



Analysis of impact of the shale gas exploration and exploitation activities on the quality of ambient air – case study of Wysin, Poland

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To estimate the impact of the shale gas exploration and exploitation activities on the quality of ambient air, a mobile air pollution monitoring station has been deployed in Stary Wiec village, about 1000 m to the west from the drilling site at Wysin (54.08 N, 18.32 E). A standard monitoring program realized routinely at air quality monitoring stations, namely: Nitrogen oxides, Ozone, Carbon Monoxide and Particulate matter PM10 has been extended with measurements of Carbon dioxide, Methane and non-methane hydrocarbons and Radon 222. The measurements were carried out for two years, from August 2015 to July 2017, that is before, during and after exploration of the two wells at Wysin, including drilling and hydrofracturing phases. The analysis of the measurement data collected during the experiment showed that at a distance of 1000 m from the wells the levels of air pollutants do not differ from the previously established background levels with a few exceptions. Firstly, slightly elevated levels of certain pollutants were observed when the wind direction indicated the transport of pollutants directly from the well area to the station area during drilling and hydrofracturing period and secondly, several episodes of elevated methane concentration (up to 7.45 ppm) were recorded in July and September 2016, respectively at the end of the hydrofracturing period and during well closing activities. The nature of these methane episodes – an occurrence at the same time of the day and similar number of recorded concentration peaks during each episode indicates some technical procedures associated with well's exploitation as a source of these episodes.

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