



Black Saturday bushfire smoke plumes as seen from SCIAMACHY measurements in limb geometry

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The so called Black Saturday bushfires started on the 7th of February 2009 in southeastern Victoria, Australia. Resulting smoke plumes contaminated the lower stratosphere in the following weeks as measured by a variety satellite instruments. Particle extinction profiles retrieved from SCIAMACHY measurements in limb geometry provide a complementary view on the development of the smoke plume, especially on the first days of the event when measurements of other instruments were sparse. Earlier studies showed that commonly used 1D retrieval algorithms for limb observations of particle extinction potentially underestimate optical thickness and altitude of such injections into the stratosphere. In this study, a 2D particle extinction retrieval algorithm for SCIAMACHY limb measurements is used to track optical thickness and plume altitude of the Black Saturday bushfires over the month of February. The required information about the horizontal distribution of the plume is determined by the absorbing aerosol index (AAI) derived from SCIAMACHY measurements in nadir geometry. First results indicate enhanced particle scattering above 18 km on the 9th of February while the smoke plume is drifting to the north east above the Pacific ocean.