



Evaluation of AROME and ECMWF forecasts of wind during the Perdigão field campaign

Margarida Belo-Pereira and Sandra Gomes
IPMA, Portugal (margarida.belo@ipma.pt)

The Perdigão field campaign took place in the central region of mainland Portugal at Vale do Coirão in 2017. The region topography is characterized by a valley with two parallel ridges. During the intensive observation period (IOP) of the campaign, May 01 – June 15, several wind measurements were collected by more than 40 meteorological towers, more than 20 lidars, tether sondes, radiosondes, among others.

During the IOP period, daily weather briefings were performed by the Portuguese Meteorological Office (IPMA), mostly based on the forecasts of Application of Research to Operations at Mesoscale (AROME) and European Centre for Medium-Range Weather Forecasts (ECMWF) models. The deterministic ECMWF forecasts have a horizontal grid-spacing of 10 km and 137 vertical levels. In atmospheric boundary layer (ABL), its vertical grid-spacing varies between 10 m (near the surface) and 100 m. The AROME model runs operationally at IPMA with a horizontal grid-spacing of 2.5 km and with 46 vertical levels. The height of the lowest level is 16 m and in the ABL the vertical grid-spacing ranges between 30 m and 200 m.

In the present work, the ability of these two models to reproduce the wind in Perdigão region in ABL is assessed. In particular, focus will be given to the models capability to represent the diurnal variations, under different synoptic regimes.