



**British
Geological Survey**

NATURAL ENVIRONMENT RESEARCH COUNCIL



**Centre for
Ecology & Hydrology**

NATURAL ENVIRONMENT RESEARCH COUNCIL

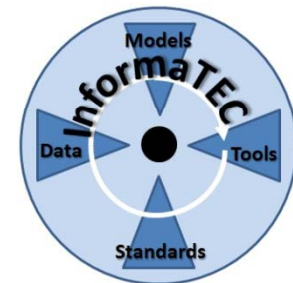


InformaTEC: Technology cluster for Data, Models and Informatics

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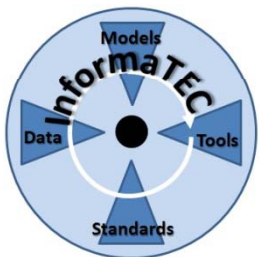
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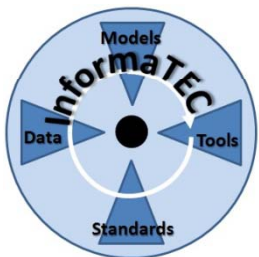
Current Challenges

- Lack of cohesion between NERC's informatics communities
- Limited understanding of common issues
- Limited sharing of information and techniques.
 - No specific opportunity to meet to:
 - Share ideas
 - Technologies
 - Apply solutions from one sector to another
- Increased requirement for process modelling of environmental systems
- Increasing need for cross-discipline environmental modelling
- Technical challenge of managing data extraction for ever larger, more complex and increasingly temporal, datasets

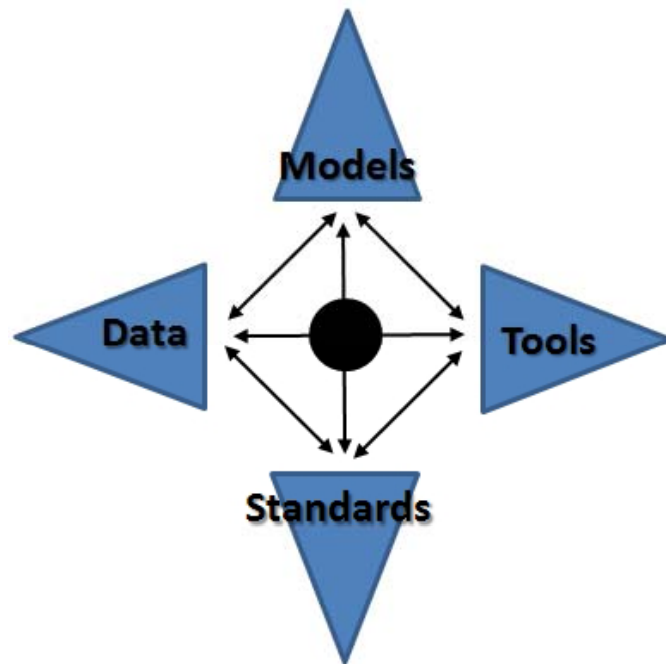


Environmental Modelling Paradigm

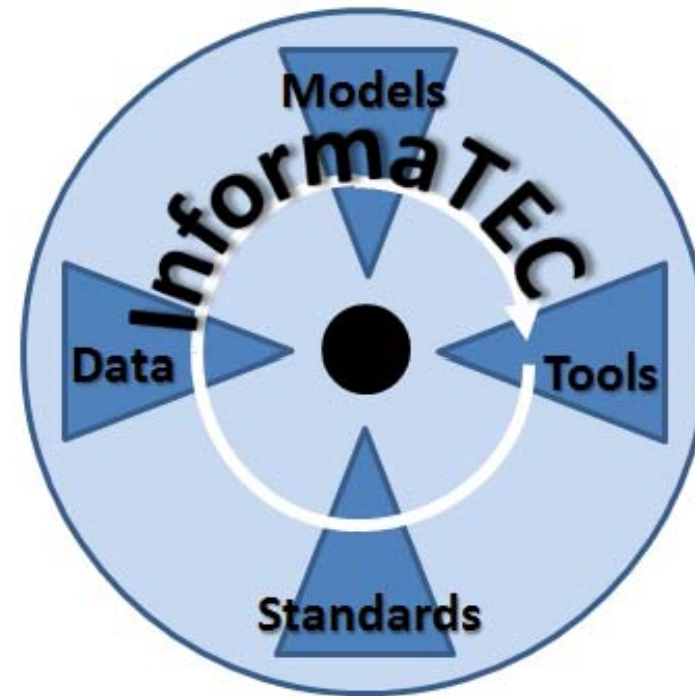
- Public expectation that reliable prediction of how environmental change will affect human society will be made widely available.
- Therefore environmental data can no longer be:
 - Held in discipline-based silos
 - Available only to specialists
- This requires :
 - Data to be easily available
 - Shared discovery tools and ontological information
 - Data and models to be interoperable
 - Technologies must be shared NERC-wide to maximise impact and value of investment



