

Figure 1: Aerosol optical depth on 25 September 2008 derived from MODIS ( $\approx 14-34^\circ\text{E}$ ) and MISR data ( $\approx 34-40^\circ\text{E}$ ) (a) and simulated AOD at 550nm (16km domain) at 12:00 UTC (b) and 13:00 UTC (c).

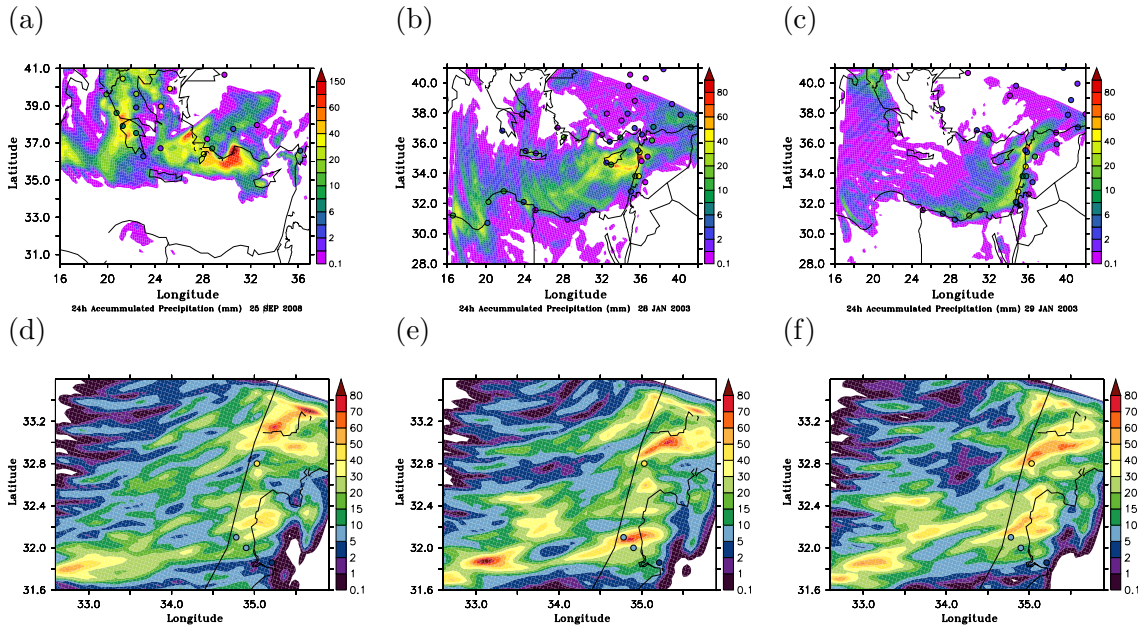


Figure 2: Simulated 24h accumulated precipitation for 25 September 2008 (a), 28 (b) and 29 (c) January 2003 for the 16km domain (scenario  $\tau_1$ ). Circles show rain gauge data. The lower row shows simulated 24h accumulated precipitation for 29 January for the 4km domain: (d) NOdust (e)  $\tau_1$  (f)  $\tau_{48}$ .

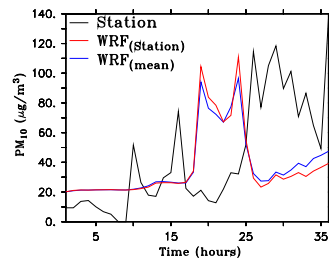
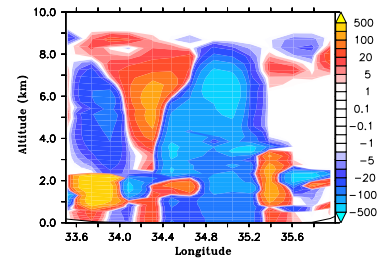
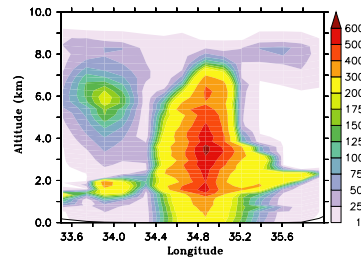
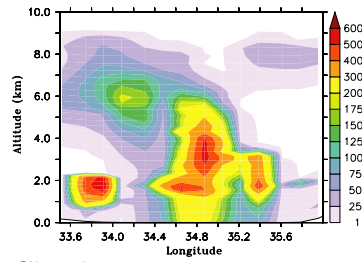


