GiS Professional

issue 54 : October 2013

...joining the geography jigsaw

Spirit of "Maptember" brings us together!

Open Data: having your cake and eating it

AGI GeoCommunity'13 – Open for Business

GIS delivers better services for Poole

FOSS4G reveals passion for open source

Interview: a fortune-teller for GIS?

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Issue No 54 October 2013

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our mission. . .
to help grow the business for the whole GIS community by providing an effective, reliable and timely medium for news, information and comment.

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also in this packed issue:

> *GISPro's COLUMNS*

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Next Issue: **DECEMBER 2013**
Copy dates **Editorial:** 4 November
Advertising: 15 November

Front cover: From AGI GeoCommunity'13 to BCS' 50th Anniversary Symposium, enthusiasts have been gathering together to share their passion for geographic information in all its forms!
Our thanks go to AGI and Martin Lubikowski, ML Design, for the frontcover images.

to subscribe to GiSPro, turn to page 34.

read on. . .

welcome
to the October issue of *GIS Professional. . .*

Mappiness is Maptember in Mappingham

Robin Hood would have been proud of the Open Source ethos and there was little sign of the Sheriff of Nottingham spoiling the parties at FOSS4G last month. We pay tribute to **Steven Feldman**'s enthusiasm and showmanship, backed up by the University of Nottingham and the AGI teams. I think it was he who started the Maptember bandwagon and we are delighted to jump on board!

GI is out there

Our reports from the 50th anniversary symposium of the British Cartographic Society, AGI GeoCommunity and FOSS4G compare and contrast different aspects of the exploding use of geographic information. Whether obvious or behind the scenes, GI is out there saving lives, saving time, saving money. It is delivering. It is clear that Open Source software is maturing and embedded at all levels of commerce and government. Open Data is also embedding itself in all manner of applications, though its advocates have not yet been able to convince the Treasury of the case for more openness and are still appealing for more and better documented successful commercial uses. **Arnulf Christl** explores the meaning of Open in these contexts on page 10.

> ***. . . this lack of 'metadata' reflects badly on all parties concerned including the Ordnance Survey, even though the OS MasterMap has clearly been updated. . .***

Delivering savings

This issue of *GIS Professional* has several articles and reports that are directly relevant to local government. As even more cuts are demanded in council budgets we can see that the intelligent use of GI can still deliver savings while maintaining, if not actually improving, service levels. We have an interview with **Charles Kennelly** from Esri UK (see page 18) and **Adena Schutzberg** asks 'so what?' (see page 9). Are we too often submerged in the technology and not seeing all the potential benefits?

The currency of map data

As a newbie parish councillor I have noticed that our planning authority's website, the county website and the neighbouring district council's website all had different versions of OS MasterMap earlier this month. One is at least 12 months out of date and one had a peculiar mixture of new and old data. Only one out of three was, apparently, up to date. Without visiting the site, would anyone know which one? They all carry the usual © Crown Copyright statements, one of which has the year 2013. I believe this lack of 'metadata' reflects badly on all parties concerned including the Ordnance Survey, even though the OS MasterMap has clearly been updated and has been supplied to at least one of the councils. Is there really any excuse or reason why council websites are not as up to date as the information supplied by Ordnance Survey through the Public Service Mapping Agreement (PSMA) – the title of which simply says it all?

Ordnance Survey often boasts of its creditable update targets – that "99.5% of significant real-world features are included in Ordnance Survey's database within six months of completion". That's great but absolutely irrelevant to the general public who can only see what is provided publicly on the web. It should not be rocket science to put up a 'latest update' date for discrete areas of a map – perhaps 1km x 1km tiles – that could appear when toggled or floated near the cursor. The problem is not confined to the public sector. At least one well known mapping site has one area (also in my parish as it happens) where to zoom in is to go back in time! Once again, no dates except for 'publication' in 2013. In fact, the aerial imagery is at least three years out of date. It is telling that the vast majority of maps published – in all media – tell us nothing about the currency of the underlying data. Year of publication is as good as it gets. Is this really the best we can do in 2013? Or are there compelling reasons for map and data publishers to hide their metadata?

Robin Waters, Editor

Naming and numbering update for London borough

Avoiding ambiguity is a key aim of local authority street naming in new developments. One London borough has overhauled its Street Naming and Numbering (SNN) policy to be more user friendly and understandable. London Borough of Enfield made giving detailed guidelines a top priority in order to avoid problems and time-consuming challenges and included in the policy information on the council's local address dataset and a specific clause for schools, parks and open spaces.

Clarity was written in for postal and emergency services, and it was essential for the new policy to meet the national standards and Data Entry Conventions for property addressing and referencing. To write the new policy, previous documentation was reviewed and improved by the SNN officer and other council managers. "The implementation has ensured that customers have a clear set of guidelines relating to SNN", explains Nilly Mehmet, SNN officer at the borough. "Since streamlining the policy and processes, problems have been minimised as customers are aware of what is not permissible and the reasons why."

To find out more about street naming and numbering, and local address datasets, visit www.geoplace.co.uk

Primary web GIS for agency

The Environment Agency has selected Geocortex Essentials as part of its strategic mapping platform and next generation EasiMap application. 1Spatial, the UK and Ireland reseller for Latitude Geographics, supplied the software and helped implement the EasiMap application. This is the agency's primary web-GIS application, providing GI, maps, data navigation, querying and reporting, as well as a range of purpose-specific tools via a browser to 12,000 internal users of which a quarter will log on every day.

More open datasets coming?

The government has published a list of unpublished datasets (those that are not already on dat.gov.uk) and has invited requests for the release of any of them. Feedback will be published openly. The exercise aims to find out which datasets are of most interest and also those that might have the most significant impact. The results will be used by the Cabinet Office to prioritise data releases. Many of them are spatial data including Lidar, aerial imagery, river and flood information, etc. **http://data.gov.uk/data/search?q=&unpublished=true&page=1**

Plugfest to bring interoperability

The Open Geospatial Consortium (OGC) and Ordnance Survey, with the support of the Association for Geographic Information (AGI), are leading the first of a series of events called the United Kingdom Interoperability Assessment Plugfest (UKIAP) 2013, www.opengeospatial.org/OSplugfest. The aim is to advance the interoperability of geospatial products and services based on OGC standards within the UK geospatial information (GI) community. The results will enable OS to provide best practice guidance to anyone wanting to consume or implement geospatial web services or products based on OGC standards. The Plugfest is open to commercial and open source vendors and to all GI organisations in the UK.

Shared services for councils

West Dorset District Council and Weymouth and Portland Borough Council have recently moved to a shared service platform using a gazetteer management system supplied by Aligned Assets. Although the two councils remain 'sovereign' they have one staff structure and will use Symphony iManage with components specifically designed to handle shared services for management of address data. Each council will retain a dedicated Local Land and Property Gazetteer custodian whose local expertise will be essential.

Tool helps savings in Herts

Cadcorp has delivered a resource planning and performance reporting tool to help their local Hertfordshire Fire and Rescue Service (HFRS) save lives – and money. The Workload Modeller application should help to maintain efficiency and effectiveness by ensuring resources are in the areas of the greatest need. The simulation modelling software enables fire services to explore the likely effects of making changes to their resourcing strategies - specifically the location and deployment of vehicles and personnel.

The service's Gareth Bradbury explains. "Not only will Workload Modeller help us stay operationally efficient, it will also help us make considerable savings in the cost of ownership of the software used for resource planning. There are also practical advantages from the application's close integration with a GIS because we get a geographical view of the modelling outcomes. We can then recognise not just that certain outcomes are better or worse than others, but why and where these outcomes differ."

