



Raman lidar observations at Finland, South Africa and India

Elina Giannakaki (1,2), Maria Filioglou (1), Holger Baars (), and Mika Komppula ()

(1) Finnish Meteorological Institute, Finland (eleni.giannakaki@fmi.fi), (2) on leave from: University of Athens, Faculty of Physics, Athens, Greece, (3) Leibniz Institute for Tropospheric Research, Leipzig, Germany

The Raman lidar PollyXT has participated in two long-term aerosol experimental campaigns, one close to New Delhi in India (March 2008 – March 2009) and one at Elandsfontein about 150 km from Johannesburg in South Africa (December 2009 – January 2011). Since November 2012, the lidar has performed measurement at Kuopio, Finland. PollyXT is operated automated and continuous for 24/7 observations of clouds and aerosols. The observations are processed in near-real time without manual intervention, and are presented online at <http://polly.tropos.de>. The three measurement sites cover a wide range of pure aerosol types (biomass burning, volcanic ash, urban, desert dust, rural aerosols); as well as a mixture of these aerosol types. We retrieve the vertical profiles of the aerosol optical properties, i.e. extinction and backscatter coefficients, Ångström exponents, lidar ratio and depolarization ratio. We also study the seasonal variability of the intensive and extensive aerosol properties. Our results reveal typical and extraordinary aerosol conditions as well as seasonal differences at the three observational sites.