

Basic Environmental Observatory "Moussala" – Atmospheric and Environmental Research

Institute for Nuclear Research and Nuclear Energy by the Bulgarian Academy of Sciences

The Atmospheric Monitoring Service (AMS) of GMES is providing data on atmospheric composition which are closely linked to the activity and data providing by the BEO "Moussala". There is strong necessity of using AMS for validation and additional analysis of the background and local data accumulated in BEO "Moussala" database.

In 2009 the Observatory celebrated the 50th anniversary of its inauguration as research center of the Institute for Nuclear Research and Nuclear Energy by the Bulgarian Academy of Sciences with the cooperation of the Hungarian Academy of Sciences. Starting in 1959 as Cosmic Rays research center on the top of the mountain Rila (2925 m. a.s.l.) in the process of implementation of the common French-Bulgarian project OM2 (1993-1995) the scope of research was enlarged to environmental study of Rila Mountain. The last decade, after reconstruction, BEO was transformed in center for the Mountain, the Atmosphere and Cosmic Rays studies. On line, real time measurements are made for aerosols (state of the art instrumentation for size distribution and optical properties), radioactivity and heavy metals in aerosols, atmospheric gases (greenhouse gases CO<sub>2</sub>, O<sub>3</sub>, reactive gases NO<sub>x</sub>, CO, O<sub>3</sub>, and SO<sub>2</sub>), gamma background and meteorological parameters. Measurements with the muon telescope and particles detector SEVAN continue the investigation of the cosmic rays variations and their interaction with the atmosphere. Trajectory models of long range air masses transport are used for data interpretation. In 2010 BEO "Moussala" was approved as Regional Station in the GAW (Global Atmospheric Watch United Nation's Program) network of monitoring stations for WDCGG (World Data Center for Greenhouse Gases) data providing. Results of the measurements are presented.