Geophysical Research Abstracts, Vol. 9, 06789, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-06789

Current status of the French dual-polarisation project

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The first French dual-polarisation radar was installed in March 2004 in Trappes near Paris. This radar is C-band and has simultaneous transmission. After two years of evaluation, it was decided to upgrade four more radars - of the same kind as Trappes - in the year 2007. This trend should continue in 2008 with the replacement of the Nîmes radar, located south of France, by an S-band polarimetric radar, the choice of S-band being dictated by the severity of precipitation systems in that region. Studies are underway to assess the feasibility of upgrading - still in 2008 - four more S-band radars located on the French Mediterranean coast. Overall, the 24-radar French network may comprise by 2009 a set of 10 polarimetric elements. In parallel to the evolution of the hardware, an operational processing chain has been developed. This chain includes 1) a careful monitoring of the quality (noise and bias) of the dual-polarisation variables, 2) a separation between clear-air, ground-clutter and precipitation echoes, 3) an identification of the bright band, 4) a correction for attenuation coupled with an identification of the hydrometeor type. The rain rate estimation module is still underway. The various modules will be detailed and illustrated. This polarimetric processing chain is expected to become operational at the end of 2007 and will contribute to improve the quality of all radar products (Quantitative Precipitation Estimation, Reflectivity product, Ĕ).