

Preliminary results of assessment of impact of the shale gas exploration and exploitation activities on the quality of ambient air - analysis of Wysin, Poland case study, 2015-2017

Janusz Jarosławski and Jakub Guzikowski

Institute of Geophysics/Polish Academy of Sciences, Department of Atmospheric Physics, Warsaw, Poland
(januszj@igf.edu.pl)

One of objectives of the “Shale gas exploration and exploitation induced risks - SHEER” project (Horizon 2020, call LCE 16-2014) is to assess the possible impact of activities related to the shale gas exploration and exploitation processes to the surrounding air quality. To achieve this goal, a mobile air pollution monitoring station has been deployed in Stry Wiece village, about 1 km from the drilling site at Wysin (54.08 N, 18.32 E). In addition to the standard parameters measured routinely at air quality monitoring stations like: Nitrogen oxides, Ozone, Carbon Monoxide and Particulate matter PM10, several parameters have been added to the measurement program, including Carbon dioxide, Methane and non-methane hydrocarbons and Radon 222. Impact on the air quality is analyzed in three dimensions: analysis of levels of “classical” communication pollutants (NO_x , CO, O_3 , PM10), greenhouse gases (CO_2 , CH4) and gases specific to the shale gas exploitation activities (CH4, 222Rn). Continuous monitoring has been performed before, during and after exploration activities. Air quality can be considered as very good (“rural” conditions) before the exploration/exploitation processes have started. Results obtained so far show that the air quality in the vicinity of shale gas exploration area has not changed significantly during the analyzed time period. The only significant signal of the presence of the shale gas well were two short episodes of elevated concentrations of methane registered during the hydrofracturing phase of the exploration.

This work was supported within SHEER: “Shale Gas Exploration and Exploitation Induced Risks” project funded from Horizon 2020 – R&I Framework Programme, call H2020-LCE 16-2014-1.