



## **Machine learning for predicting soil salinity using Time Domain Reflectometry data**

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Salt affected soils leads to reduce crop intensity, decrease profitability and cause land scarcity, salinization widespread in the arid and semi-arid regions and also occur extensively in sub-humid and humid climates. It is important to assess soil salinity temporally and spatially in order to correctly evaluate its evolution and reasonably predict its values. Soil pore water electrical conductivity ( $\sigma_p$ ) uses as an indicator of the soil salinity. It refers to the amounts of ions in the soil solution. Time Domain Reflectometry probes measures simultaneously the soil water content, soil temperature and bulk electrical conductivity ( $\sigma_b$ ). Aljoumani et al model [1:2] is a modified of Hilhorst model [3] to estimate soil pore water electrical conductivity ( $\sigma_p$ ) from bulk electrical conductivity ( $\sigma_b$ ). They use time-varying dynamic linear model (DLM) and the Kalman filter (Kf) to estimate the evolution of soil pore water electrical conductivity ( $\sigma_p$ ) over time. In this study we apply machine learning on the parameters of Aljoumani et al model to predict soil salinity.