OS mapping snapshots move to Scotland

Since an initial agreement with Ordnance Survey Great Britain (OS), the six UK Legal Deposit Libraries (LDLs) have worked together to receive and publish annual snapshots of large-scale digital map data from 1998 onwards. Ordnance Survey Northern Ireland (Land and Property Services) deposits began in 2005. Now thinkWhere, based in Stirling, will provide a fully hosted and managed service to store the growing collection of digital mapping and provide online access to the public at each library. The five-year contract was procured through the British Library in London but also covers the Bodleian in Oxford, Cambridge University Library, the National Libraries of Scotland and Wales and Trinity College Library in Dublin.

The project involves handling up to 12Tb of spatial data and thinkWhere has extended its partnership with Pulsant UK, which provides the cloud and managed hosting services. The Location Centre IT infrastructure will be extended for the project and will ensure the libraries and their users

*There is more news of companies and organisations on our website at **www.pvpubs.com***
To get your company featured on these pages call Sharon Robson on +44 (0)1438 352617

benefit from enterprise class data centre capabilities. www.thinkwhere.com

Demand for open source

Astun Technology reports an increasing number of open source geospatial contracts won this year from the public sector. Astun, which has used open source from its beginnings, is serving over 60 public sector organisations including local authorities, national parks, emergency services and housing associations. Demand has led to the development of a mix of solutions stretching from public facing map portals, enterprise GIS and Spatial Data

Company founder **Mike Saunt** says, "We don't have to worry about restrictive vendor licensing and have the flexibility to provide our clients with real value. Whilst it is not always economic and often impractical to throw out proprietary in favour of open Source the interoperability, issue often cited as barrier against wider adoption, just doesn't hold water."

BRIEFS

Organisers of the GEO-Event series and publishers of GiSPro PV Publications Ltd have disposed of their exhibition interests to Diversified Business Communications Ltd who will launch a new show, GEOBusiness on 28/29 May 2014 at the Business Design Centre, Islington London. More details at: http://geobusinessshow.com/

Autodesk has acquired Sam from Bestech Systems and AutoTrack from Savoy Computing Services. Sam is a software suite for the design of small and medium span bridges; AutoTrack analyses vehicle swept paths for the design of parking areas and roundabouts.

European Space Imaging (EUSI) has completed this year's European Commission Controls with Remote Sensing (CwRS) campaign in record time with almost cloud-free imagery. Each year EUSI collects around 1,000 images evenly distributed across Europe and totalling more than 240,000 km² – twice the area of England. The campaign begins in March in southern Europe and follows the agricultural season north to completion in August. The imagery is used for the monitoring of EU agricultural subsidies.

ITO has cooperated with the

Desktop mapping aids consultation

GGP Systems desktop mapping software has been used by West Dunbartonshire Council to inform consultation on its new Local Development Plan. This required an assessment of the quantity and accessibility of existing open space. The council first mapped areas of public open space before considering their proximity to other areas and potential barriers to access. The council also analysed the amount of open space in relation to population data.

Craig Valentine, GIS officer, said "Using data from two studies we were able to identify which areas had poor access to areas of public open space and also which areas had a significant under provision of open space," continued Valentine. "This analysis can be used to target investment and improvements in open space ultimately improving the quality of life for residents."

Hi-tech tackles flytippers

Newham Council has introduced a hi-tech solution that will help deal with the scourge of illegally dumped rubbish at the push of a button. The Mayrise Systems solution enables front line council staff to report flytips while on the road and to pinpoint exact locations for later collection. Sixteen caged cleansing vehicles and three refuse vehicles for bulky waste and missed collections now have in-cab touch-screen computers to receive GPS locations for dumped rubbish.
Despite offering a free bulky waste collection service to residents and a value for money trade waste service to businesses, both managed using Mayrise software, street cleansing staff at Newham deal with up to 3,000 fly-tipping incidents per month.

Trekking canals

The Google Trekker, which captures Street View imagery via a backpack in remote locations, will start to capture Britain's 200-year old network of canals and rivers. The Trekker will be on loan to the Canal & River Trust (formerly British Waterways) and will start on the Regent's Canal in London. It has previously captured imagery in the Grand Canyon, the world's tallest building, Burj Khalifa and a few of the world's highest peaks.

Key features to be captured on our canals are the three-and-a-quarter mile long Standedge Tunnel in Yorkshire, (longest and deepest in the country) the Bingley Five Rise flight of locks and the picturesque village of Stoke Bruerne on the Grand Union Canal.

Campaign to Protect Rural England to provide a clear and highly detailed view of the proposed HS2 route. http://hs2maps.com The map was released as an exclusive with the *Mail on Sunday* newspaper.

The International Map Industry Association (IMIA) has awarded XYZ Maps for its Liverpool City Centre Postcode Sector Map, winning silver in the IMIA's Best Wall Map category. The award recognises the best in a variety of maps. The award winning wall map is available to view and purchase in a variety of formats on XYZ's website.

The International Association of Oil and Gas Producers (OGP) has set up a new body with the goal of increasing the industry's use of Earth satellite and airborne imagery, a key tool that will improve emergency response and also make exploration and production more efficient. The body will work closely with the European Space Agency and with European Association of Remote Sensing Companies to promote industry-wide awareness and rapid implementation of new Earth Observation technologies to maximise benefits for the oil and gas industry.

PEOPLE

Dangermond to speak in London

The founder of Esri, Jack Dangermond, is to speak in London on GIS & Web Cartography on 25 October at 11 am. The event is organised by the British Cartographical Society. Details at www.cartography.org.uk

School honours GI experts

The School of GeoSciences at The University of Edinburgh has announced two Honorary Fellowships, recognising the commitment and achievements of some of the most influential

individuals within the GIS arena.

Adrian Tear (above), a former student of the University, has had great success with satellite imagery and the launch of the uniquely geospatial dating website LoopyLove - which serves more than 25% of the online market! He is still managing his own company advising corporate clients and now studying for a PhD on the effects of social media on politics.

The second Fellowship is granted to Professor **Michael Worboys** – a leading academic within the field – who has worked for many years at the exciting and ever-evolving boundary between the computer sciences, mathematics, and GIS. Until recently, Mike was Director of the School of Computing and Information Science, and a professor in the National Centre for Geographic Information and Analysis (NCGIA) at the University of Maine, USA. Mike's CV boasts such highlights as co-authoring *GIS: A Computing Perspective* and editor-in-chief of the *Journal of Spatial Information Science*.

Bruce Gittings, programme director for MSc in GIS at Edinburgh is looking forward to working closely with Mike and Adrian and is certain the students will benefit not just from their knowledge and research interests but also learn from their achievements and successes. The MSc in Geographical Information Science at Edinburgh has been running for over 30 years. www.geos.ed.ac.uk/gis

Adena Schutzberg is Principal of ABS Consulting Group Inc. and Executive Editor of Directions Magazine, www.directionsmag.com

So many maps, so little "so what?"

The true power of geography is to cause action. But while it is good news that we are increasingly seeing more people making maps of things that matter to them, it is rare to see these maps spurring people in to action, argues **Adena Schutzberg**.

MY FAVORITE DESCRIPTION of geography comes from one of my late professors, Dr **Paul Simkins** from Penn State. On the first day of his population geography class, he explained that geography addresses four key questions:

- **What?**
- **Is where?**
- **Why?**
- **So what?**

While the first three are important (gathering data and trying to understand the processes behind the pattern), the final one reveals geography's true power. The power of geography is its ability to cause action. In other words, geography is powerful when those who explore a map decide to do something about the issue raised.

Why bother? I'm happy to report that based on my daily reading of the popular online English language press around the world, journalists, bloggers and citizens of many lands are taking those first three questions to heart. They are making maps of things that matter to them, such as mobile phone coverage, lost pets, environmental issues. Further, they are trying to tease out the reason for the patterns they find. I can't think of many better ways to invite the public to consider the importance of geography.

I must also report that the fourth question, "So what?", is not getting the play it deserves. It's rare that a map is used as the basis of a call to action of any sort. And it's rarer still that the map creators suggest the importance of what they have mapped. Why then do they bother to make the maps?

