Supplement

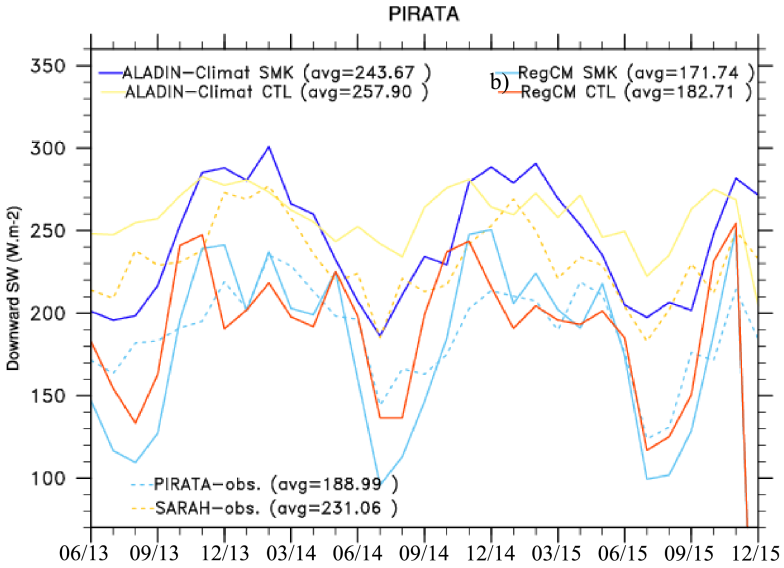

Figure S1. Monthly-mean surface shortwave radiations at the PIRATA station (8°E/6°S) from June 2013 to december 2015. SARAH-2, ALADIN (CTL and SMK) and RegCM (CTL and SMK) data are also reported together with in-situ buoy PIRATA observations.

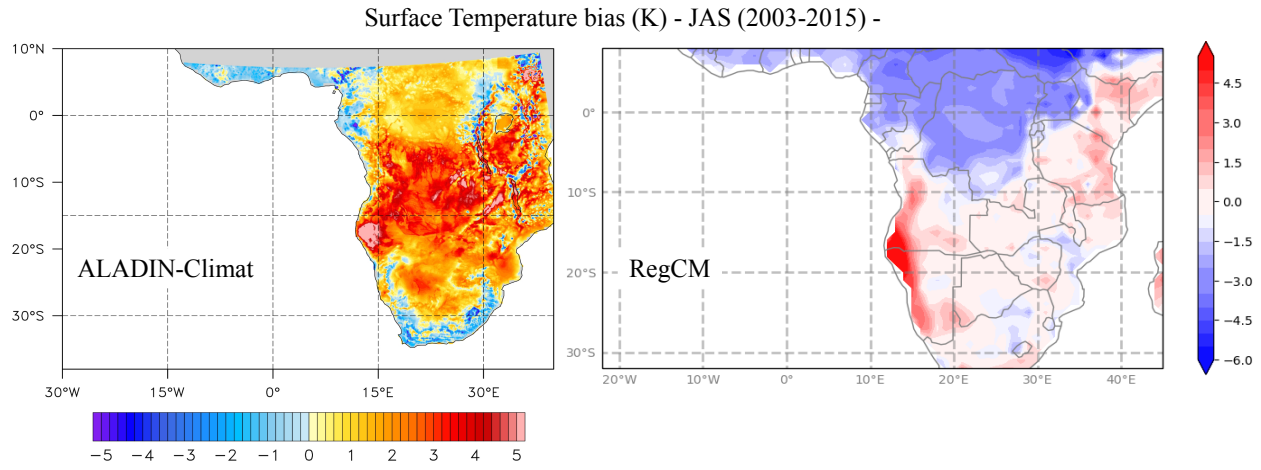

Figure S2. Difference in the surface (2m) temperature between ALADIN-Climat (left), RegCM (right) and CRU for the July-August-September (2003-2015) period.

