## 6a.10 Assessment of the capability of WRF model to estimate clouds at different time and spatial scales

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Results of a comprehensive evaluation of the WRF capabilities to represent macroscopic cloud characteristics at multiple spatial and temporal resolutions are here presented. Notably, model prediction skill of cloud occurrence, cloud base height, cloud top height and cloud cover is assessed for low-, middle- and high-level clouds. The analysis is conducted using six different parameterizations of the WRF model microphysics scheme and three different spatial resolutions (1, 4 and 12 km). In addition, the relative performance of two cloud fraction approaches (binary cloud fraction and a continuous cloud fraction) and three overlapping models (maximum, random and maximum- random) are evaluated. The role of the model temporal resolution is also investigated. The evaluation is conducted based on observations gathered with a ceilometer and a sky camera co-located at the campus of the University of Jaén (southern Spain). The results prove the WRF model reliability at reproducing macroscopic cloud characteristics varies depending on the considered cloud parameter, cloud level and spatio-temporal resolution. Overall, the reliability of the macroscopic cloud representation is higher for coarser spatial and temporal resolutions (at the scales analyzed in this contribution). The roles of the microphysics parameterizations and the cloud overlapping strategy are, in general, less relevant.