



## **Detailed comparison of modelled and observed Antarctic surface mass balance**

W.J. van de Berg (1), **M. R. van den Broeke** (1), C. H. Reijmer (1) and E. van Meijgaard (2)

(1) Utrecht University, (broeke@phys.uu.nl), (2) Royal Netherlands Meteorological Institute

The Antarctic surface mass balance is calculated for the period 1958 to 2002 using the Regional Atmospheric Climate Model (RACMO2/ANT), forced by ERA-40 fields at the lateral boundaries. RACMO2/ANT uses HIRLAM-5 dynamics and ECMWF physics. The latter package is slightly adapted to better represent the Antarctic climate. We present an extensive comparison of calculated and observed surface mass balance. The effect of a temporal mismatch between model integration period and field observations is discussed. We consider the surface mass balance in elevation bins to find elevation-dependent biases but also to see to which extent the spatial variation along ice sheet elevation levels are resolved by the model. Finally, we show the important differences between a direct comparison of model results with individual mass balance observations on one hand and the usual comparison of model fields with a surface mass balance compilation. The latter clearly shows the importance of robust interpolation procedures in surface mass balance compilations in areas with poor data coverage, especially in the coastal and escarpment zones where accumulation gradients are relatively large.