Figure 3: Comparison of PM<sub>10</sub> concentrations retrieved from the EMEP station at Agia Marina (Cyprus) with simulated values for 25/26 September 2008. The red line shows WRF-chem values (4km domain, scenario  $\tau_1$ ) at the nearest grid point to the station and the blue line shows the mean value of all grid points surrounding the EMEP station.

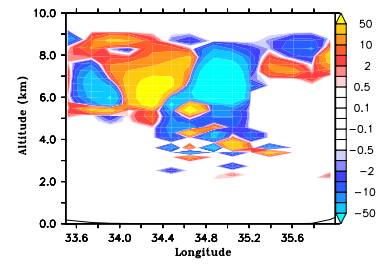
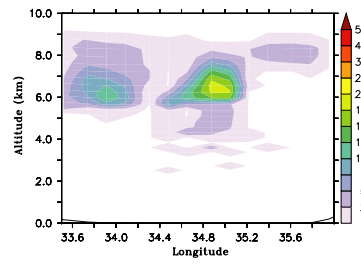
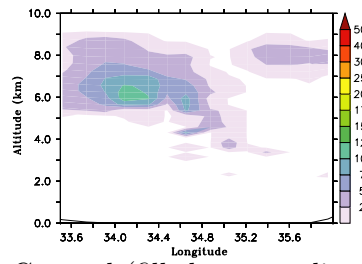
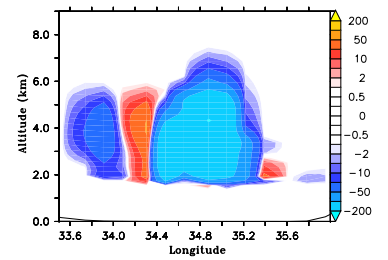
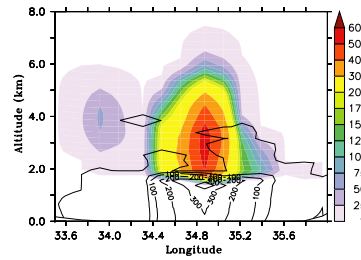
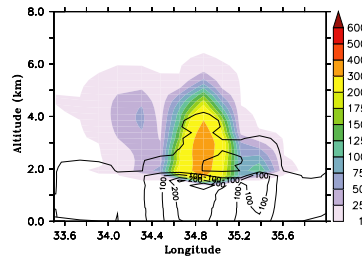
NOdust

 $\tau_1$ NOdust -  $\tau_1$ 

Total condensate



Cloud ice

Graupel (filled contour lines),  
Rain water (contour lines)

Snow

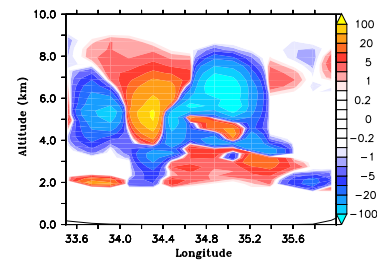
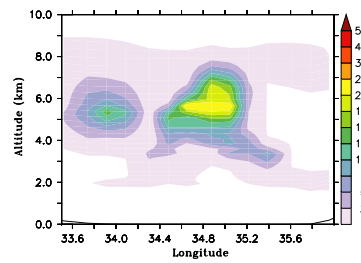
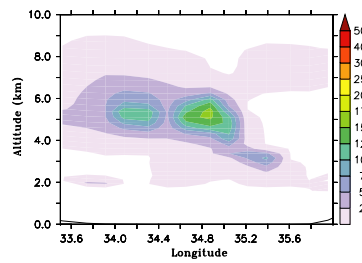


Figure 4: Condensed phase mixing ratios (mg/kg) along 35.00°N, 28 January 2003, 18:00 UTC