

Dependence between concentration of polonium and height of mixing layer in the atmospheric boundary layer

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The work presented a new method of evaluation of the height of the mixing layer. The newly method relies on the measurement of polonium (Po-218) concentration as one of the method using natural occurring radioactivity to fulfil this task. Data analysis based on study of variation of chosen meteorological parameters and its comparison with change of the polonium concentration in the air. The acoustic sodar instrumentation was chosen as a reference method to evaluation the height of mixing layer. The variation of the polonium concentrations with diurnal change in condition of the lower troposphere, shows that its may become good tracers for estimating atmosphere dynamics and transport of pollution by the turbulent mixing of atmospheric air. The obtained results made it possible to find statistically significant relation between concentration of Po-218 in the air and meteorological parameters, particularly mixing layer. In the end the statistical model was developed to define the mixing height.