



Accuracy of Analyzed Temperatures, Winds and Trajectories in the Southern Hemisphere Tropical and Midlatitude Stratosphere as Compared to Long-duration Balloon Flights.

B. M. Knudsen (1), T. Christensen (1), A. Hertzog (2), A. Deme (2), F. Vial (2), and J.-P. Pommereau (3)

(1) Danish Meteorological Institute, Denmark, (2) Laboratoire de Météorologie Dynamique du Centre National de la Recherche Scientifique, France, (3) Service d'Aéronomie du Centre National de la Recherche Scientifique, France (bk@dmi.dk / phone: +45-3915-7416)

Long-duration stratospheric balloons were launched from Bauru (22S, 49W) in Brazil in February-May 2004. Compared to the tropical balloon measurements at 50-80 hPa the ECMWF operational temperatures show a systematic cold bias of 0.9 K. The easterly zonal winds in the tropics are too strong by 0.7 m/s. This bias in the zonal wind adds to the ECMWF trajectory errors, but they still are relatively small with e.g. about an error of 700 km after 5 days. The NCEP/NCAR reanalysis trajectory errors are substantially larger (1300 km after 5 days). In the southern midlatitudes the cold bias is the same, but the zonal wind bias is almost zero. The trajectories are generally more accurate than in the tropics, but for one balloon a lot of the calculated trajectories end up on the wrong side of the tropical barrier and this leads to large trajectory errors.