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Impact of atmospheric solid and gaseous admixtures on surface solar irradiance and human health

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The first results of complex observations and vertical profiling aerosol particles and wind parameters above the central part of St. Petersburg in day and night time are presented. Results include values of the extinction and backscattering coefficients, particle size distribution, depolarization rate, particle concentration and real and imaginary parts of refractive index at different heights. These values allow indicating different kinds of atmospheric aerosol pollution in the air. Special attention is given to parameter space and time variations. Solar irradiance at the surface is calculated on the base of obtained aerosol content in different spectral regions. The influence of UV and IR solar radiation and air pollution on human health is estimated. Possible positive and negative impacts on skin, respiratory and heart diseases are considered. At present, the diseases caused by pollution are becoming more common. In the cities with strong pollution of sulfur gases, ammonia, hydrocarbons, the influence on the physical development of children is noted; allergic reactions also increase.

Biography

Dmitry Samulenkov completed his Master education in St.-Petersburg State University. His present position is a Director of St. Petersburg State University "Observatory of Environmental Safety" since 2011. He was the expert in ecology, Biodiversity and Nature Protection in St.-Petersburg State University (09/2001-06/2006). He was a part of the program Public health in a magistracy of medical faculty, Epidemiology in St.-Petersburg State University (09/2006-06/2008). He was a Postgraduate student at St. Petersburg Scientific Research Centre for Ecological Safety, Russian Academy of Sciences (SRCES RAS) (2008-2011). He was the Chairman of the Council of Young Scientists, SRSEC RAS - 2008-2012. He was the Council member of Young Scientists, Russian Academy of Sciences, 2009. Currently he is the manager of international program TEMPUS Improvement of education on environmental management 2009-2012, St. Petersburg State University.

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