

## Presentation Summaries 4: Visualization of Place

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### **What does 'realistic' mean? The issues relating to defining the accuracy of 3D digital representation of a place**

Rollo Home, Operations Director, Met Geo Info Ltd

#### **Abstract**

We live in a 3D world yet representation of that world has to date predominately been a process of abstraction into a 2D format. The output of this process requires interpretation by the viewer which introduces potential for miscommunication. For applications where there is a need to understand our interaction within a place, such as an urban development projects, accurate presentation of the actual (and planned) environment has become important. For such projects architects, designers and engineers are beginning to adopt 3D virtual (digital) city models because of their ability to convey information more effectively than traditional methods. Discussions with the entire stakeholder community is now an integral part of any planning process – the public being a key component, empowered as they are to influence development. It is vital to engage the public early to ensure their understanding of the proposal, thereby reducing potential conflict.

Professionals also gain insight for information presented in 3D, with case studies indicating sound business drivers behind their adoption: productivity and efficiency in the entire lifecycle from design and build through to operate and manage. However the practicality (cost) of model construction has introduced a level of pragmatism when specifying 'accurate representation'. In addition to positional accuracy there is the issue of representational accuracy. Terms such as 'Level of Detail' (LoD) has become widely used to describe increased detail from 0 (terrain model) to 4 (fully rendered buildings with interiors), but *ad-hoc* use of *half* levels indicates the lack of an accepted standard, and the restricting focus on 'visual' appearance rather than construction methods.

This paper suggests that a 3D digital model should incorporate semantics as well as topology and geometry in order to be able to sensibly represent an urban environment. A building cannot simply look like a building, but must also behave as one. Such an approach provides a more meaningful metadata description helping users understand the potential and limitations of the model.

## **Biography**

Rollo is the operations director at Met Geo Info ([www.metgeoinfo.com](http://www.metgeoinfo.com)); the home of CityGRID. The CityGRID software allows clients to maximise the investments made in the capture of their 3D data by managing the data through a relational database. By regarding 3D data as more than a simple visual representation of the city, and introducing a data structure, we are able to introduce semantics into the data. Suddenly 'the pretty picture' can tell a 'thousand stories' through integration with GIS and other spatial analysis tools. His introduction to GIS came while studying at UCSB in the US, from which he then went to be a GIS consultant for over 14 years; a role which has taken him around the world. Rollo is also currently involved in the development of the #Geo\_SW forum, which is open to anyone based in the South West of England with an interest in anything 'geo' (<http://bit.ly/bYsFgg>).

## **Mapping UK sea space**

John Pepper, Principal Consultant, John Pepper Consultancy Ltd

### **Abstract**

70% of the earth's surface is covered by water yet less than 5% has been explored by man! The lack of understanding and knowledge of our seas' resources has long been a challenge for governments across the world. But all that is about to change...

Following the publishing of the UK Government Strategy for the Conservation and Sustainable Development of our Marine Environment<sup>1</sup> "Safeguarding Our Seas" in 2003 and Progress assessments in 2005 and 2010, the pressure to achieve clean, safe,

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<sup>1</sup> Scotland marine strategy is delivered through Marine Scotland. Northern Ireland marine strategy is delivered by the Department for the Environment NI.

healthy, productive and biologically diverse oceans is now considered a high priority under EU legislation.

The Marine & Coastal Access Bill of November 2009 identified key areas of focus for the future namely Marine Spatial Planning, Conservation, Economic Activity and Fisheries Management. These activities fall under the authority of a new Government Department called the Marine Management Organisation (MMO) which is based in Tyneside. One of its specific activities is to gain access to geographical data and information necessary for it to undertake the tasks above.

The need for marine mapping and the visualisation of the topography of the seabed is now a key requirement going well beyond the provision of paper and digital charts, which represents an interpretative view specifically to aid safe navigation.

The advent of Multibeam Echo Sounder (MBES) and Light Detection and Ranging (LiDAR) technology now means that the seabed and its artefacts can be more easily and accurately positioned and depicted. This has led to more innovative and groundbreaking ways of visualising the seabed.

