Forecast root mean square error (RMSE). Bottom panel: forecast mean error (bias).

Buoys observations - from 20200601 to 20200831 - (1C)



East Australia - New Zealand. Top panel: observation distribution. Middle left panel: Forecast scatter index (standard deviation of the difference normalised by the mean of the observations). Middle right panel: Forecast root mean square error (RMSE). Bottom panel: forecast mean error (bias).

Buoys observations - from 20200601 to 2C



South South West Australia. Top panel: observation distribution. Middle left panel: Forecast scatter index (standard deviation of the difference normalised by the mean of the observations). Middle right panel: Forecast root mean square error (RMSE). Bottom panel: forecast mean error (bias).