REGIS II, A hydrogeological model of the Netherlands

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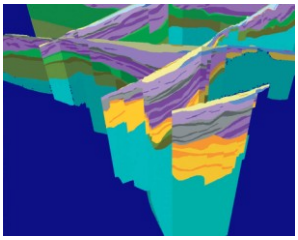

Up to the late ‘80s of the past century, hydrogeological information of the Dutch subsoil used to be presented in the form of maps as part of the “Grondwaterkaart van Nederland” (Groundwater Map of the Netherlands). In the early ‘90’s, a first set of digital subsoil models and maps was developed for groundwater management as part of the so-called REgional Groundwater Information System (REGIS I). However these digital subsoil models suffered from inconsistencies between geology and hydrogeology as well as from the flaws of early digital mapping techniques.

With these shortcomings in mind a fully revised mapping concept was developed which resulted in the release of REGIS II, comprising:

- a hydrogeological model of the Dutch subsoil, describing the geometry and hydraulic properties of so-called hydrogeological units;
- 12 regional, so-called geohydrological models describing the geometry and hydraulic properties of aquifers and aquitards in each participating province.

Hydrogeological units, rock bodies with more or less uniform hydraulic properties play a key role in this new concept. Different types of units are defined based on their primary lithology and hydraulic properties. A hydrogeological model is simply defined as a spatial interpretation of the subsoil into hydrogeological units.

The hydrogeological model is based on the new lithostratigraphical scheme as well (see possibly adjacent poster) as the new Digital Geological Model of the Netherlands. In order to create a hydrogeological model the following steps are distinguished:

1. Selection of well data. In total a set of 16.500 wells was compiled which, for maximum consistency, was used for creating the new Digital Geological Model as well as the hydrogeological model;
2. Hydrogeological interpretation of the well data. In order to avoid inconsistencies and to assist to easy reproduction, this interpretation is partially automated;
3. Spatial interpretation and modelling of the geometry of the hydrogeological units;
4. Mapping of the hydraulic properties of each hydrogeological unit.

The current hydrogeological model covers 131 units. Maps of the geometry and hydraulic properties are available in the form of grids.

A big advantage of this new concept is that schematizations of the subsoil in aquifers and aquitards (so called geohydrological models) can easily be derived from this hydrogeological model by combining the digital map data from the units. Depending on the goal for which the

data are needed, f.e. a groundwater model, a coarse or highly detailed geohydrological model can be created for any area, still ensuring consistency between the data. For twelve provinces a geohydrological model was created.

All models are accessible through the internet (www.dinoloket.nl, the website is also in English).