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Correlations between atmospheric water vapour content and outgoing longwave radiation from satellite observations

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Datasets of radiative fluxes at TOA and water vapour content observations, both obtained from space measurements and for a period of several years (since 2004 till now), are available from CM-SAF. Despite being a fairly short time period to draw conclusions about climate changes, it is possible to perform a correlation analysis on trends and on space-time variability between the radiation budget at TOA and water vapour content, based on exclusively polar and geostationary satellite datasets.
In this work monthly data of thermal radiative fluxes at TOA and water vapour content from CM-SAF, covering an area that comprises Europe, Africa and the Atlantic Ocean, are simultaneously analysed.
A previous analysis of water vapour content, derived from CM-SAF dataset, have shown positive trends, with different values for land and sea areas, with a good consistency with literature (e.g. IPCC reports). Because of the strong effect of water vapour on the thermal emitted radiative flow, the correlation between them is confirmed.
Moreover, by using some multivariate statistical techniques, the space variability between water vapour and OLR fields has been analysed. Results have confirmed their reciprocal coupling.