Geophysical Research Abstracts
Vol. 21, EGU2019-14358, 2019
EGU General Assembly 2019

Artificial Neural Networks to interpret CPTs for geological modelling

Jan Gunnink (1), Denise Maljers (1), Mattijs Borst (2), and Bert de Doelder (3)

(1) TNO - Geological Survey of the Netherlands, Utrecht, Netherlands (jan.gunnink@tno.nl), (2) CWG Engineering, (3) Rotterdam municipality

Cone penetration Tests (CPTs) are very common in areas with soft soil to determine the strength of the soil prior to civil engineering works. In the Netherlands, large databases of 100 of thousands of CPTs are present, but not used optimally in geological modelling. CPTs can also be used to infer geological information, like facies and lithological composition. We developed a method using Artificial Neural Networks to predict three typical facies in the area of Rotterdam. By using 22 manually interpreted CPTs as training set we were able to interpret > 25.000 CPTs that became the basis for modelling the Holocene sequence in the area. This resulted in a detailed voxel model of the Holocene that will be used in further groundwater modelling.