Geophysical Research Abstracts
Vol. 14, EGU2012-8080, 2012
EGU General Assembly 2012

Development of the new realistic atmospheric model RACCORD from the ground to the thermosphere

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Many applications, including the propagation of infrasound in the atmosphere, need a good representation of the real state of the atmosphere (temperature, pressure and wind). The project RACCORD has been funded by CEA to produce global homogeneous fields of temperature, pressure and the two components of the wind at a specific time date, from the ground to 120 km, providing a realistic description of the atmosphere. To do so, meteorological analyses up to 50-60 km are combined with climatological models of the wind (HWM07) and the temperature (MSIS2000). However these models have been developed independently and do not verify atmospheric relations linking temperature, pressure and wind fields. In order to obtain consistent fields respecting the physics, output of meteorological analyses and climatological models are nudged in the wind and temperature fields generated by a general circulation model verifying the primitive equations of the atmospheric dynamics. The principle of RACCORD will be presented and the preliminary results will be shown.