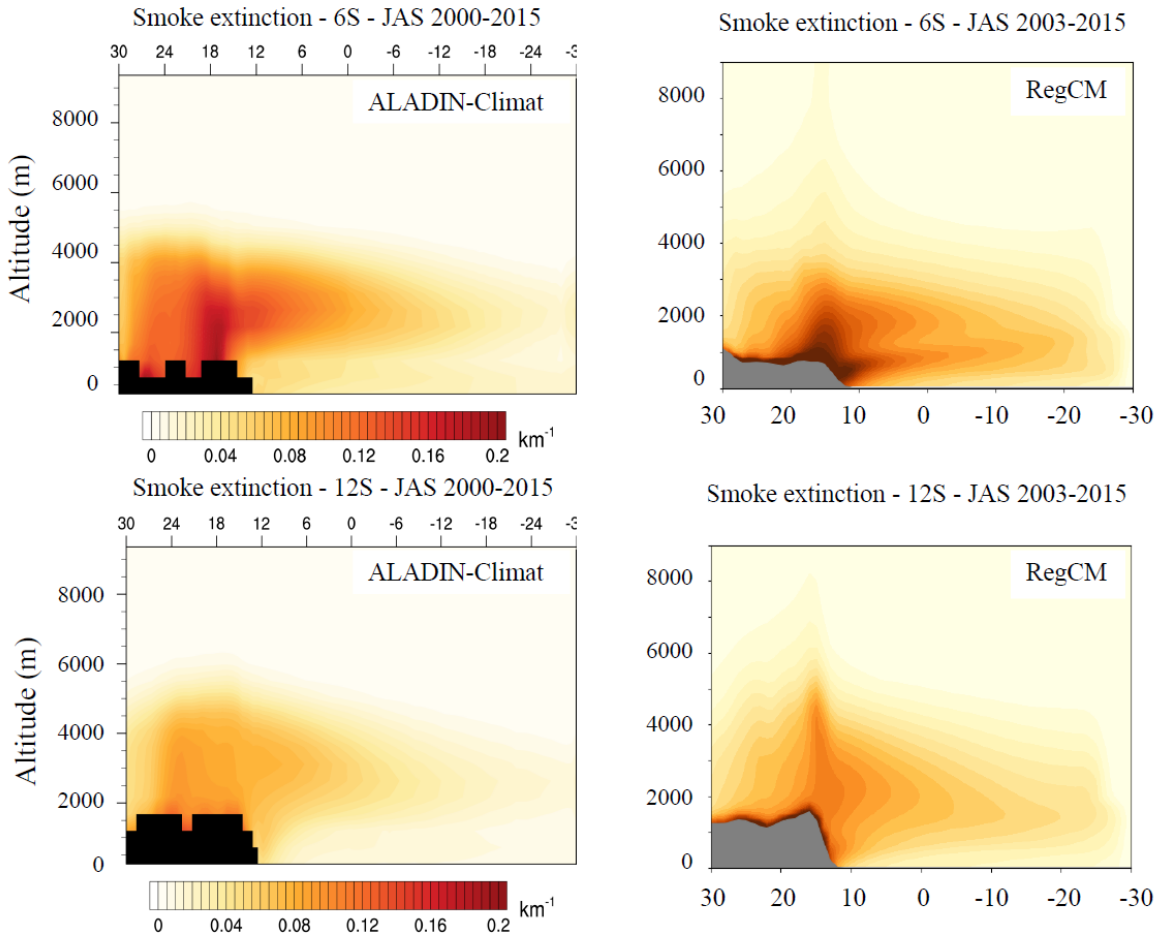

Figure S3. Seasonal-mean (JAS) changes in the vertical profiles of BBA extinction (at 550 nm) at two latitudes (6 and 12°S), for the ALADIN-Climate (left, period 2000-2015) and RegCM (right, period 2003-2015) models.

