

# OR/13/043 Rationale

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Wang, L, Kingdon, A, Shelley, W A, and Smith, N A . 2013. OneRTM: a pilot study for exploring the business case for the next generation of online real-time numerical modelling and data services. *British Geological Survey External Report*, OR/13/043.

## What is OneRTM and what does it do?

OneRTM is a new method for maintaining and disseminating numerical environmental models and datasets which ensures that:

- Models and modelled datasets are updated automatically as soon as sufficient new input data to allow a model run becomes available
- Models are automatically linked and synchronised based on data flow
- Datasets are visualised and served to end-users instantaneously through an internet browser
- Historic, real-time and forecasted datasets are automatically managed and stored for query
- Modelled datasets are visualised as dynamic GIS layers, and can be graphically queried, making it easy for non-modellers to understand these datasets
- It provides functions that allow non-modellers to manipulate models including running pre-defined scenarios via the internet
- The system automatically sends out alert messages when a dataset, such as groundwater level, crosses a preset threshold value

## The OneRTM 'real-time' and 'dynamic' concept

### The 'real-time' concept

'Real-time' in OneRTM does not automatically imply models running every second; rather they are updated whenever sufficient data to trigger a run becomes available meaning that available results are always current. Also the datasets and models' functions in OneRTM are accessible at any time.

### The 'dynamic' concept

The datasets and models in OneRTM represent the environmental processes that change with time under different natural and anthropogenic situations that also vary with time; OneRTM contains functions allowing end-users to travel through time to explore the environmental status in the past, current and (subject to some further development) near future; and it also provides functions to generate 'dynamic' results based on the conditions defined by end users, such as the location of groundwater hydrograph and the location and abstraction rate of pumping boreholes.

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