First, many online maps are made because they can be made. It's easier than ever to drop a spreadsheet of geo-located data into a mapping program and get an instant thematic map.

Second, and this is a bit ironic for a discipline trying to get the world to take it seriously, maps are link bait. Let me give you an example. I found a map of college football loyalty by county[1] in an August issue of *USA Today*, a daily national paper known for its full colour infographics. It's a map of which college football team Facebook users have decided to "like" aggregated to their home county. Two days after publication on the weekend many colleges started their football season (and Penn State beat Syracuse), 727 people shared the map on Facebook, 56 tweeted it and 181 e-mailed it. Those stats only include actions taken using the tools on the article's page; there are no doubt far more shares.

So, in one sense, these maps are causing action. They are causing people to share them with other people. That puts maps right up there with cat videos in importance on the web.

New way of thinking How then do we entice online map makers and map readers to address "so what?" That is, how do we prompt more map-motivated action? I believe it will require a new way of thinking about maps.

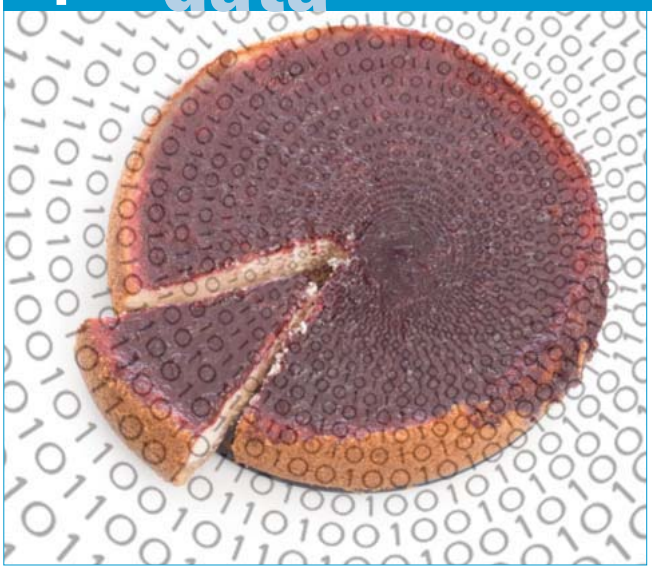
I want to see comments and discussions like these around maps:

- The map makes me want to contact my Congressman and tell him to vote yes/no on putting the hazardous waste dump near the mine!
- The map spurred me to start a neighbourhood watch to help lower crime in my neighbourhood!
- The map prompted me to stand at the corner and help students cross the street because there is no crossing guard at that location at 7am.

What I'm suggesting is that we, the professional creators and users of maps, help tell more stories about maps prompting action. When we introduce the idea of spatial analysis to students or the public, we all tell the same story, the story of John Snow and cholera. We need books of such stories with more attention to what action the map spurred and less about exactly how it was made and how pretty it is. More stories like this might help map readers think of maps as agents of action and to ponder and act on the "So what?" question.

> ***. . . geography is powerful when those who explore a map decide to do something about the issue raised.***

1) **http://ftw.usatoday.com/2013/08/facebook-map-shows-states-true-college-football-allegiances**
Or the nearest equivalent for the English premiership is: **www.theguardian.com/news/datablog/interactive/2013/jan/11/premier-league-team-twitter-map**



Above: A cake can be sliced and shared but unlike open data there is a finite amount of it.
Image Credit: Dreamstime

Having your cake and eating it

In this article, **Arnulf Christl** and **David Overton** introduce the core concepts of Open Data and highlight the different approaches required by specific communities. It advocates stronger licencing by arguing that this will result in better metadata and will ultimately generate more value.

THE OPEN KNOWLEDGE Foundation[1] defines Open Data as:

> "A piece of content or data is open if anyone is free to use, reuse, and redistribute it – subject only, at most, to the requirement to attribute and/or share-alike."[2]

Academics, politicians and the wider internet community increasingly embrace Open Data. In academia, open source (software) has always been a natural prerequisite for any scientific work. **Markus Neteler** summarises this in the statement:

> "In our view, the explicit use of Free and Open Source Software (FOSS) with availability of the code is essential for completely open science."[3]

The same applies to data; if it is not openly available the validity of a proof cannot be confirmed or rejected. Unfortunately, even in the scientific domain, a tendency to close down access to data and use closed source algorithms to protect the intellectual property of researchers often prevails. This habit may be explained – but not excused – by the current scarcity of funding.

More recently governments have also started to publish more and more data under an Open Data regime.

The wider internet community ranges from those who champion proprietary software and data to groups like OpenStreetMap who rely on crowdsourcing and open availability of all their data.

This article aims to explain several aspects of how Open Data is defined by governments and open communities, what role licences play and why metadata is crucial for professional use of Open Data.

> ***"The secret to the success of 'open' digital assets is that they increase their value as they get shared."***

The Open Definition The Open Knowledge Foundation maintains the Open Definition,[4] which states that:

"A work is open if its manner of distribution satisfies the following conditions:"

- Access
- Redistribution
- Reuse
- Absence of Technological Restriction
- Attribution
- Integrity
- No Discrimination Against Persons or Groups
- No Discrimination Against Fields of Endeavour
- Distribution of Licence
- Licence Must Not Be Specific to a Package
- Licence Must Not Restrict the Distribution of Other Works

Other bodies like the Sunlight Foundation[5] provide similar definitions in their "Ten Principles for Opening up Government Information"[6]. The focus of these definitions is on the openness aspect of data. In contrast some businesses need to restrict access in order to preserve the value of their data by making the access to it exclusive.

Some background philosophy Open Data appears to contradict the perceived common mechanisms for generating value. Instead of reducing the availability of the product or service on the market and thereby raising its value, Open Data does the opposite. But Open Data is not a material 'good'; it is a virtual asset. As such it has quite a few similarities to Open Source software, which has been shown to generate a lot of value because it is open. The secret to the success of 'open' digital assets is that they increase their value as they get shared.

The term "sharing" is not ideal as applied to virtual or digital goods because we normally apply it in a material context[7]. A cake is 'shared' by cutting it into 12 slices and eating it. It may have been shared between 12 people but it is now gone. Each slice may have some value and be bought but there is a finite amount of cake, which must be consumed to be useful.

Data, on the other hand, can be multiplied by sharing. In fact, it may even be enhanced, the quality may improve and new data may be derived from combining it with other data.

In short, it can be said that data has little intrinsic value when it is not used (or shared). However, in use it will improve, multiply and generate new value.

Case Study: SplashMaps

SplashMaps, the start-up maps-on-fabric business, has found that the Open Data licences overcame significant barriers on the road to successful innovation. The Open Data from Ordnance Survey and other public authorities gave the company the confidence to develop their own products. David Overton, managing director, says: 'We are able to develop and test our products directly on the market without fear of contravening licences. This means that we are enabled to pursue the propositions we choose, rather than those that are "allowed" under a typically restrictive licence'. It also means that there is less erosion of margins by royalty payments, so the company can plough back more of its proceeds into further developments.

SplashMap have successfully combined OpenStreetMap data with complementary Ordnance Survey Open Data. This fills certain "gaps" and enables tailoring of content to specific users' needs, while also sharing edits on the map with the rest of the community. The maps encourage feedback on the data and could even grow the community contributing to the OSM.

Public Open Data Government open data sites are appearing everywhere. We believe this is a good thing. But the way in which it is done may give rise to much uncertainty over licencing and copyright issues and incompatibility between different Open Data licences can render interoperation impossible. Technical interoperability can be achieved by adhering to standards such as OGC[8] and INSPIRE[9]. Legal interoperability is challenging in cases where government Open Data definition is less restrictive than Open Database Licence (ODbL) used, for example, by OpenStreetMap. This means that the two sets of data cannot be readily combined to create a derivative and value added work.

A very thoughtful and comprehensive overview of government open data issues has been published by Socrata in the Open Data Field Guide[10].

