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Aerosol Optical Properties Variation in Kishinev During the Fire Events in the West Regions of Russia on September 2002

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The paper shows how the smoke intrusion caused the essential variation of the column atmospheric optical and microphysical properties retrieved from measurements of direct sun/sky radiance made with sunphotometer Cimel CE-318 at the Kishinev site. The site is in operation within the framework of the Aerosol Robotic Network (AERONET), managed by NASA/GSFC. AERONET is globally distributed ground based network of radiometers for continuous monitoring of the aerosol optical properties. These properties are analyzed in connection with the influence of the smoke particles long-distance transported from the Russia, Belarus and Ukraine, where numerous of forest and peat fires were observed from the 5 to 7 September, 2002. Retrieved values of aerosol optical thickness (AOT) were registered as very high ones and revealed spectral variation owing to the presence of small smoke particles. The highest value of AOT ever measured at this site reached the value of ~2.16 on September 11, 2002. Daily average values of single scattering albedo for the Kishinev site had no spectral variation, but these values ranged from 0.97 to 0.99. Real and imaginary parts of retrieved refractive index were ~ 1.49 and ~ 0.0012, respectively. Column volume size distributions of smoke particles had bimodal shape and were characterized by prevailing contribution of particles with fine mode ~0.16-0.26 мм. Retrieved optical and microphysical properties have been compared with the analogous ones measured at the Moscow site placed in the vicinity of peat fires loci. Both column-integrated volume size distributions and optical parameters of smoke particles are changed due to condensation growth, smoke aging, and smoke mixing with the urban/industrial pollutions during the long-path transport.

Poster Session 1, General Poster Session with Welcome Reception
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