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## Low-level cloud base height in the eastern Mediterranean basin: comparison between ECMWF IFS forecasts, ceilometers observations, satellite observations and aviation-weather reports

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Clouds are a severe disturbance in a very wide range of applications, such as aviation, and solar energy, and in ground based, airborne, and satellite observations. The ability to accurately predict cloud-base heights (CBH) using the weather models is of crucial importance

In recent years, information on CBH has been added as an integral part of the output of the European Operational Model, the Integrated Forecasting System (IFS) of the European Center for Medium-Range Weather Forecasts (ECMWF).

In order to examine the quality of the IFS forecasts, a CBH comparison was made in this work for low-level clouds at the eastern basin of the Mediterranean, between the IFS model predictions, observations from different meteorological satellites - VIIRS and CALIPSO, ceilometer observations at two sites in Israel - Beit Dagan (Coastal Plain) and Jerusalem (Mountainous area), and aviation weather report data from airports.

The comparison shows that there is a very good agreement between CBH IFS predictions, and ground observations from ceilometers (in most months the difference is less than 25% of the CBH), and a good agreement in cloud cover between IFS forecast and observations of aviation weather reports.

The comparison also shows that there is a good agreement between CBH IFS predictions, and CALIPSO satellite measurements (the difference is on average less than 35% of the CBH, and an excellent 95% fit if CBH measurements are paired compared. Similar comparison of VIIRS satellite observations with CBH IFS predictions, shows good agreement too (the difference is less than 20% of the CBH).