Community driven Open Data OpenStreetMap was originally described as a "crowdsourced". Later, the term Volunteered Geographic Information (VGI) was coined. Both terms miss some 'community' aspects of such projects: all contributors earn the irrevocable right to reuse their collaborative work.

OpenStreetMap is a free, editable map of the world and is sometimes compared to Wikipedia, which may be the closest comparison for free and openly available information. But OpenStreetMap offers more; it gives users the freedom to adapt the geographic data in many different ways to create new data and applications.

There are five core principles underlying the concept of community driven open data[11]:

- Spatial data is collected and maintained by a community;
- There is a clear and accepted licence for reuse;
- Any individual or organisation can use, modify and redistribute the data;
- Derived products (for example maps) can be copyrighted.
- The data stays open and publicly available.

OpenStreetMap, for example, was originally made available under the CreativeCommons Share Alike licence designed for works of art and not well suited for data. In 2012, it resolved to re-licence all data under the new ODbL and use the CreativeCommons licence for the resulting map images.

Licencing Open Data does not mean "unlicenced" or "un-copyrighted". On the contrary, Open Data without the need for attribution loses a lot of its value because it lacks the link to its source. This may render copies of the data worthless for professional or scientific use. Even if data is licenced correctly, including reference to proper attribution, it may have experienced changes which – if not explicitly declared – can become a significant problem.

The UK Open Government Licence The UK Open Government Licence[12] was created and is maintained by The National Archives (TNA)[13]. It states that you are free to copy, publish, distribute and transmit the Information; adapt the Information; and exploit the Information commercially by combining it with other Information, or by including it in your own product or application. However you must abide by conditions: acknowledge the source of the Information and where possible, provide a link to this licence; don't imply any official status or endorsement; don't mislead or misrepresent the Information; and don't breach Data Protection or Privacy laws.

The problem with this UK OGL is its failure to ensure that changes to the data have to be made visible. It is therefore difficult to assess whether any information derived from the source is accurate and based on the original data.

The Open Database Licence (ODbL) The Open Knowledge Foundation[14] has taken many of these aspects into account and created the ODbL[15]. This offers the same opportunities but also specifies that a derivative 'produced work' must be accompanied by information that shows (or enables the user to find) all of the changes that have been made to the original database.

This licence is currently the best fit for Open Data and also complies with European Database law, which is complicated in having to reconcile the different concepts of copyright, in common law jurisdictions, and author's rights in civil law jurisdictions.

One important aspect clarifying this passage and making it fit for reuse in a commercial context is covered in 4.6:

> **4.6** Access to Derivative Databases. If You Publicly Use a Derivative Database or a Produced Work from a Derivative Database, You must also offer to recipients of the Derivative Database or Produced Work a copy in a machine readable form of:

. . . Open Data without the need for attribution loses a lot of its value because it lacks the link to its source. This may render copies of the data worthless for professional or scientific use.

About the authors

Arnulf Christl is a geospatial systems architect and provides consultancy for clients throughout the world including the United Nations, Ordnance Survey GB, FIFA and the REWE Group. He is founder and director of the metaspatial Institute providing certification for geospatial professionals specialising in Open Source, Open Standard and Open Data. Arnulf is also President Emeritus of the Open Source Geospatial Foundation (OSGeo) and member of the Open Geospatial Consortium (OGC) Architecture Board.

David Overton founded his consultancy, dbyhundred Ltd (www.dbyhundred), in 2009. He has been working on innovation in the emerging location sector for the past 10 years and has also been elected as a Fellow to the Royal Geographical Society for his work on making Public Sector Mapping more accessible.

a. The entire Derivative Database; or

b. A file containing all of the alterations made to the Database or the method of making the alterations to the Database (such as an algorithm), including any additional Contents, that make up all the differences between the Database and the Derivative Database.

In the opinion of the author, this paragraph is 'best practice' because it allows for the reconstruction of the whole process chain that resulted in the data at hand. It also ensures that OpenStreetMap data, for example, can be combined with private data for internal use and still provide full data protection and privacy.

Summary Open Data is here to stay. Even in times of austerity with continuing privatisation and persistent opposition to "opening up", Open Data has proven to be a valuable asset for many special interest communities. The broad application of 'openness' to data is still in its early days and there are still many relevant issues to be fully addressed. However, it has already been conclusively demonstrated that strong licencing and copyright are not a contradiction to openness but actually support important aspects like metadata and improve the quality, longevity and reliability of the original open data.

This article is licenced following the Copystraight[16] paradigm.

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13) http://www.nationalarchives.gov.uk/
14) http://okfn.org/
15) http://opendatacommons.org/licenses/odbl/summary/
16) http://arnulf.us/Copystraight

Party time at AGI. While some escape to the bar others are forced to surf the treacherous wave machine.

Open for Business!

Increasing public awareness, opportunities for industry change and predictions for the future! **Hayley Tear**, **Robin Waters** and **Stephen Booth** report on the highlights of another successful AGI GeoCommunity conference.

Last year's conference focused on "sharing the power of place" with the wider world and how building our industry's reputation was up to us – the GI professionals. In our report, we reflected that it had become an unofficial tradition to hear Chris Holcroft speak of the AGI's mission – always passionate about the opportunities open to us. So in the year leading up to GeoCommunity'13, has anything changed? We think so and there's plenty of evidence from contributors to this issue of *GiSPro* plus our report below.

Be chameleons, go native! With a bold conference theme - "Open for Business" - it seems AGI too is hopeful. In her opening address, Anne Kemp's enthusiasm matched Holcroft's passion of last year as she encouraged delegates to stand up if they considered themselves to be GI professionals, if they were new to the industry or if they had worked in the industry for longer than 15 years – an effective way of showing the range of people in attendance! 'Geo data has gone omni present and we have to share it' but we have to have more confidence and cross boundaries, she argued. 'Be chameleons' and go native, learn from other disciplines she encouraged. And the range of papers and networking opportunities available reflected her words.

The informal pre-conference Ice Breaker eased delegates in with regular attendees pleased to find the quiz as challenging as ever. I seem to have a knack for picking the right table as, much to the amazement of everyone on Table 11, we won. As my contribution simply involved a lot of nodding, I must thank my fellow winners for an enjoyable evening!

GiSPro's Hayley Tear again managed to sneak onto the winning Quiz table.

Geo intelligence Dawn saw the main conference begin with keynote speakers Major **Stuart Batey**, 135 Geographic Squadron, and Ordnance Survey's director general, **Vanessa Lawrence**. The 135 Squadron is the only Reserve Forces Unit to provide geospatial support to Defence. Batey explained that the role of geospatial recruits is to advise officers where to take soldiers – 'geo intelligence is key to war fighting'. Intelligence can include where to drive armoured cars – particularly key in urban terrains – where the opposition is mostly likely to attack and the location of collateral damage areas such as schools or places of worship. He showed photos of soldiers relaxing, one reading while wearing a mask and combat gear. Another of soldiers in Helmand watching a vehicle sinking in to desert sand – which better flood modelling prediction could have prevented ('but these are American soldiers so we can laugh!'). For the future, he argued that they must be able to understand geospatial technology and information, not just be able to operate it.

Innovation requires commitment How can we, as an industry, be more effective? **Vanessa Lawrence** argued that the challenge for geo professionals is to be the best for the UK, to be better at business than competing countries. Recently there has been 'a fantastic explosion' of good articles from the media, crediting our industry and raising awareness of geospatial. She highlighted the recent Cambridge Conference and hosting of the UN GGIM in UK as an important event for the UK geocommunity, bringing representatives from many countries together. We were told that the minister for Namibia remarked that, in a country where water is a scarce resource, spatial data is only below water in importance. Geography is something to be proud of; some countries see it as a poor degree but in UK we are the fourth most employable subject, said Lawrence. A delegate asked Lawrence – 'will we have OS Plc in the next two years?' 'There are many things I'm in charge of – status is not one of them!', adding that 'it was a decision solely for the cabinet – it says so in my contract!'

