Geophysical Research Abstracts
Vol. 14, EGU2012-12155, 2012
EGU General Assembly 2012


# A new prognostic bulk microphysics scheme for the ECMWF forecast model

R. M. Forbes (1), A. M. Tompkins (2), and A. Untch (1)
(1) ECMWF, shinfield Park, Reading U.K, (2) ICTP, Earth System Physics, Trieste, Italy (tompkins@ictp.it)

A major upgrade to the parametrization of stratiform cloud and precipitation was implemented in the Integrated Forecast System (IFS) cycle 36r4, operational at ECMWF from 9 November 2010. Three additional prognostic variables have been introduced to enable a more physically based representation of mixed-phase (liquid/ice) cloud and precipitating rain and snow. A fully implicit method is employed to solve the network of microphysics pathways stably for long timesteps. It is the most significant change to the structure of the cloud parametrization since the Tiedtke scheme was introduced operationally in 1995. Many aspects of the model are systematically improved including the skill of precipitation forecasts, the spatial distribution of ice and snow in the troposphere, the physical processes in mixed-phase cloud and the impact of cloud and precipitation on radiation.