



## A new multi-scale geomorphological landscape GIS for the Netherlands

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At present, the Cultural Heritage Agency of the Netherlands is developing a nationwide landscape Geographical Information System (GIS). In this new conceptual approach, the Agency puts together several multi-scale landscape classifications in a GIS. The natural physical landscapes lie at the basis of this GIS, because these landscapes provide the natural boundary conditions for anthropogenic. At the local scale a nationwide digital geomorphological GIS is available in the Netherlands. This map, that was originally mapped at 1:50,000 from the late 1970's to the 1990's, is based on geomorphometrical (observable and measurable in the field), geomorphological and, lithological and geochronological criteria. When used at a national scale, the legend of this comprehensive geomorphological map is very complex which hampers use in e.g. planning practice or predictive archaeology. At the national scale several landscape classifications have been in use in the Netherlands since the early 1950's, typically ranging in the order of 10 -15 landscape units for the entire country. A widely used regional predictive archaeological classification has 13 archaeo-landscapes. All these classifications have been defined "top-down" and their actual content and boundaries have only been broadly defined. Thus, these classifications have little or no meaning at a local scale. We have tried to combine the local scale with the national scale. To do so, we first defined national physical geographical regions based on the new 2010 national geological map 1:500,000. We also made sure there was a reference with the European LANMAP2 classification. We arrived at 20 landscape units at the national scale, based on (1) genesis, (2) large-scale geomorphology, (3) lithology of the shallow sub-surface and (4) age. These criteria that were chosen because the genesis of the landscape largely determines its (scale of) morphology and lithology that in turn determine hydrological conditions. All together, they define the natural boundary conditions for anthropogenic use. All units have been defined, mapped and described based on these criteria. This enables the link with the European LANMAP2 GIS. The unit "Till-plateau sand region" for instance runs deep into Germany and even Poland. At the local scale, the boundaries of the national units can be defined and precisely mapped by linking them to the 1:50,000 geomorphological map polygons. Each national unit consists of a typical assemblage of local geomorphological units. So, the newly developed natural physical landscape map layer can be used from the local to the European scale.