



Analysis of solar influences in simulations with EMAC using Empirical Mode Decomposition

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The atmospheric chemistry general circulation model ECHAM5/MESSy (EMAC) is used to determine the relevance of solar variability on chemistry and dynamics of the atmosphere. With respect to solar forcing, the simulation includes particle precipitation (Solar Proton Events and thermospheric NO produced by low energy electrons) as well as photolysis and radiative heating variations which are calculated for 49 bands from daily solar irradiance data. In most other aspects, the simulation conforms to the CCMVal REF1 recommendations. Here, we will use the relatively new Empirical Mode Decomposition (EMD) technique to extract solar signatures. EMD is a signal processing technique developed to allow non-stationary and non-linear time-series to be examined.