

On-line visualization of the cal/val indices for the Mediterranean Monitoring and Forecasting Centre

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Data description

The current development allows the visualization of the statistical indices estimated between the observations of the NOAA ISD/ISH METAR stations (National Ocean and Atmospheric Administration Integrated Surface Data / Integrated Surface Hourly MEteorological Terminal Aviation Routine weather report) (NOAA 2001) and the ECMWF forecasting data (European Center for Medium Weather Forecast), as part of the calibration/validation (cal/val) of the surface forcing used by the Med MFC (Mediterranean Monitoring and Forecasting Center). Five well-established statistical indices were selected and implemented for the cal/val of the ECMWF data used by the Med-MFC:

(a) Bias, (b) RMSE (Root Mean Square Error), (c) the Nash-Sutcliffe Model Efficiency Coefficient (Nash & Sutcliffe, 1970), (d) the Correlation Coefficient and (e) the Precipitation Capture Rate. The aforementioned indices provide a good correlation estimate between the METAR observations and the ECMWF forecasting data in the Mediterranean and is a useful tool for the calibration/validation purposes of the Med-MFC (Kozyrakis et al. 2018).

Structure of the cal/val data access system

The METAR observations, the ECMWF forecasts and the cal/val indices estimations are archived in a dedicated FTP server (Figure 1). For nowcast cal/val indices estimations four files are generated for the last three days, on a daily basis. These files include hourly observations for each METAR station, ECMWF forecasting data and the statistical indices estimations for the following parameters:

- Two-meter a.s.l. Dewpoint Temperature (in °C).
- Mean Sea-Level Pressure (in bar).
- Precipitation (occurrence and approximate duration).
- Two-meter a.s.l. Temperature (in °C).
- Ten-meter a.s.l. Wind Speed (in m/s).

The above mentioned data are processed by a PHP-script, which parses data and upload them to the cal/val database tables. The web server provides a user-friendly interface to access all the relevant cal/val data (Figure 2).