This presentation will explore the changes and challenges brought about by legislative programmes, improved technologies and man's need to know more about the seas and how these changes are allowing for a more certain evidence base being created to support effective and efficient decision making and asset management in UK sea space to benefit public sector, commercial and the citizen through innovative mapping and visualisation.

## **Biography**

John has a Mapping & Charting background. He trained as a Land Surveyor with Ordnance Survey (OSGB) spending over 25 years in a variety of disciplines including photogrammetry, triangulation, GPS surveys, map production and training. He also undertook overseas tours with OS International in the West Indies and Middle East supervising mapping programmes.

A career change into Marketing came in 1990 when he was responsible for developing and managing new digital products and services. John spent 9 months working with MAFF in 1993 on the UK implementation of the EU Common Agricultural Policy (CAP) reform programme.

John joined UKHO in 1998 when he managed the worldwide series of Admiralty chart products. He was later responsible for the development of the UKHO wider markets initiative developing ways in which UKHO information could, through partnerships with the public and private sector, support the emergent marine GI market to deliver innovative GI solutions. He developed consultancy services and solutions utilising hydrographic data and information aimed at the world-wide marine and coastal GI markets. He was also responsible for defining UKHO GI Strategy and Policy direction as part of the wider in-house IMT project and in doing so ensured compliance with INSPIRE and the UK Location Programme.

John now runs his own consultancy company focusing on business and marketing strategy; planning and development in addition to the provision of advice and support on marine and coastal spatial data infrastructure matters and solutions.

He is an active member of the Chartered Institute of Marketing (CIM), a Chartered Marketer as well as being a member of the Institute of Leadership and Management (InstLM). He holds professional qualifications in Surveying Science and Geodesy and a Post Graduate Diploma in Marketing & Strategic Planning.

He is both a Director and past Chairman of the Association for Geographic Information (AGI). John lives with his wife in Taunton and lists his interests as playing golf, cricket, walking and gardening.

## **Maps in motion**

Christopher Osborne, Head of Business Development, ITO World Ltd

### **Abstract**

It can be hard to make meaningful information from huge amounts of data, a graph, a map and a table doesn't always communicate all it should do. This talk will discuss the changing nature of data, and how online, crowdsourced and real-time datasets are producing new challenges and opportunities to visualisation. In particular the visualisation work ITO World have done for [Data.gov.uk](http://Data.gov.uk), and OpenStreetMap: Project Haiti - turning big datasets into compelling narratives.

### **Biography**

Christopher Osborne is Head of Business Development for ITO World; providing online data management, geospatial analysis and visualisation for the transport industry. Christopher started life as a geographer, grew up with the internet, and finally blossomed into a neogeographer. He founded GeoMob, the regular geoweb lightning talks and social event in London and is a well known figure in the UK geoweb community. While not speaking he contributes to OpenStreetMap, promotes the benefits of open geodata to public bodies and builds bridges across the digital divide.

## **The role of cartographers in the mashup age**

Tom Timms, Director, STAR-APIC

### **Abstract**

We now live in a world where there are huge and rapidly increasing volumes of geospatial data available. Much of it is free.

Maps are no longer only presented on paper. We spend much of our lives in front of screens showing a variety of mapping and increasing numbers of people have devices that are location aware.

Map making has gone from a specialist occupation to a non complex, relatively straightforward activity. Many of the traditional roles of a cartographer including generalisation and placing text are becoming automated. Now anyone can make a map and anyone can 'publish' or provide a map to a wide audience. The mashup and crowd sourced data are here to stay and are likely to evolve into new forms.

However, as cartographers, we know that many of these new maps are far from perfect.

This paper will show some of the techniques used to create modern mapping, some of their constraints and limitations and pose a key question: What is the role of the cartographer in the mashup age?

### **Biography**

Tom has more than 25 years experience in the mapping and GIS industry. His first exposure to digital mapping was in the early 1980's at Birkbeck College in London under David Rhind. This was followed by a number of years at Laser-Scan supporting mapping applications for National and Defence Mapping Agencies around the world. A move to APIC (now STAR-APIC) signalled a move towards GIS but the acquisition of Mercator by STAR-APIC has renewed an interest in Cartography.