

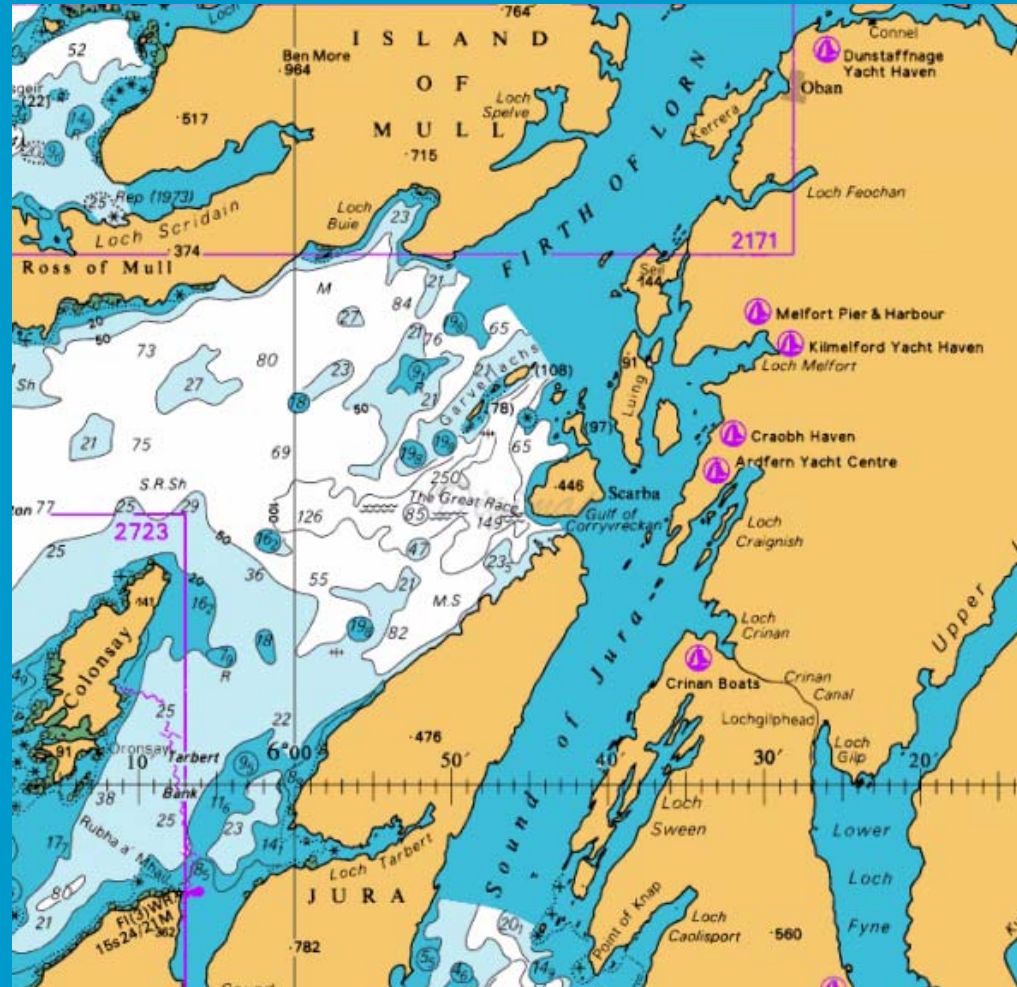


GSM Drifter Fleet for Studies of the Great Race

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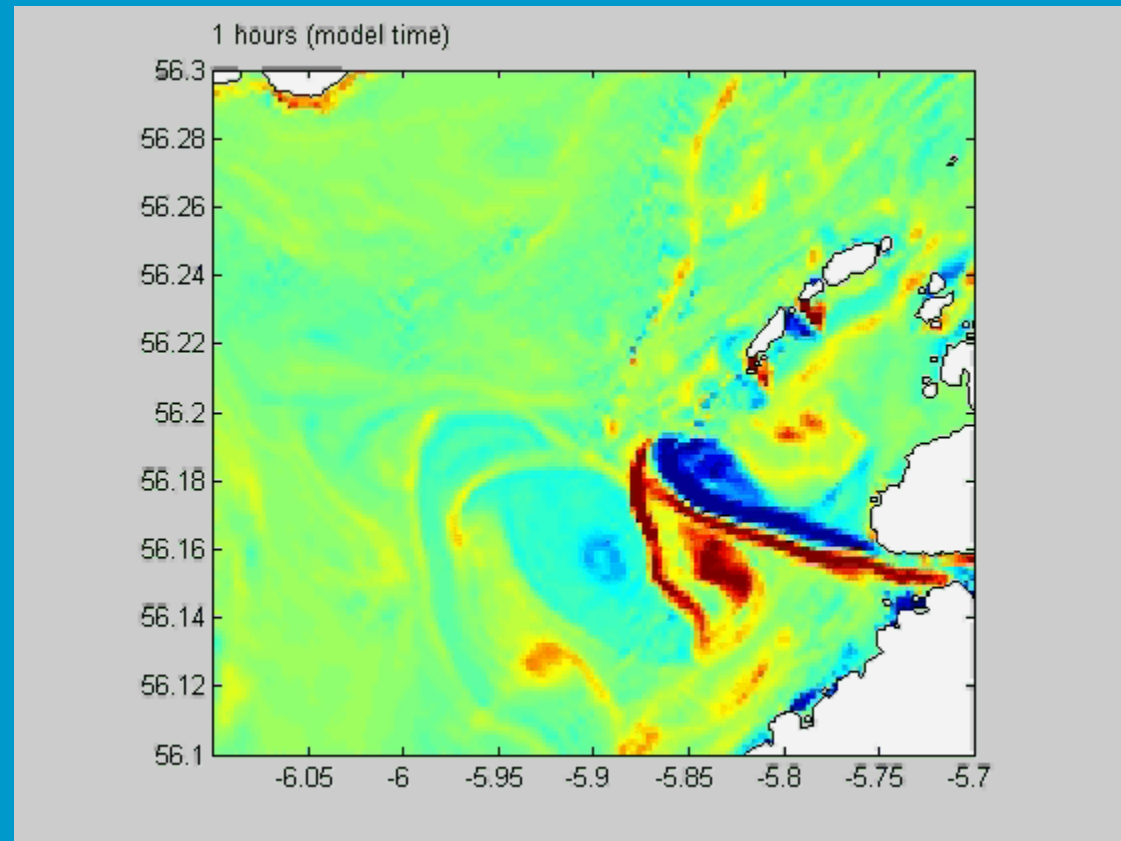
The Great Race – Where?



The Great Race – What?

- An area of huge tidal flow spilling from Corryvreckan Gulf. Peak flows of 0.3 Sverdrups (same as the mouth of the Amazon).
- Resulting turbulent flow into sea produces the Great Race, an area of very turbulent sea.
- A significant hazard to ships and boats.

The Great Race – What?









The Great Race – Why?

- A natural laboratory for the study of strong turbulent flows
- Opportunity to study the system itself
- Opportunity to evaluate modelling techniques with ground truthing