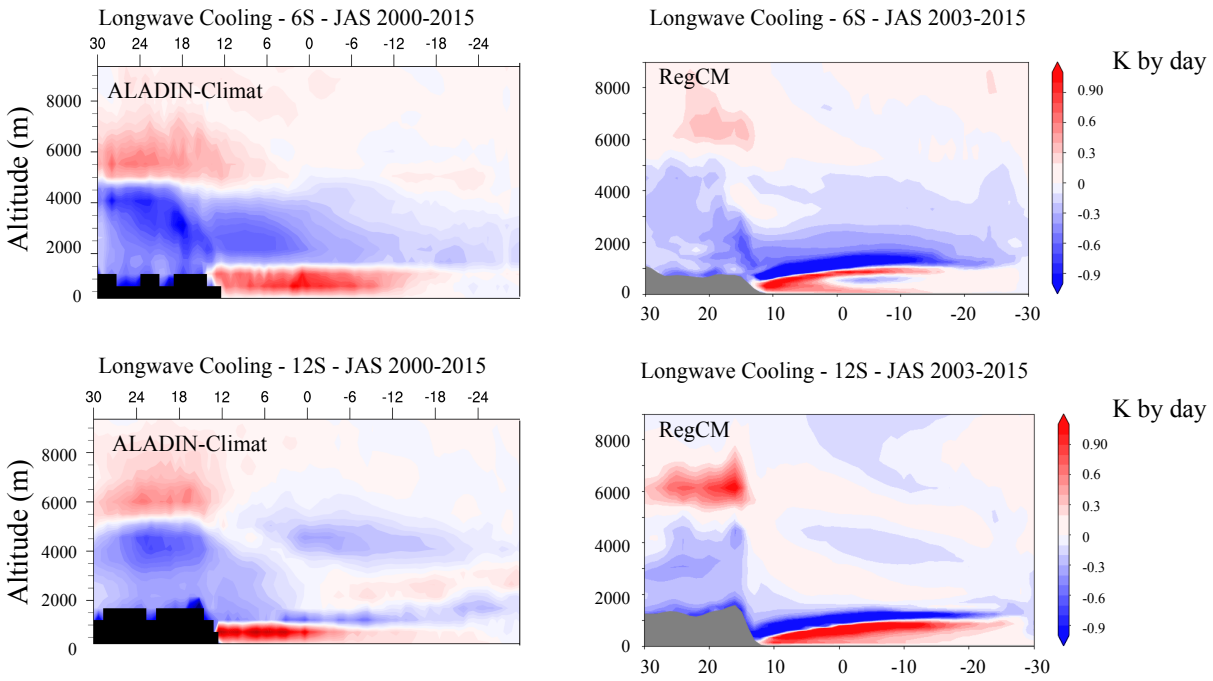

Figure S4. Seasonal-mean (JAS) changes (SMK minus CTL simulations) in the vertical profiles of LW cooling rate (K by day) due to BBA at two latitudes (6 and 12°S), for the ALADIN-Climate (left, period 2000-2015) and RegCM (right, period 2003-2015) models.

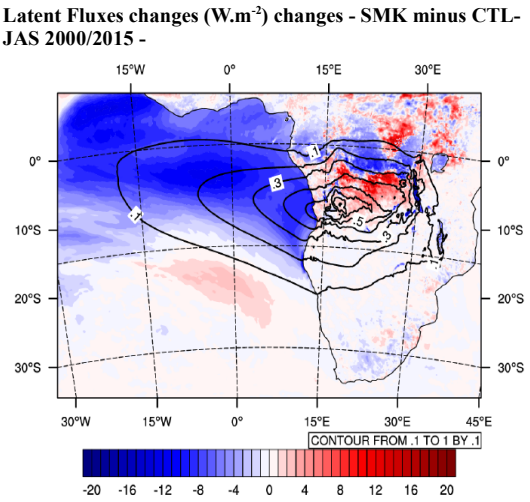

Figure S5. Averaged-seasonnal (JAS) changes (SMK minus CTL simulations) of the latent heat fluxes for the ALADIN-Climate model.