Esri UK's **Charles Kennelly** gave a partly light-hearted, partly serious prediction of the history of GIS over the next 25 years. Highlights included: 2020 – advances in cloning means that no one has to worry

The ever popular "Top Tens" attracted a number of brave souls to submit themselves to cheers or ridicule.

about what happens to Esri when Jack Dangermond retires; 2021 – standard smartphone is now something embedded in our skin and almost mandatory; 2029 – cartographers are reported as the most well-paid profession; in the 2030's OS switches to OpenStreetMap; 2037 – GIS Day, a new national holiday, when a grateful nation thanks the GIS industry. Read more about Kennelly's predictions on page 18.

Analysis v gut instinct! On the final day plenary speakers faced a slightly bleary-eyed audience recovering from an evening of masquerade masks, karaoke and a few drinks at the GeoCommunity Party! However, **Iain Sterland**, Head of Location Analysis at Sainsburys, kicked off with a story of past managing directors rolling up to a prospective new branch site in a Rolls-Royce, winding down the window and deciding on gut instinct. 'Everything else fails without the right location' but employing location planners has only happened recently. He described location analysts as 'the gateway by which an organisation finds geography' – a map can capture the attention of an audience, bring together diverse data clearly and reveal insights in to the competitive landscape.

Meanwhile, **David Philp**, Head of BIM Task Group, argued that our current time of change is a 'perfect storm' for our industry but that 'BIM is not a panacea, it is an enabler!' He continued that the UK must be the best in class to be the providers of choice – BIM is a way of working, a smarter way of thinking but it will require collaboration as well as behavioural and cultural change from industry.

The final plenary heard from **Peter Batty**, a co-founder and CTO of the geospatial division at Ubisense. For Batty "open" has always been a buzzword in the geospatial industry but what does it mean? He argued that 'developing open source software is not a hobby (for most people)', adding that, at the last count, the FOSS4G conference organised by the Open Source Geospatial Foundation, which followed on from GeoCommunity'13 in Nottingham, had 900 delegates registered (report on page 16). When deciding between "open" or "closed" source, he will consider aspects like functionality, cost and support but he's happy to use whichever is best for a particular job. Generally, open source has more freedom and you don't have to worry that a vendor might decide to stop investing in a product – usually there's a whole crowd developing open source.

Plethora of choice! Of course, it can never be said that the AGI GeoCommunity conference programme lacks choice! There were plenty of seminar streams covering topics like open data, new technology and business innovation to BIM, infrastructure and policy in practice. Below, Robin Waters and Stephen Booth pick out some highlights.

Cloud Technologies: the silver lining for GIS **Colin Henderson** of Atkins gave a plug for the use of cloud technology and some of the reasons why it is good for his organisation; particularly relevant because they have offices all over the world with projects requiring access from many places and with intermittent use of processing and workstations for GI. The 'cloud' gives them the security and flexibility of a very large system without the need for as much hardware or as many licences as would be required with dedicated office systems.

Locating the nation's numbers **Ian Coady**, Office for National Statistics (ONS), explained that ONS provides the standard geographies for all government statistics – even those that come from other departments. He complimented Vanessa Lawrence and OS on taking the lead with UN GGIM (which comes under the UN statistics unit) – a similar situation to their own commitment to Inspire – able to influence the international requirements before they become mandatory. All stats come through data.gov.uk but he was at pains to point out that they do not report to a cabinet minister; they are supposed to be independent of any department. They have completely redesigned their internal system – not just because of Inspire, it was getting old but also because it now has to be outward-facing.

NOTE: UK has twice as many administrative boundary changes per year as the rest of the EU put together! This makes it very difficult to compare statistics through time. E.g. counties change and are plus or minus the unitary authorities within them!

Going 'hybrid' Open! **Simon Miles**, Royal Borough of Windsor and Maidenhead, gave an important presentation about moving from a proprietary system to open source software. One of the main factors for the move was the proprietary licencing of 'seats' with an incremental cost for every new user. In fact they are not (yet) completely open source and do rely on commercial support. The move had to be very carefully planned and took place over six months and there was an initial cost. Simon acknowledged that the expertise gained was very marketable and that they had to plan for staff moving on.

It starts with a bit of geography **Michelle Oldfield**, Canal and River Trust, explained that CRT is the old British Waterways responsible for navigation on canals and some rivers across England and Wales. They have many offices and frequent requirements for meetings. Michelle described what I can only call a brilliant application devised by their GIS team in a few working days, which is totally integrated to their office software and makes any meeting organiser aware of the costs of face-to-face (or on-line) meetings, both financially and in carbon emissions. Their meeting room planner hides the geographic information and software from the users – it just tells them exactly where the optimum CRT meeting room will be (sometimes not at any of the participants' own offices) and why. This is a

> ***. . . a good example of using GI behind the scenes for a real benefit. . .***

good example of using GI behind the scenes for a real benefit to the organisation – we should all be using it!

Crowd sourcing. . . with a pinch of salt There is some high value crowd-sourced data supporting the environment, according to **Laura Kinley**, a PhD student at University of Nottingham. She considered the potential for crowd-sourced geospatial content to enhance authoritative land cover mapping. Kinley's research (limited to Hampshire) suggests that volunteered geospatial data from sources like OpenStreetMap suffers from spatial disparity, semantic inconsistencies and contextual issues but the land use data has much better coverage of the environment than OS MasterMap. Her research used geometric comparison and Python word matching scripts to test the data. Attribute accuracy was better than expected, however she cautioned that there are barriers to business use due to lack of maintained quality, standardisation and completeness. 'Volunteered geographic information has to be taken with a pinch of salt,' she concluded.

Dream geo job? We now live in an era when it has been said that 90% of all the world's digital data has been captured in the last two years. Every minute there are an estimated 100,000 tweets and two million Google search requests. Big data indeed. So who gets to use it or rather play with it? Dr **Andrew Hudson-Smith** is director and deputy chair of the Centre for Advanced Spatial Analysis (CASA) at University College London with the dream job for any geo-gadget fiend. In his laboratory, he tests all the latest location gismos, including those yet to get into our hands like a location-enabled brain-wave sensing headset, which can detect our emotions as we travel through the day. So much better than filling in a tedious questionnaire until you realise that such a device can tell the data collectors you are much happier with your secretary than your wife! He introduced the Oculus: virtual reality that really works, he assured us, and for only £150 when launched in around six months time (but missing Christmas?).

Hudson-Smith, who has done work for the London Mayor's office (more toys for Boris?), explained that increasingly mapping for some applications is being controlled or even replaced by a dashboard of live feeds. The dashboard model provides a better and quicker way of understanding a situation. With live feeds there is the potential for predictive modelling such as what may happen within the next 30 minutes, while location-enabled Twitter feeds superimposed on aerial imagery can leave you wondering why people chose to tweet from a shed! With so many sensor feeds 'we are walking blindly into a 24/7 surveillance world,' says Hudson-Smith. No wonder that UCL's GIS Masters course now teaches how to code in the first year. Each student also gets an app with a map of the campus to help them get around and also to track where teaching staff are (findmynearestprof?).

3D UKMap data Mapping high-rise city centres in 3D is the "cartographic challenge' says **Seppe Cassettari**. He explained how a small tweak to the data model in The Geoinformation Group's UKMap has helped solve the problem. UKMap has multi layers, 265 land use codes on a four-level hierarchy that already offers over 1500 potential combinations for a single polygon and already deals with things that overlap each other. But places like Canary Wharf and La Défense in Paris with multi-levels overlapping each other present a different order of complexity in capturing the topography.

Essential in capturing these multi-layer environments is determining ground level. Cassettari argues that you have to start with a minimum one-metre DTM (digital terrain model) with no overlapping polygons. All polygons above this level have to be attributed back to the base level enabling you to "pull it apart". But challenges abound within this environment. Typically, features like escalators have caused UKMap to develop the 'connector polygon' where a feature at one level may need artificially separating at the point of connection to accurately link it back to the DTM base polygon. But solutions have to be about affordability for end users.

