

Accepted Manuscript

Comment on the paper ‘Impact of volcanic eruptions on the environment and climatic conditions in the area of Poland (Central Europe)’ by A. Gałaś

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PII: S0012-8252(16)30373-7
DOI: doi: [10.1016/j.earscirev.2017.01.008](https://doi.org/10.1016/j.earscirev.2017.01.008)
Reference: EARTH 2374
To appear in: *Earth-Science Reviews*
Received date: 25 October 2016
Revised date: 12 January 2017
Accepted date: 23 January 2017

Please cite this article as: Achim Brauer, Sabine Wulf, Florian Ott, Mirosław Błaszczewicz, Michał Słowiński, Comment on the paper ‘Impact of volcanic eruptions on the environment and climatic conditions in the area of Poland (Central Europe)’ by A. Gałaś. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Earth(2016), doi: [10.1016/j.earscirev.2017.01.008](https://doi.org/10.1016/j.earscirev.2017.01.008)

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Comment on the paper '*Impact of volcanic eruptions on the environment and climatic conditions in the area of Poland (Central Europe)*' by A. Gałaś

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Keywords: Holocene; Late Pleistocene; Volcanic event; Ash Plume; Europe; Lake sediments; Cryptotephra

This review paper reports about environmental and climatic impacts of volcanic eruptions in Poland and distinguishes between eruptions in the late Pleistocene, Holocene and in historical times. It is acknowledged that this intriguing and challenging topic is brought to a wider audience. However, the selection of past eruptions that are thought to have impacted on Poland appears to be random and an in-depth discussion of possible causal links to climatic and environmental are largely lacking. Moreover, the reporting of volcanic ash particle findings in the area of Poland is incomplete and citations are not up to date or partly wrong. In the following, we will explain our major concerns in more detail.

In general, the paper lacks an overview of the distribution and timing of active volcanic centres in the vicinity of Poland, e.g. volcanoes in Iceland, Massif Central (France), Germany (e.g. Eifel Laacher See), Italy, Greece, and Romania (e.g. Ciomadul). Many of those centres produced high-explosive eruptions during the late Pleistocene, and, depending on the prevailing wind regime during individual eruption, volcanic ash (tephra) has been widely dispersed across central Europe (e.g., Bramham-Law et al., 2013; Davies et al., 2003, 2012; Dörfner et al., 2012; Housley et al., 2012, 2013a, 2013b; Juvigné et al., 1995, 1996; Lane et al., 2011a, 2011b, 2012, 2015; Lawson et al., 2012; Merkt et al., 1993; van den Bogaard and Schmincke, 2002; van den Bogaard et al., 2002; Wulf et al., 2013, 2016). Recent (crypto)tephra findings in lake sediments in northern-central Poland have proven that during the Lateglacial and Holocene the Polish region was repeatedly impacted by volcanic ash fall from Icelandic and Eifel eruptions (Wulf et al., 2016; Ott et al., 2016; Tylmann et al., 2016), while Eastern Mediterranean volcanic sources (Italy, Santorini) hardly left any visible imprints in this region due to the predominately easterly transport of tephra. The only Italian eruption identified as a cryptotephra layer as far to the north as to western-central Germany (Lane et al., 2015) is related to the Lateglacial Neapolitan Yellow Tuff eruption.

Many of the detected tephra in Polish lake sediments, however, derive from high magnitude (VEI>4) eruptions of Askja and likely Snæfellsjökull volcanoes, exceeding by far the violence of the recent Eyjafjallajökull 2010 eruption. Future eruptions from Askja volcano in eastern Iceland but also from Hekla and Katla volcanoes in southern Iceland (see related tephra

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