

IUGG23-0440: **Ongoing changes in soil moisture conditions in the Vistula catchment**

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In recent years, Poland experienced a significant deterioration in soil moisture conditions. Undergoing climatic changes have led to pronounced shifts in the appearance of thermal seasons as well as periods of occurrence and accumulation of snow cover. The combined negative effects of these transformations are leading to intense pressures on the natural environment. Of particular concern are soil moisture deficits during the first phases of the growing season, which determine the performance of agro-technical work and maintenance treatments such as fertilization or spraying. It is reasonable to analyse this phenomenon in more detail and look at the long time trends of soil moisture conditions on a seasonal basis, which remain unclear, especially for the early spring period. This study examines changes in soil moisture and evaporative stress conditions for the period 1980 – 2021 in the Vistula catchment. The analysis is based on daily data derived from the model-based estimates of soil moisture and evapotranspiration - Global Land Evaporation Amsterdam Model (GLEAM). Obtained results demonstrate that soil drought severities have considerably increased, especially at the beginning of the growing season. The central and southwestern parts of the studied catchment were particularly affected by deteriorating soil moisture conditions. In these parts, the negative trend was most pronounced and statistically significant.

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