This theme was taken up by **Rollo Home** of Ordnance Survey in his presentation, "Is 3D a solution waiting for a problem?" Now this once upon a time was also said about GIS. The age of big data has nailed that for ever. Will the Playstation generation drive 3D through the merging of personal and business life? Other drivers, according to Home, are smart grids and meters in the energy supply market and the growing number of mega cities around the world that present unique challenges for city managers, which 3D can help solve. But in the UK there is no government debate or initiative driving 3D development. Nevertheless, a simplified building height model will be available soon from OS following trial projects in several UK cities to test how local authorities integrated and might use 3D data.

Ordnance Survey, explained Home, is moving from a map to a data model with geometry no longer the primary focus. He illustrated this with a sample from a 3D dataset with derived building heights and positional measurements from the edge of adjacent polygons. Oh dear, I can see surveyors picking up their cudgels already! Fine for a city GIS but once architects and developers get hold of it, no need for a topo survey, we'll just use this highly accurate OS model!

In questioning, **Geoff Zeiss** of Between the Poles, made a cogent plea for reliable data on utilities. For developers, uncertainty of 3D data on services is a major problem. For cities that have 3D utility data there is a a huge business benefit.

Top Tens winners Angharad Stone and Chris Mewse played a game of mapping trumps with ever more naff mapping products. But maps on knickers. . . ?

> **Every minute there are an estimated 100,000 tweets and two million Google search requests.**

Passion over pragmatism

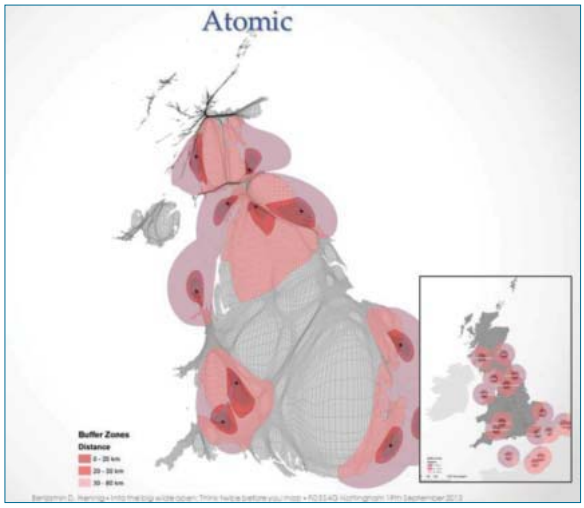
Our editor **Robin Waters** joined a seamless changeover in Nottingham from GeoCommunity'13 to FOSS4G. After a welcome from Robin Hood, he enjoyed the more interactive atmosphere and discovered that passion for open source is not restricted by age, industry sector or country.

FOSS4G FOLLOWED ON seamlessly from AGI GeoCommunity'13 with many delegates and several exhibitors in common. So what changed? From one day spent at each, I would say that the AGI presentations and delegates were concentrated on practicality, pragmatism and professionalism; FOSS4G was more passionate, more questioning and certainly more interactive. It was also international and featured many more workshops and code sprints.

A merry band at FOSS4G As you would expect there was a lot more explicit openness in the second half of the week but I was struck by the amount of open source and open data discussion served up by AGI GeoCommunity and by the number of proprietary system and service providers sponsoring – yes sponsoring – FOSS4G. It was also obvious that open source advocates come from all age groups and from across the whole range of GI applications – from public sector and academia to big business and the third sector; not to mention that this was an international conference being held in the UK for the first time. I am sure that it will not be the last.

Steve Feldman as Robin Hood, the conference chair, introduced us to his merry men and women, including **Jo Cook** as Maid Marian and **Jeremy Morley** as Friar Tuck. I don't think I heard him refer to **Rollo Home** as Little John but the whole team from Nottingham University, AGI and the Diamond Sponsors, Ordnance Survey and the Met Office, should be congratulated on a really well organised, useful and enjoyable conference. In fact we are told that the merry men put in some 6000 hours of volunteer effort and were rewarded with over 800 visitors to the forest, interacting with some 190 presenters in several different sheltered glades. I don't think the sheriff got much of a look in and certainly didn't spoil the parties!

Story behind the map After Feldman's introduction – and no one does it better – he was upstaged by an impromptu "musical" interlude that might only have won third prize at a Sherwood Forest camp fire but did manage to get the audience to sing along! **Geoff Tucker**, our first "keynoter" has a spooky past; he founded In-Q-Tel, the CIA's Venture Fund. But his latest venture appears, at least at first glance, to be rather more Open. MapStory is 'a new dimension in the global data commons' that brings together history and geography or, in geek speak, tells a spatio-temporal story. His thesis is that traditional maps can only be snapshots and that we need to introduce the fourth dimension to really understand our world. Whether it is the westward expansion of the USA, the changes in house prices over time or the political geography of Europe, we can all benefit from understanding the story behind the map. MapStory enables anyone, anywhere to set up a spatially referenced time series and publish it to the world. Just be aware that all his old friends can see it too! And if you can derive all sorts of meaning from the geography of twitter world and facebook land, then I'll bet someone has beaten you to it and put you in one or more of their pigeonholes for future reference.



Right: An example of keynoter Ben Hennig's cartograms – nuclear power stations and their buffer zones. The inset shows a normal map projection. The ugly brute shows them plotted on a population density cartogram! I would guess Nottingham is as far from a nuclear plant as you can get in England!

Distorting reality? At the other end of the day, we were treated to distorted maps – sorry, I mean cartograms! **Ben Hennig**, from the University of Oxford, has long been associated with the Worldmapper project based in Sheffield and really made us think. In fact he wants anyone making maps to think twice before generating an image – about the purpose and about the form that the map should take. I have to say that my take on cartograms is that they look grotesque

and immediately bring to mind **Gerald Scarfe**'s cartoons! Perhaps that says more about my thought patterns than about the avowed purpose of the cartograms, which should make us think about the unequal geographic distribution of variables from population to poverty and from natural resources to rainfall. In fact, come to think of it, cartograms and Scarfe are coming from the same end of the political spectrum, aren't they? Should we be spared these maps as distortions? But how do we define reality anyway? Ben told us that several years ago the town council in Monza, Italy, banned the keeping of goldfish in round bowls because it distorted their view of reality!

Open or free? Between these two keynoters I ventured into several of the parallel sessions, though only those in the main building and not those taking place several hundred metres away through the rain!

Elsewhere in this issue (page 10), **Arnulf Christl**, one of the founders of the Open Geo Foundation, explains the meaning of "open", and he kicked off one of the conference streams on the same theme. Confusion between "open" and "free" continues but no one attending this session would be in any doubt about the difference between open and proprietary software. Open data, on the other hand, is more complex and is bedevilled by different licencing regimes enforced by different governments and agencies. Arnulf reads the small print and doesn't like it very much! In particular, the UK's open government licence (OGL) is fine except that, unlike the Open Database Licence (OdbL), it does not require that users pass on metadata about changes that they have made from the original. He contrasted the Google licence with the (Microsoft) Bing contract and with the standard (Nokia) HERE terms and conditions, which don't recognise maps or spatial data at all. Mashing up is still hard to do – legally.

Brent Council has been in the forefront of local authorities using spatial data and are now in the forefront of the "open" revolution. Dr **John Birkett** described a particular process for loading and "cleaning" Codepoint Open Data from Ordnance Survey. The council, as members of the Public Sector Mapping Agreement, are also able to download Codepoint Polygons free of charge but for which different licence terms are attached – especially when providing derived data to users of contractors outside of the PSMA. His hints on the use of Codepoint, which geocodes all of the postcodes in the country, should be mandatory reading for anyone using that dataset – public, commercial and third sector alike.

> ***"Mashing up is still hard to do – legally."***

A fortune-teller for GIS?

