



Cloud optical properties from satellites over Europe: CM SAF vs CERES

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In this work, the macro and micro physical properties of liquid and ice clouds over Europe are examined for the 8-year period 2004-2011. For the scopes of this research, high resolution (0.05x0.05 degree) satellite-based observations from CM SAF (Satellite Application Facility on Climate Monitoring) and coarse resolution (1x1 degree) data from CERES (Clouds and the Earth's Radiant Energy System) are utilized. The spatial and temporal patterns of the bias between the two products are examined. It is found that the difference between CM SAF and CERES cloud fractional cover (CFC) is $\sim 10\%$ while cloud optical thickness (COT) from CM SAF is generally lower than CERES by $\sim 10\%$. The effective radius of liquid (R_{el}) and ice (R_{ei}) clouds is also examined. For the region of interest, CM SAF R_{el} is $\sim 12\%$ higher while CM SAF R_{ei} is lower by $\sim 20\%$ than that of CERES. Intercomparison studies like the one presented here help us to get an insight into the capabilities and limitation of the cloud satellite products which are currently in use by the scientific community.