- Improvement in modelling considered important for assessing effect of tidal renewable energy systems.

The Great Race – How?

- Eulerian sampling.
 - ADCP Moorings
 - CDT Surveys
- Lagrangian
 - Drifters
- Other
 - ADCPs mounted on AUV

Drifter Requirements

- GPS data – 10s sampling period
- Cheap, semi-expendable buoys
- Large array deployed simultaneously (20)
- Positions relayed in real-time to boat for recovery.
- 3hr deployment
- Simple to deploy, no drogue.
- Low air-time costs

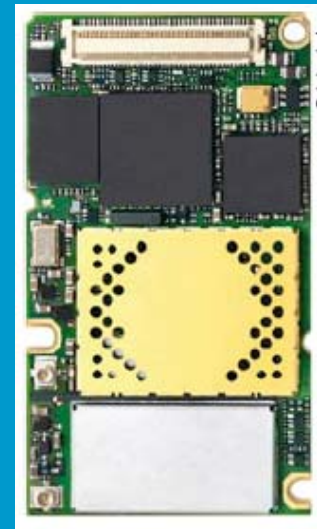
The Drifters

- Uses Cinterion XT75 GSM/GPRS/GPS module
- Data SIM for all networks
- Simple rugged construction
- Build cost (parts) £100
- Air-time £1 per Mb plus £50 per annum SIM registration
- Quadband – can be used globally
- Additional Iridium SBD comms if required.

