

Interactive comment on “Towards a hydrological classification of European soils: preliminary test of its predictive power for the base flow index using riverdischarge data” by M. K. Schneider et al.

Anonymous Referee #3

Received and published: 23 May 2007

General comments:

This is a very worthwhile paper that attempts to extrapolate a well-established UK methodology to the European mainland. It highlights deficiencies in current European soil databases and indicates areas where the HOST classification, as it stands, fails. The authors clearly have a good insight into the HOST framework and European soil databases, though I believe the HYPRES database offers more than the authors currently acknowledge, for example, parameterised soil moisture retention curves. Although these data are too spatially distributed to be of value individually, they do link

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to the 1:1M soil map of Europe in the same way as the information used in the paper does. Specifically, HYPRES could have been used to generate the missing Integrated Air Capacity data. Perhaps the authors could explore this option more either through continuous or even class pedotransfer functions.

Other specific comments:

It was perhaps no surprise that there was good agreement between the reclassification of European 1:1M soil map of England and Wales into HOST classes and the 1:250 000 scale map of England and Wales as both datasets will share a common origin. However, it did show that the 1:1M soil map of Europe is an effective carrier of spatially distributed HOST data.

The authors were correct to point out the failure of the hOST framework in Mediterranean areas and have speculated that this may be due to highly variable rainfall distribution and events. It is also possible that the more extreme seasonal differences in soil moisture content in these areas is an important confounding factor - HOST deals with annual flows well but even with the UK it is difficult to use HOST at finer temporal scales. Perhaps the authors could comment on this.

HOST is based on the use of surrogate soil hydrological properties not measured data such as moisture retention or hydraulic conductivity and on presumed pathways of water movement. It may be that these assumptions do not hold in Mediterranean climate zones. Can the authors comment on this?

The paper also highlights deficiencies in the classification of soil parent material at the European level. This attribute is key within the UK HOST classification. This would need to be addressed before HOST could be rolled out for Europe.

The paper is concise, well written and sound. The authors explain the HOST classification in sufficient detail without burdening the reader. I believe the paper is an important step forward in incorporating the vast store of soil data that exists within Europe into

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hydrological research; it reminds me of the growing sub-discipline in the USA called hydrogeology. Hydrologists in the UK have been using HOST for a number of years, though many may not be aware of this as it is embedded in flow predicting software.

There are a few typographic errors but the paper is written in a style that makes it accessible to both hydrologists and pedologists.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 4, 831, 2007.

HESSD

4, S310–S312, 2007

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