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## Elaborating Hungarian segment of the Global Map of Salt-Affected Soils (GSSmap)

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Recently, FAO and Global Soil Partnership (GSP) launched the Global Map of Salt-affected Soils (GSSmap) international initiative, which pursued a country-driven approach and aimed to update the global and country-level information on salt-affected soils (SAS). The objective of our study is to present how Hungary contributed to this international initiative by preparing its own SAS maps according to the GSSmap specifications. For this purpose, we used not just a combination of advanced machine learning and multivariate geostatistical techniques for predicting the spatial distribution of the selected SAS indicators (i.e., pH, electrical conductivity and exchangeable sodium percentage) for the topsoil (0–30 cm) and for the subsoil (30–100 cm), but also a number of image indices exploiting a huge amount of relevant information contained in Sentinel-2 satellite images. The importance plots of random forests showed that in addition to climatic, geomorphometric parameters and legacy soil information, image indices were the most important covariates. The performance of spatial modelling of SAS indicators was checked by 10-fold cross validation showing that the accuracy of the SAS maps was acceptable. By this study and by the resulting maps of it, we not just contributed to GSSmap, but also renewed the SAS mapping methodology in Hungary, where we paid special attention to modelling and quantifying the prediction uncertainty that had not been quantified or even taken into consideration earlier.

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