

# **Temporal variability of the global atmospheric energy cycle using ERA 40 reanalyses from ECMWF**

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Global atmospheric energy cycle is estimated on the annual and seasonal basis using ERA 40 reanalyses from ECMWF for the period 1958-2001. A formalism to avoid belowground data on pressure levels intercepted by topography is adopted. Energetics integrands were vertically integrated between 1-1000 hPa. Assimilation of satellite data into the reanalysis systems started from 1979 onwards. Therefore, an assessment of possible differences in the ECMWF atmospheric energetics between the pre- and pos-satellite periods, is of particular interest. Results show a significant jump in the eddy kinetic and eddy available potential energies from the pre-satellite to the pos-satellite period. Analyses of latitude-pressure distributions of the integrands show major contributions to this jump in the the high atmospheric levels of Southern Hemisphere (SH). Hence, it seems to be related to the inclusion of satellite data in the reanalyses after 1979, that filled up spatial gaps in the SH conventional data.