Charles Kennelly has been Esri UK's chief technology officer since 2008. He is committed to 'reducing barriers' to the use of geospatial information. Robin Waters met Charles at the bar after Esri UK's annual conference in London in May where he contributed to opening and closing plenaries as well as to the opening of the track on ArcGIS as a platform.

Charles has worked in the GIS industry for 20 years, starting life as a digitiser and working through the various aspects of the industry. Initially in local government and latterly with Esri UK, Charles has been involved in the design, development, deployment and management of a number of successful GI systems. Now working as the CTO for Esri UK, Charles specialises in finding ways of making GIS accessible to ordinary users in wide-ranging environments, from consumer mapping to enterprise and business critical systems.

This is the first Esri UK conference that I have attended and you seem to be able to attract many users despite the age of austerity?

We are delighted that there have been nearly 50% more delegates than last year and we actually ran out of *GIS Professional* copies that you had provided! We were taken by surprise at how many people have just turned up on the day. It looks as if they have found the meeting useful and interesting judging by the attendance at the plenary and breakout sessions and certainly all our partners with stands in the refreshment area are doing a lot of business.

GIS has a reputation for technical complexity and unintelligible jargon. Are these the main reasons for your concentration on reducing barriers?

GIS can bring huge benefits to society, but to achieve these benefits we need to find better ways of delivering GIS at the point where it can make a difference. That means making it available in the technology that people actually use – in their enterprise systems, in their BI solutions and on their tablets, smartphones and GPS-enabled devices. We need to provide solutions for many different application areas, from asset management to geodemographics, and these solutions need to be available when and where they are required – not just on a desktop in a GIS department.

The ArcGIS platform provides a cloud-based service, which is proving very popular for its availability and functionality. Perhaps even more importantly, it comes with readily available datasets – both international and local. Many are available completely free of charge for use as background "contextual" mapping while others can be used for analytical purposes; we are working to make ArcGIS a living atlas that provides a rich starting point and foundation for the use of GIS.

Do you have figures to show the popularity of ArcGIS Online?

Yes, it is growing rapidly. We are, for example, seeing over a billion requests a month on our basemap services worldwide. In the UK we are seeing a real growth in the use of ArcGIS Online and the supporting UK specific services. For instance, we provide a background mapping service based on the Ordnance Survey Open Data that is growing continuously and is currently running at over 30 million hits per month.

One of your customers, now a charity, suggested that they could not afford to use OS MasterMap because your service could not deliver the very disjointed geographical subset that they needed. Will more flexible delivery options become available?

Yes, we are starting to use our online platform to provide users with data that only covers the specific areas for which they are licensed, either as a service from ourselves or by them loading specific data into their own portal. We expect that more flexible options will become available, that apply usage specific filtering on very precise metering, to support pay per use. The latter may, of course, need a change in the way that data providers license their products.

A lot is written about the need to integrate GIS with "mainstream" business applications. Where does Esri stand on that?

Esri has had a focus on integration with enterprise and web systems for many years, we have worked to deploy our technology using mainstream IT approaches, technologies and interfaces. More recently, the growth of our online platform has allowed us to deliver GIS directly into applications that have a wider audience such as IBM Cognos, Microsoft Sharepoint and Dynamics, SAP and MicroStrategy. We have recently announced "Maps for Office" – a very simple interface for Microsoft Office that enables, within the Excel and Powerpoint applications,

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visualisation of any geographically referenced data with colour-coded polygons or a set of points. Users can then explore this data and enrich their spreadsheets with content such as demographics while operating in their own familiar environment.

When we use "Maps for. . ." we imply that our products are sitting within the host application software. We use ArcGIS or ArcGIS Online when our software or services is being used directly.

Building Information Management (BIM) is becoming mandatory for government construction contracts and integration with GIS is being promoted by many industry gurus. What is Esri's view? Is this another example of having to break down the barriers between professions and practitioners?

We see BIM and GIS as being very complementary technologies, bringing location and spatial analysis capabilities to bear on traditional management systems. So yes, to be successful we need to offer the capability in a way that BIM users can recognise and leverage. We have been in the forefront of the use of GIS for planning the built environment – which is always set in some geographical context. Geodesign – a term coined by Esri – is the way forward in terms of "macro planning". Tools such as City Engine and the upcoming ArcGIS for 3D Cities solution support detailed planning at the building level, helping to maintain, analyse and share urban landscape and facilities data models.

The need for readily available "content" was emphasised at the conference and I understand that Esri UK are certainly providing national datasets. Can you tell us how this works in the context of the licensing situation for many government datasets?

We strive to provide national datasets to complement the international datasets available worldwide, which are not in the projection systems or as detailed and up-to-date as many UK users require. The community basemaps include imagery, street maps and topographic maps. Users can contribute their own data to this service, making it available to all users free of charge. In the UK we also provide free access to all of Ordnance Survey's OpenData, which includes a vector basemap, boundaries, postcodes and 1:250,000 colour raster mapping. Our "Premium" services are available on subscription and include a Public Sector Mapping Agreement "bundle". These include OS MasterMap and colour raster mapping at 10k, 25k and 50k, to take advantage of the OS licence agreements that many government departments and organisations already have in place.

Your timeline for the next 25 years raised quite a few laughs but also, I suspect, some deeper thoughts. You predicted that the government would accept "core geographies" in 2018 and that Ordnance Survey would provide all of its mapping services directly in the same year. Why so long?

Above: Kennelly aims to break through the barriers holding back the use of geospatial information but will his forecast for the future of GIS prove accurate?

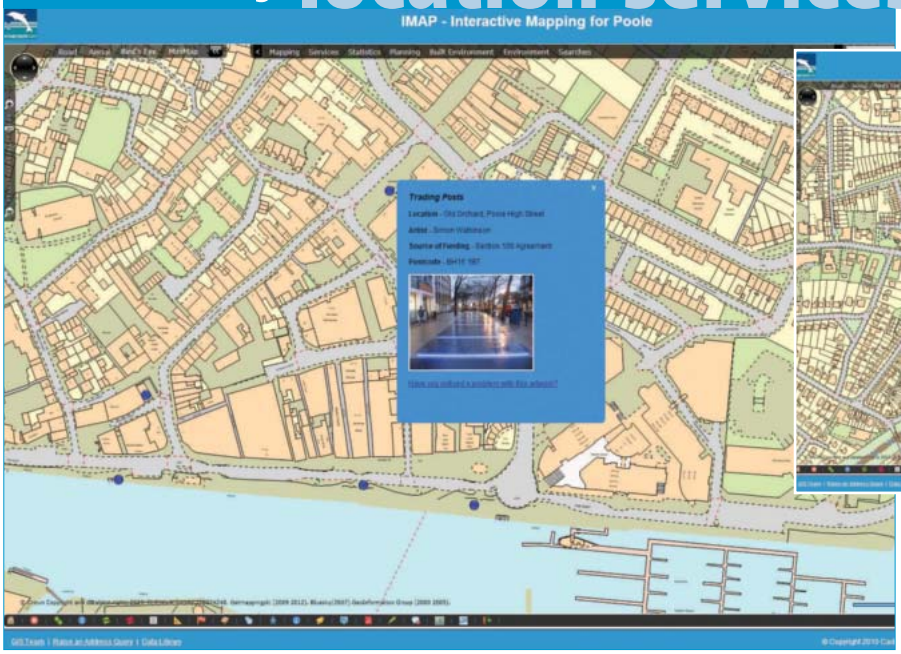
The recent government response to the Shakespeare report on public sector data appears to at least recognise the existence of core reference data – including geography. We welcome that. But there may still be a delay between "recognising" a concept and actually delivering the product or service to users. I see data quality and robust update processes as being a factor in this. I also see challenges in embedding a genuine understanding of spatial relationships in the wider IT world, such as working directly with geographies. Previous attempts have often relied on proxies for spatial features, such as postcodes and identifiers, rather than on making integration with spatial relationships simple to use and understand. The agencies that produce such data – including Royal Mail and Ordnance Survey – will have to adjust their business and licensing models. This will have a knock-on effect on many existing partners but also opens up new opportunities.

