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Depth Depending Pattern Recognition (DDPR) – a tool for visualization of spatial and temporal similarities of properties in sediment cores

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Depth Depending Pattern Recognition (DDPR) is a new simple tool for the visualization of spatial and temporal similarities of measured parameters in a set of sediment cores. It was developed to support the multivariate analysis of data of sediment cores taken in a still water area of the River Elbe [1].
The idea behind is the assumption that correlations in spatial or temporal distributions of environmental parameters can be visualized by different ways and that a distance between two patterns can be defined with mathematical methods. So the similarity of two patterns can be quantified and assessed by a catalog of subjective rules. Generally, defining one reference pattern, the computation of a distance matrix for different parameter distributions is easily possible. Consequently, the three main steps of the algorithm are a) the creation of the pattern from the measurements, b) the definition of the distance calculation and c) the interpretation and assessment of the distance matrix.
The method can be used in addition to classical uni- or multivariate statistical methods like regression analysis, principal component analysis, correlation analysis etc. DDPR supports hypothesis testing and explanation of relationships. In the poster DDPR is explained and the method is presented for two examples, an artificial one and one with data from sediment cores.

Reference
[1] Baborowski M., Büttner O., Morgenstern P., Jancke T., Westrich B. (2012) Spatial variability of metal pollution in groyne fields of the Middle Elbe – Implications for sediment monitoring, Environmental Pollution, 167,115-123