UK Environmental Observation Framework
Data Solutions Workshop

How do we change hearts and minds?

Ian Townend, Research Director
Examples

- Applied Research
- Design and Operations

Hearts & Minds >>>> Carrot and stick?
Humber Estuary

River Ouse
Trent Falls
River Trent
Brough
Hull
Read’s Island
Immingham
Grimbsy
Spurn Head

10 km
2000 Bathymetry

© ABPmer 2004
Geological setting
Holocene & Historic Change

Volume change in estuary basin

- Water volume (m$^3$)
- Time (years AD)

- Accommodation volume
- Historic trends
- Historic data
- Holocene trend
Humber sea level rise + nodal tidal cycle
Fixed area Channel-Flat model

Channel fixed surface volume

<table>
<thead>
<tr>
<th>Year</th>
<th>Volume (m$^3$)</th>
<th>Tidal range (m)</th>
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<tbody>
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<td>5.7</td>
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<tr>
<td>1900</td>
<td>1.1 \times 10^9</td>
<td>5.8</td>
</tr>
<tr>
<td>1950</td>
<td>1.15 \times 10^9</td>
<td>5.9</td>
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Applied Research

• Research largely made possible because we were employed by, or worked with the data owners. Our interest secured better access for other researchers than would otherwise have been possible

• Archiving and storage of data generally haphazard

• Very few other estuaries with this level of data coverage
### Example EIA & Design Data

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<thead>
<tr>
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<th>Time</th>
<th>Temp</th>
<th>SpCond</th>
<th>Sal</th>
<th>Depth</th>
<th>Turbid</th>
<th>Battery</th>
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</table>

### Predicted Extreme Waves Transformed from WANE Data to 15m LAT

<table>
<thead>
<tr>
<th>Return Period (yrs)</th>
<th>Hs (m)</th>
<th>Range of Tp(s)</th>
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<tr>
<td>1</td>
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<td>13.5 – 16.9</td>
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<td>10</td>
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<tr>
<td>100</td>
<td>4.3</td>
<td>16.9 – 20.6</td>
</tr>
<tr>
<td>200</td>
<td>4.5</td>
<td>16.9 – 21.1</td>
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</tbody>
</table>
Example Operational Data

UKMO UK Waters Wave Model

POLCOMS Storm tide model

Real time in-situ measurements

END USER
How Industry Values Data

**Contribution** - What impact the data have on solving the problem.

**Location** - Where the measurements have been taken and at what time.

**Price/cost** - What the data costs.

**Delivery** - Can the data be supplied in time.

**Attributes** - Fitness for purpose.

**Usability** - How easy is it to use the data.
Assessing value – *meta data is key*

**Global Data** – *industry increasingly operates globally, so globally consistent data sets are valuable*

**Price/cost** – *(What) should we pay for data collected with public funds?*

**Delivery** – *On line catalogues and data purchase as time can be critical.*

**Attributes** – *meta data again.***

**Licences** – *do we really need a different one for each piece of data, for each use, for each year?*

Source: ENVALDAT Project 1998
Hearts & Minds?

Carrot

• Incentives – *for all players*

Stick

• Procurement – *government, agencies and contracts*

UK plc

• Access/Funding Model
• National Incubator
• International Commitments & Global Markets

Global Trends

• Convergence of data, tools and models
• OpenSource
• Integrated System “modelling”