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COMPARISON OF VEGETATION VITALITY DATA AND SOIL MOISTURE MEASUREMENTS AT THE PROSPER-HANIEL MINE SITE

Marcin Pawlik [*1], Bodo Bernsdorf [1], Tobias Rudolph [1], Nyein Than Thar Lwin[1], Julian Jaeckel [1]

[1] *Research Center of Post-Mining, Technische Hochschule Georg Agricola, Herner Str. 45, 44787 Bochum, Germany*

*Corresponding author: Marcin.Pawlik@thga.de

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Effective management of flood-prone areas, particularly polders, is critical for ecological balance and human safety. This study focuses on mining-induced polders in the Ruhr region, emphasizing the need for sustainable flood protection strategies amidst changing climatic conditions. At the beginning of July, the German Weather Service reported that the last 12 months had been the wettest months since records began in 1881. The German average rose from 789 l/m^2 to 1,070 l/m^2. No month stood out due to a record precipitation value. Weather patterns are changing from constancy to high variability with dry and longer wet periods - both within a year and over longer periods of time. By analysing data from the Copernicus Sentinel 2 satellite mission and ground-based measurements, the study investigates vegetation response to increased soil moisture. Key findings reveal correlations between soil moisture, soil temperature, and vegetation vitality, emphasizing the importance of continuous monitoring for optimizing post-mining water management. Results suggest that high soil moisture levels, particularly in autumn to spring, significantly influence vegetation health. The study underscores the necessity for long-term, comprehensive research to validate findings across varied climatic conditions.

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