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Editorial

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This special issue of the *Netherlands Journal of Geosciences* is dedicated to geoscientific research related to geological disposal of nuclear waste. Geological disposal of nuclear waste is generally accepted as the optimum solution to the problem, though it has always been politically a hot potato. It was the Secretary of Energy in the first Obama Administration who halted the Yucca Mountain national programme on nuclear waste disposal within six weeks of his appointment, without citing technical or safety issues or presenting alternatives (Alley & Alley, 2013). This contrasts sharply with the Finnish situation where the government granted a construction licence for a final disposal facility on 12 November 2015. Sweden is expected to follow soon.

The topic of geological disposal of nuclear waste is unique in the sense that there is no other environmental management problem that requires us to look forward 1 million years. This makes the issue geoscientifically highly interesting: we must look forward five ice ages or so! We are pleased to present a series of papers that cover a range of issues related to this topic. The general focus is on the Rupel Clay as potential host rock for geological disposal. Earlier Dutch research programmes on geological disposal of nuclear waste focused on salt diapirs as host rock, and that was a reason in itself to focus on the almost finished OPERA programme on clay. Six of the eight papers presented in this issue are based on research financed by this programme and we are very pleased to publish two additional papers in this special issue as well.

The Rupel Clay, buried several hundred metres below the surface, has received little geoscientific attention because there was no socio-economic interest: groundwater flows above it, except in part of the province of Zeeland (where the unit occurs at shallow depth); oil and gas reservoirs are usually found in Cretaceous and older (deeper) units. Today, there is increasing interest in the Rupel Clay, and comparable units like the Ieper Clay, because of their isolating properties. For example, are they really that isolating when shale gas would be exploited, and would that remain so? This illustrates the need for geo-information across the entire depth range of the Dutch subsurface, and it is good to see that the papers in this issue fulfil such an information need in some detail. Hopefully, the OPERA programme will soon have a follow-up and be combined with other research activities on the Dutch subsurface in order to enable sustainable and safe exploitation and use of the deeper parts of the Dutch subsurface. We are convinced that a modern society needs the kind of information presented here that has undergone a peer review.

References

Alley, W.M. & ***Alley, R.*** 2013. Too hot to touch. the problem of high-level nuclear waste. Cambridge University Press (Cambridge): 370 pp.

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