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Urban Planetary Boundary Layer investigations in cold season and complex topography in IASI city area using ESYROLIDAR

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The up-gradable 2012 configuration of ESYROLIDAR system based on a multi -wavelengths (1064, 532 and 355 nm) powerful (200, 100 and 45 mJ/pulse) and relatively high variable repetition rate (up to 30 Hz) Nd: YAG pulsed laser, a large Newtonian telescope (40 cm diameter of collector mirror) and a new opto-mechanics detection module is used to evaluate the planetary boundary layer dynamics. The measurement site is located on the Science and Technology Park TehnopolIS (in a complex topography of Iasi city area situated in the north-eastern part of Romania - Moldavia region (47° 7'17.16"N, 27°34'15.35"E, ASL 60m).
This paper will present both the advantages and performances of the 2012 lidar system configuration and the PBL related lidar profiles measured in cold season conditions. The correlation of PBL dynamics as observed by lidar with PM point monitor existing data in the area will be presented and interpreted.
Finally the simulation of PBL height results at regional scale performed with the meteorological model MM5 included in the INOE2000 (National Institute for Research and Development for Opto-Electronics Magurele, Romania) Air Quality Forecast system will be compared with lidar data in daytime.