OneRTM: an online real-time modelling platform for the next generation of numerical modelling

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- Problems with interrogating conventional environmental models
  - ***updating models is costly and time consuming; hard for users to access models results; hard for users to directly interrogate models.***
- Why OneRTM is unique?
  - ***Models are automatically up to date and always available;***
  - ***Low system maintenance costs;***
  - ***Results immediately available via web browsers & potentially mobiles;***
  - ***Non-modellers can directly use models and easily understand outputs.***
- Its prototype has been successfully developed and tested for the groundwater flow modelling in the Thames Basin, UK
- It is an innovative way for developing, disseminating and maintaining numerical models

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The vision of
OneRTM

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The potential users of the OneRTM

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Background – current problems

- The problems of the traditional ways for numerical modelling
  - Models are built using historic data for certain period of time;
  - It is costly and time consuming to keep models up to date;
  - It is hard for client to get results quickly;
  - The modelling work and interpretation of modelled results rely on professional modellers.
- The conventional way has a limited value in supporting quick decision making in this changing world;
- Not suitable for improving the national capability for fast response to extreme events; and
- Low accessibility and being out of date would hinder the integrated modelling in the increasing interdisciplinary research

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OneRTM solution

- OneRTM method
  - Models in the platform are ***always up to date automatically*** with ***low system maintenance costs***;
  - ***Linked Models*** and modelled ***results*** (historic, real-time and forecasted data) are ***immediately available via the web browser*** and ***ultimately mobile devices***;
  - ***Non-modellers*** can test scenarios by few mouse clicks in browsers, and easily understand the results presented using GIS maps and graphs.
  - ***Automated hazard alerts*** sent when thresholds are crossed allowing decision makers to consider remedial actions
- It will change how numerical models are developed, disseminated and maintained

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Current development status

- The OneRTM development started from 2010 funded by British Geological Survey (BGS) and Natural Environmental Research Council (NERC)
- A prototype of OneRTM has been successfully developed and tested using recharge and groundwater flow models in the Thames Basin, UK
- OneRTM will be further developed by working with IT and water companies, funded by the Technology Strategy Board of the UK

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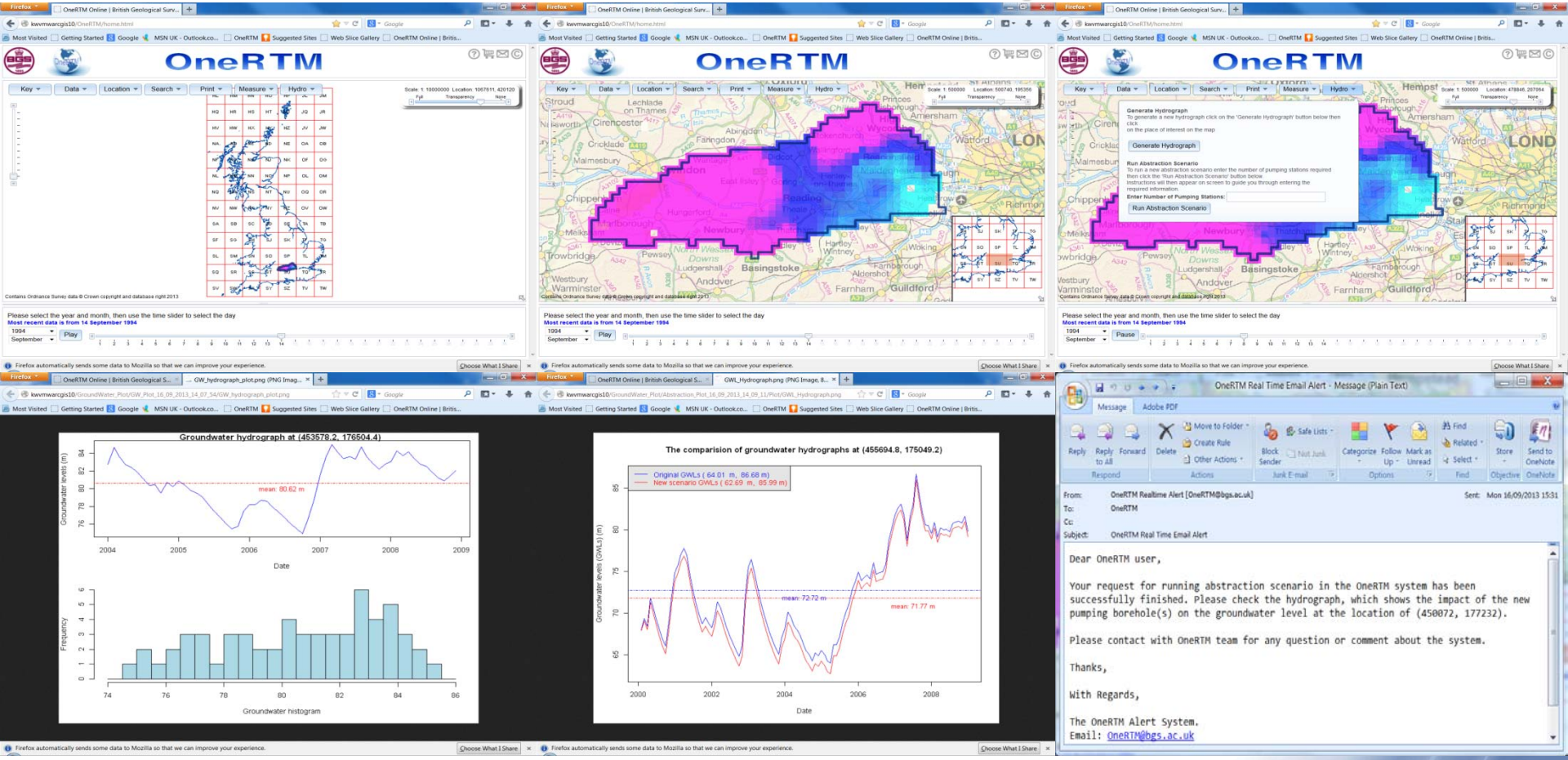
OneRTM interface examples



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The vision of OneRTM

- OneRTM can be developed into a platform to host and link many models to represent environmental and socio-economical processes in real time;
- It could be an online centre/community allowing people to share/ trade models and datasets;
- It could potentially become a strategic information infrastructure supporting interdisciplinary research and enhancing national capabilities in quick response to extreme events.

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