Geophysical Research Abstracts
Vol. 20, EGU2018-10122-1, 2018
EGU General Assembly 2018


# Long-term climate trends of temperature and water vapor from surface and upper-air data over Greece

Chris G. Tzanis, Ioannis Koutsogiannis, Kostas Philippopoulos, Anastasios Alimissis, Despina Deligiorgi, and Nikolaos Kalamaras

Section of Environmental Physics and Meteorology, Department of Physics, National and Kapodistrian University of Athens, Greece (chtzanis@phys.uoa.gr)

Climate change is widely considered as a major environmental issue with significant impact on Earth's ecosystems. The intensification of extreme weather events, temperature increase, glaciers melting, sea level rise, coastal flooding, habitat loss and species extinction are among the potential effects on the Earth's atmosphere, geosphere, hydrosphere and biosphere. Hence, the systematic monitoring of air temperature and key greenhouse gases - such as water vapor - plays a crucial role in climate research, both at a global and regional scale. Climate studies, in order to achieve a deeper understanding of the past and current climate, employ a combination of in-situ ground-level observations, upper-air radiosonde measurements and satellite data analyzed by a variety of advanced statistical methodologies. In this work, air temperature and water vapor pressure data at multiple atmospheric levels over Greece are analyzed for significant long-term temporal trends during the past decades. The analysis is based on observational data collected by ground-based monitoring equipment, radiosonde measurements along with ERA-Interim reanalysis data at the standard pressure levels. The results of the monthly, seasonal and annual trend analysis of the aforementioned parameters are discussed.