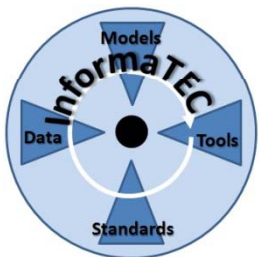
NERC Environmental Informatics Community



Before
(today)

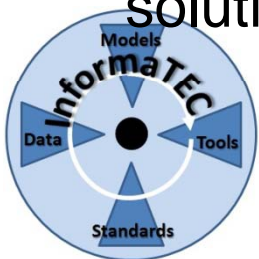


After



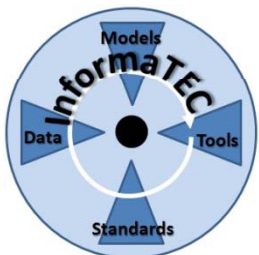
Objectives for InformaTEC

- To **set the technical agenda** in environmental informatics for the foreseeable future
- Agreeing community priorities and make recommendations to
 - NERC Council (via Technology Theme Action Plan)
 - UK government
 - industry
 - academia
- To **build lasting multi-disciplinary and multi-institutional partnerships** to take forward joint initiatives and to respond collectively to future proposal calls.
- To **enable knowledge exchange** within the community and with other initiatives to link to wider application of ideas, skills, solutions and best practice



Interoperability & standards

- Framework modelling standards
 - OGC and/or IUGS/CGI compliant standards
 - XML Schema based standards eg GeoSciML
- Ontological standards
 - OWL
- OPEN-MI
 - allows time-dependent models to exchange data at run-time.
 - existing models can be run simultaneously and share information at each time step making model integration feasible
 - “OpenMI was created with the intent to facilitate model integration, which is helpful in understanding and predicting process interactions and achieving an integrated approach to environmental management.”

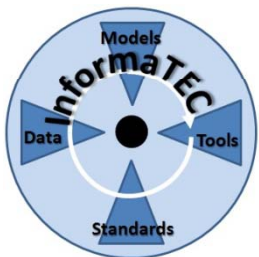


Proposed workgroups

Up to 6 working groups will tackle key issues involving models, data integration, terminologies, and interoperability.

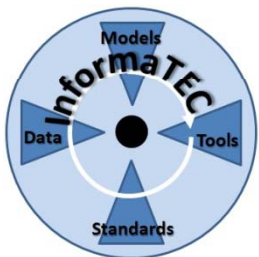
- Modelling Data standards and Interoperability (inc OPEN-MI)
- Legacy data and data management tools
- Technologies for multi- disciplinary process (to incorporate High Performance / Cloud computing)
- Water (inc. groundwater / surface water interactions)
- Soils OR Industry Liaison

The Open meeting will also identify other community requirements and allow these issues to be pursued with vigour



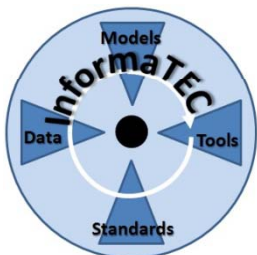
Open Meetings & Trial Project

- Community open-meeting to be held in September 2010
 - Kick-off for working groups
- Technology projects
- A number of small projects to test technologies and interactions will be available
 - Announcement of Opportunity this autumn
- Expected to have 3-5 projects of around £5k each
- Cross-discipline technology transfer is a key priority
- End of project meeting to deliver findings in Early 2012



InformaTEC Aims

- Developing prioritised recommendation for adoption by the NERC Technology Theme Action Plan.
- InformaTEC will result in a series of completed pilot projects and a set of future proposals.
- InformaTEC will set the technical agenda for this community for the immediate and long-term future
- Its legacy will be the creation and maintenance of this network into the vibrant sustainable community.
- Its future is as an umbrella institution to foster future collaborative work and to champion this to all those involved in environmental informatics across NERC, the UK and internationally



InformaTEC community-led activities

- Identify opportunities for progress & propose solutions to shared obstacles
 - Liaise to share opportunities and best practice
 - Collaborate to influence future technological developments
- Deliver effective knowledge-exchange, share ideas and concepts, and stimulate interactions and pull-through of technology into use
 - Facilitate technology transfer, maximising the value of NERC's developments
 - Identify future technology requirements and priorities through horizon scanning and technology road mapping
 - Maintain an overview of short and long-term developments and opportunities in the sector and proactively engage with new research groups
- Dynamically interact via web community, staff exchange and targeted training
- Help resolve issues related to using large & legacy data sets for forward modelling
- Facilitate the community to respond to future technologies requirements and opportunities and to maximise their economic impact,
 - Ensure an effective response to NERC Technologies requirements and recommendations relevant to NERC Science Themes.

