

## Geographically distributed classification of surface water chemical parameters influencing fate and behavior of nanoparticles and colloid facilitated contaminant transport.

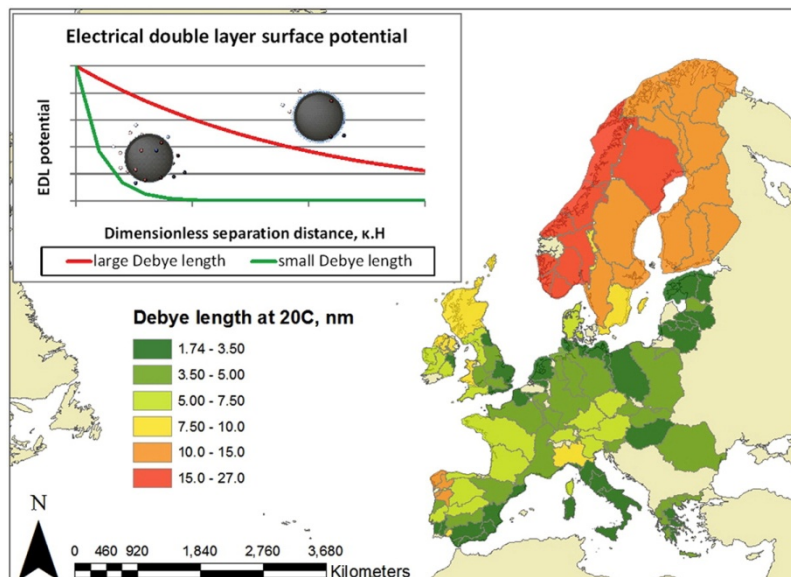
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### Abstract

The current production and use of nanomaterials in consumer products have increased the concern about the possibility that these enter the rivers during their entire life cycle. Further, many aquatic contaminants undergo partitioning to the ubiquitous aquatic colloids. Here is presented the development of a set of European water types for environmental risk assessment of chemicals transported as nanovectors as is the case of environmental fate of manufactured nanoparticles and colloid-bound contaminants.

A compilation of river quality geochemical data with information about multi-element composition for near 800 rivers in Europe was used to perform a principal component analysis (PCA) and define 6 contrasting water classes. With the aid of geographical information system algorithms, it was possible to analyse how the different sampling locations were predominantly represented within each European water framework directive drainage basin. These water classes and their associated Debye-Hückel parameter are determining factors to evaluate the large scale fate and behaviour of nanomaterials and other colloid-transported pollutants in the European aquatic environment.



### Reference

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