Fig A: Simulation of the A/B-w0 inversion process. Retrieved profiles (blue lines) of O3 (left panel), elevation angles (center panel) and temperature (right panel) are shown. The reference atmospheric profiles used as first guess and a priori profiles (green lines) are from a winter mid-latitude climatology. The O3-VMR profile used for simulating the measurement (red line) is 50% of the reference profile. All other profiles are the same as the reference profiles. A noise of 0.4 K (1-sigma) is added to the measurement vector. The vertical and horizontal bars indicate the full-width-at-half-maximum of the averaging kernels and the 1-sigma errors, given within the range where the measurement response is larger than 0.8.
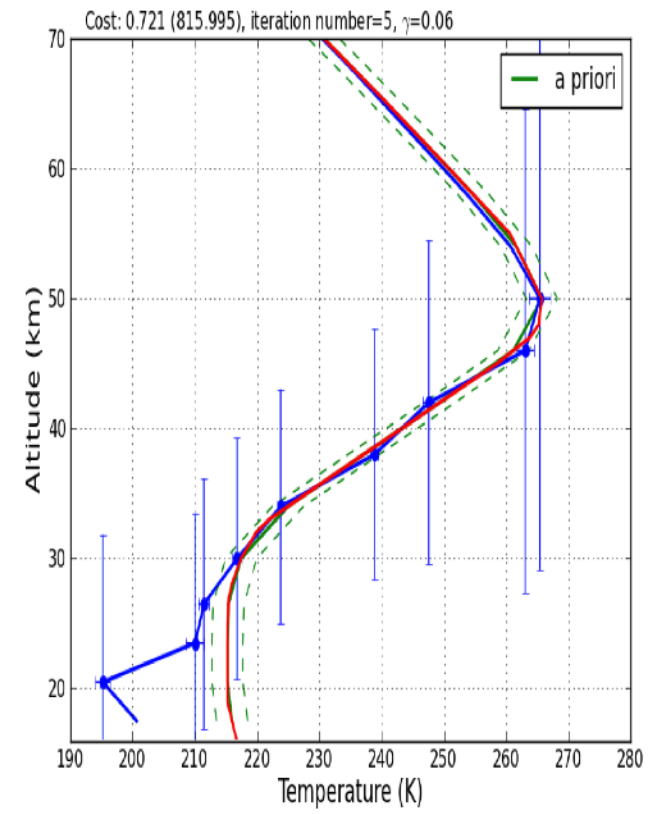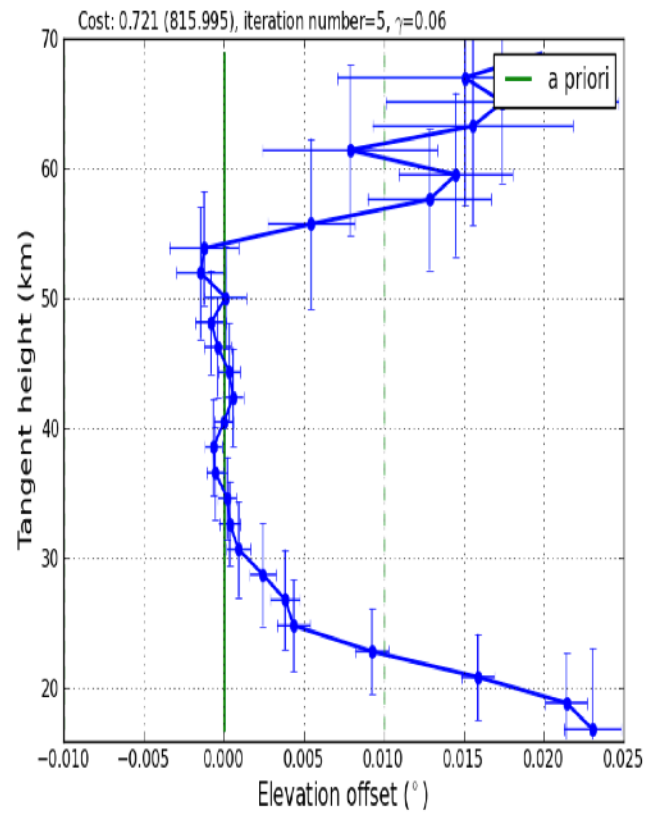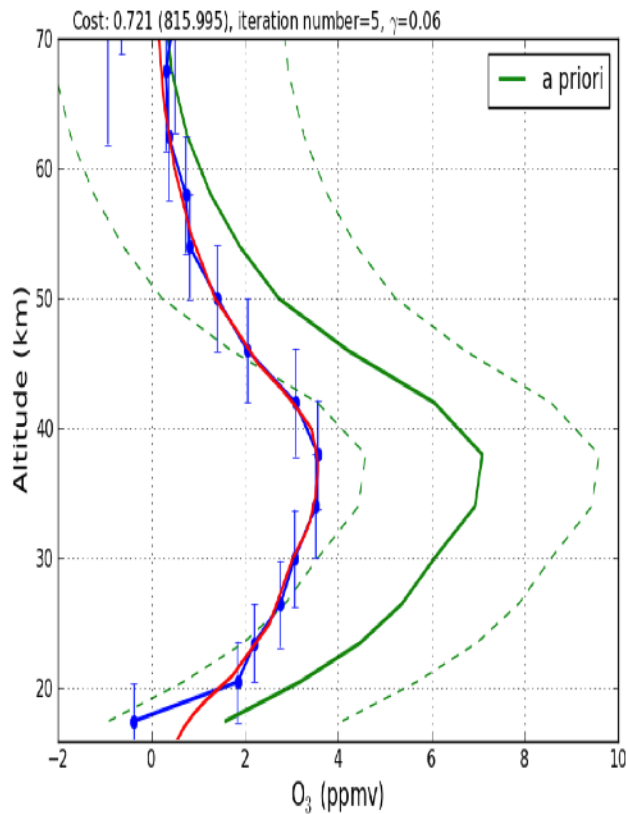
Fig B: Same as Fig1, but the measurement is simulated with a pressure profile of 97% of the reference profile and a temperature profile from a winter high-latitude climatology.
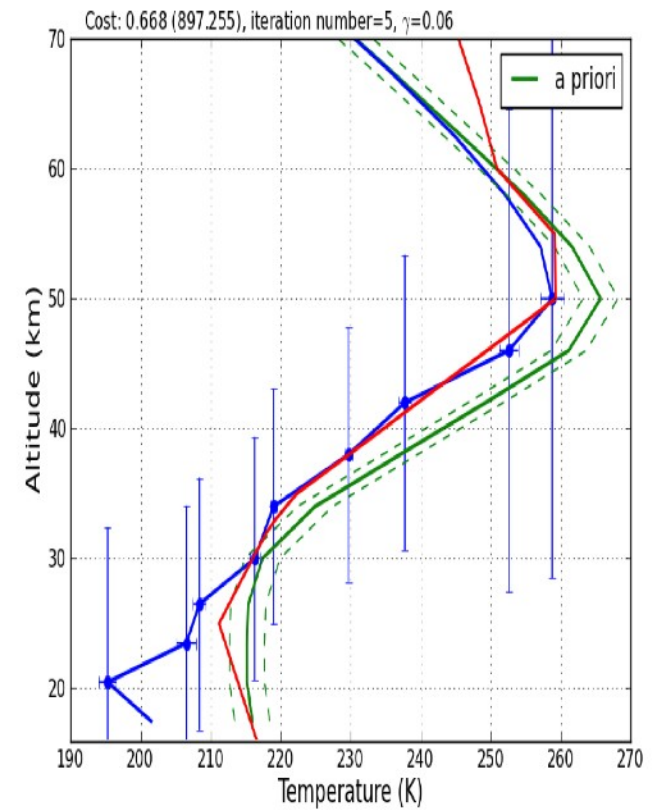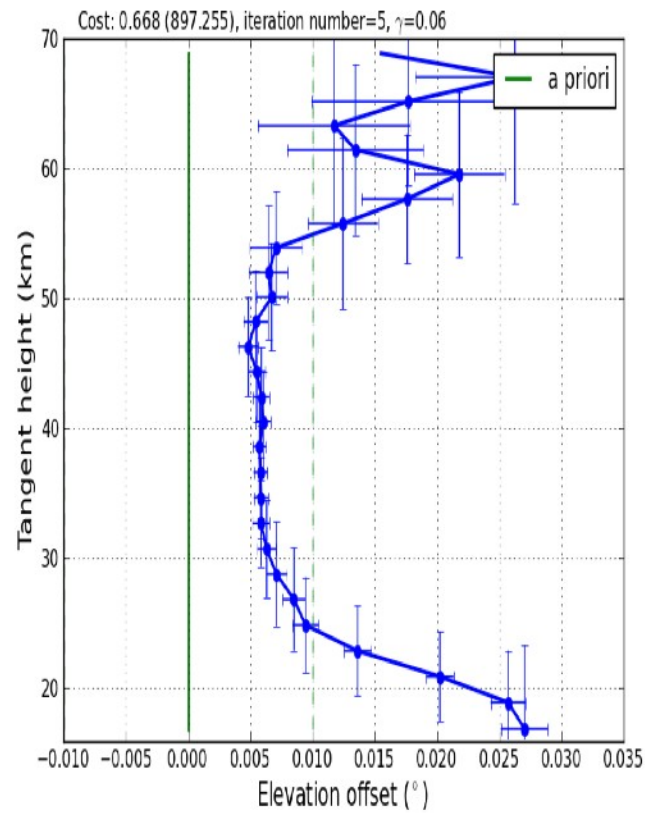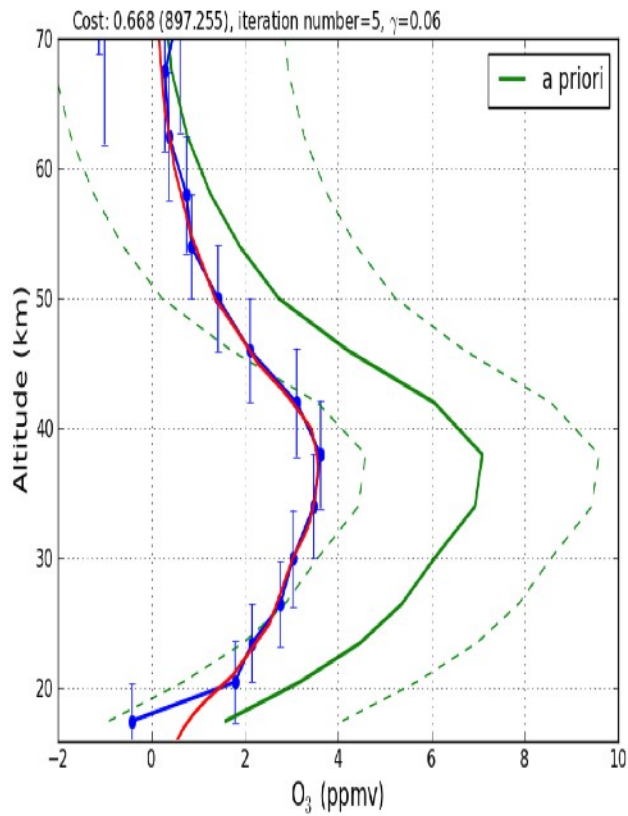
Fig C: Simulation of A/B-w1 inversion process. The retrieved O3 profile is plotted as a function of altitude levels (left panel) and of pressure levels (right panel). Atmospheric profiles for the simulating measurement vector are from a winter mid-latitude climatology and from a tropical climatology for the reference/a priori profiles. In addition, the true pressure profile was multiplied by 0.95 and a noise of 0.4 K (1-sigma) was added to the measurement vector. In the left panel the vertical bars indicate the full-widths-at-half-maximum of the averaging kernels and the horizontal bars are the 1-sigma measurement noise and the pressure-induced error (Fig 9). In the right panel the horizontal bars are for the 1-sigma measurement noise.