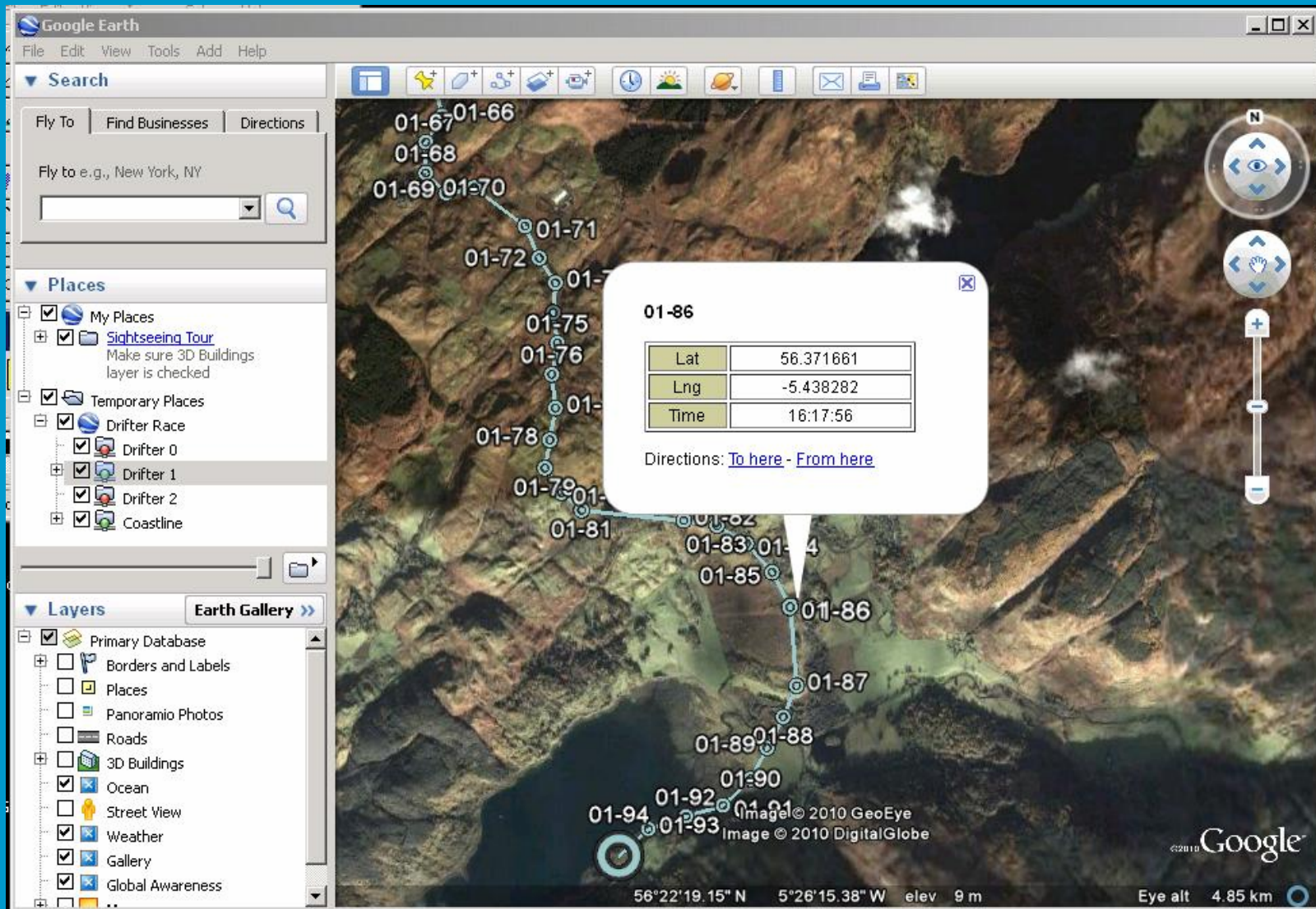


GSM Communications

- GSM modem allows direct internet connection. Data SIMs used provide a fixed IP address for each drifter.
- Each GPS fix relayed instantly to another modem on boat and to server at SAMS using UDP.
- Periodic dumping of data to SAMS server by ftp.
- PC on boat plots positions using Google Earth



Google Earth Interface



The Plan.....

- First deployment in Great Race in Spring 2011.
- Subsequent deployment and refinement during 2011.
- Assessment of effectiveness of mechanical design
- Transfer of design into other costal drifting devices and moored installations.
- Commercialisation?



The End