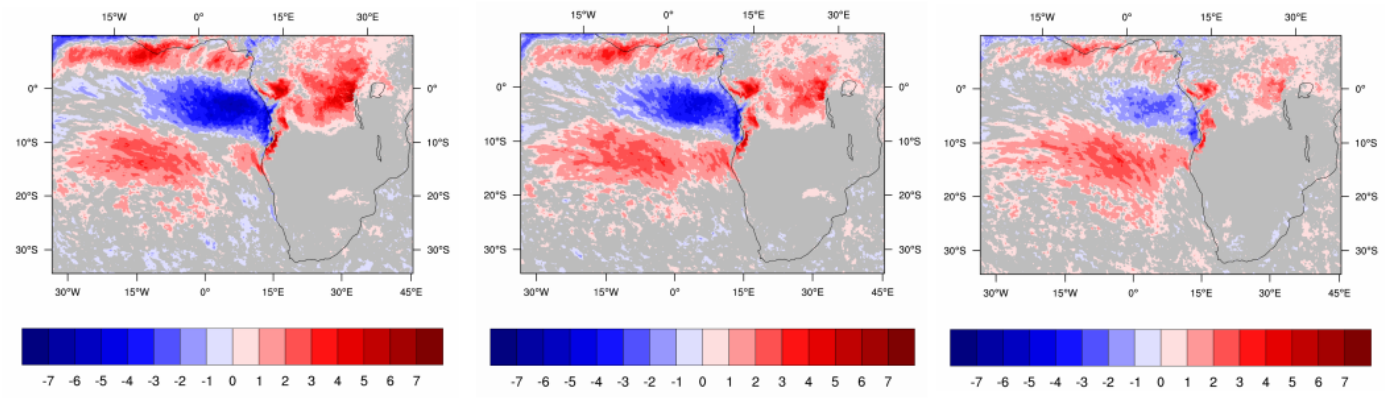

Figure S6. Averaged-seasonal (JAS) changes (SMK minus CTL simulations) in the LCF for the three different ALADIN-Climat simulations (SMK_75, left ; SMK, middle and SMK_90, right).

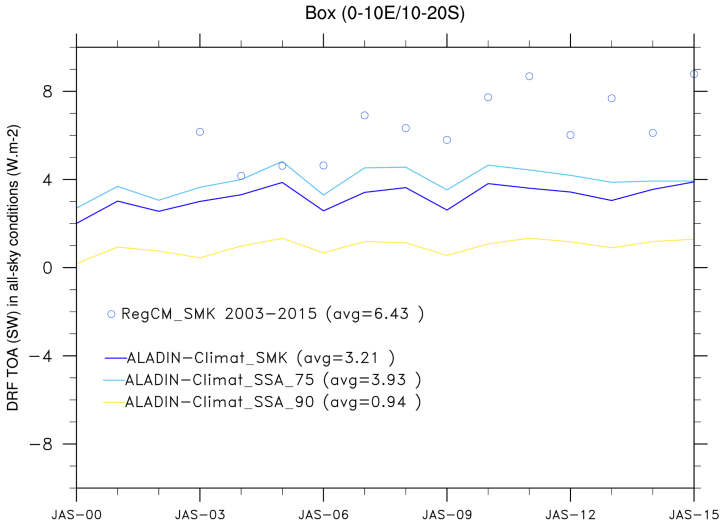

Figure S7. Seasonal-mean (JAS) DRE of smoke aerosols exerted at TOA in the shortwave (all-sky conditions) averaged over the 0-10°E and 10-20°S box (box_O) for the three ALADIN-Climate simulations (period 2000-2015) and RegCM (period 2003-2015).