

Abstract

This thesis examines the impact of forest die-off on the soil water and temperature regime at an experimental site in the Krkonoše National Park. The research focuses on a specific site affected by a bark beetle outbreak and compares it to a healthy reference site. Field measurements were conducted from May 16, 2022, to December 31, 2023, including soil moisture, soil temperature, LAI (Leaf Area Index), and hydraulic soil properties. The data were then analyzed and used to create a HYDRUS-1D hydropedological model, which provided estimates for unmeasured variables such as evaporation, transpiration, and water runoff into the subsoil. Based on the modeled data, a comprehensive water balance was constructed for both the die-off site and the healthy forest. The results of this study provide insight into how forest die-off affects the soil water balance and temperature dynamics. The findings highlight the complex interaction between the physiological state of the vegetation, soil conditions, and climatic factors.

Key words:

soil moisture, soil temperature, bark beetle, Krkonoše, HYDRUS-1D