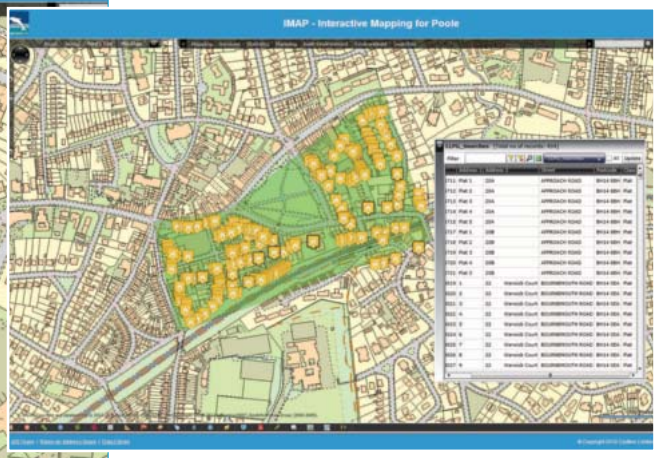
Many of your other predictions have a very long timescale when many of us in the industry think that they could be implemented much sooner if only the CEOs or ministers really understood the benefits. In the fields of insurance, the environment, flooding, planning etc many of your predictions ought to be common sense – how should we bring them forward so that we can have our GIS day in 2025 instead of 2037?

Partly the timeframes are long because I had 25 years to fill and partly because of the challenges of growing the awareness of what is possible.

Esri's mission has always been to make the benefits of GIS available to society, we see Web GIS as a way of achieving a step change in the use of genuine GIS in daily life. The resulting easy access to functionality and content means that we are living through one of the most exciting times for our industry, where the potential that we all know is inherent in the spatial approach is finally being recognised.

> ***"I also see challenges in embedding a genuine understanding of spatial relationships in the wider IT world, such as working directly with geographies."***





The software from Cadline has also allowed the council to provide better search tools for people like tourists, who are looking for municipal services but may not know local postcodes.

MapThat makes a splash in Poole

Inside and out, the Borough of Poole is using up-to-date GIS technology with OS mapping to deliver better services, quicker responses and all at lower costs.

Poole upgraded its online mapping capabilities with MapThat software to provide better access to spatial information for employees.

THE BOROUGH OF POOLE has recently upgraded the mapping capabilities on its intranet and website (**www.boroughofpoole.com**), improving information access for council employees and the public alike while simultaneously reducing costs and enhancing efficiency. Previously, the borough had 30 desktop GIS licences but identified several issues with accessibility to the information and the way in which its facilities were mapped. 'The desktop system only enabled basic data capture,' explains **Steve Campbell**, GIS manager. 'And because it did not extend to our intranet, many employees did not have access to this data at all'.

Locating the problem Poole has over 66,000 households and a long-standing reputation as a successful tourist destination. The borough already provided a web search tool for locating facilities closest to any postcode but it was cumbersome and temperamental. It also recognised that many people looking for municipal services (such as the nearest car park) would be tourists and therefore unlikely to know any local postcodes. The website's only other alternative was to view a list of service locations as text.

Also in need of improvement were the facilities for residents to report problems such as potholes, litter or broken streetlights. The majority phoned into the customer services department, which entered the information into a database. This took time and often failed to locate the precise location of a problem. Web reporting facilities were primitive using an e-form to give a description, which also resulted in poor locations.

'We needed to save our engineers driving up and down the street, looking for the problem,' says Steve. 'We needed to be able to channel residents through a self-service system enabling exact locations to be pinpointed by the customer. These issues, and the cost of the annual GIS maintenance, prompted us to source a more up-to-date and cost-effective solution'.

> ***Significant time and money is now being saved because service reports are received with a precise map location.***

New technology Poole selected Cadline to supply and implement MapThat software for content-specific mapping. This includes interactive mapping and webGIS on the council's intranet for all employees to access the spatial information. The GML Translator is installed to load Ordnance Survey MasterMap data into Oracle or SQL databases and the "Report It" platform now provides Poole's public-facing website, enabling the public to report incidents on a map (**www.boroughofpoole.com/Report/**). This self-service platform integrates with back office systems where reports are dispatched to engineers for action. Significant time and money is now being saved because service reports are received with a precise map location. In 2011, a Society of Information Technology Management (SOCITM) publication[1] suggested that web contacts are only one tenth of the cost of phone contacts, which in turn were less than half the cost of a face-to-face contact.

Reports made online have gone up from 40% to 50% and Steve Campbell says: 'Feedback from residents indicates that Report It is much simpler to use'. Map pins represent individual service reports - anyone can view notes added by the engineers and

whether the problem has been solved, is in hand or yet to be attended. This helps to reduce the number of duplicate reports and follow up phone calls.

Poole is also helping residents and visitors to quickly locate services. Starting with public toilets located at car parks, an embedded map pinpointing the locations is displayed on the relevant information page of the website. For public toilets, for example, information covers opening times, charges, family rooms, disabled facilities and whether a RADAR key is required.

Benefits to council staff Inside the council, all employees now have instant access to maps showing the locations of council facilities, which are linked to datasets behind the scenes. Planning applications are now instantly available on screen to all staff, removing the need to put in a request to the planning department. An unexpected benefit for the finance department, who previously made no use of mapping, is to be able to identify any issues relating to the cost of care homes. They can also use MapThat to find suitable accommodation instead of having to phone around. All maps use very clear graphics and are easily navigated plus aerial imagery is available to help recognise particular locations. Steve concludes that 'we have a very good relationship with Cadline and MapThat has really made geographic information available to everyone'.

Right: By upgrading the mapping capabilities on its public-facing website, the Borough of Poole has improved facilities for residents to report problems such as broken streetlights. The public can report incidents on a map, allowing engineers to be dispatched to a precise location.

In the future there are plans to extend the range of community services viewable on a map and to enable residents to report more issues on the web.

References

1) *Better served: Customer access, efficiency and channel shift* (February 2011), stated that the average phone call costs a local authority £2.90 and a face-to-face contact is £7.40, whereas each web contact costs just £0.32.

Above: Different geospatial technologies are used to collect data in the field.

Above: The campus at the University of Aberdeen.

Evolving and building on our strengths

In September, the University of Aberdeen launched a new M.Sc. programme in GIS that aims to not only promote the application of geospatial technologies but to also teach students the history of GIS and prepare them for a competitive job market. Here **David R. Green**, MSc GIS Programme Director,provides an indepth overview of the programme.

GEOGRAPHICAL INFORMATION SYSTEMS (GIS), cartography, geovisualisation, remote sensing and both hardcopy and softcopy photogrammetry have all had a long history at the Masters degree level in the Department of Geography and Environment at the University of Aberdeen over the last 25 years. Originally, the M.Sc. degree began life as a PGCert/PGDip/M.Sc. ERS (Environmental Remote Sensing) programme and built on the academic strengths of departmental staff at the time and in response to a growing interest worldwide in geospatial technologies.

Over time this degree programme evolved into the Applied Geospatial Technologies (AGT) programme, and finally the Applied Geospatial Information Science (AGIS) programme, each update responding to changes in technologies, applications and demand.

The new programme Building on our 25 years of excellence in postgraduate teaching, in September 2013 we are now proud to announce the launch of a new Taught M.Sc. in Geographical Information Systems (GIS). Designed to move with the times, it engages with the rapidly developing spatial and location-based technologies and applications. Continuity and the need to prepare graduates of the programme for an increasingly competitive job market and workplace is an important focus of the new programme. This is a timely development as a recent survey suggests that demand by employers for graduates with skills in the application of geospatial technology will continue to grow, particularly in areas where the practical application of spatial knowledge and understanding to environmental problems is important.

A key feature of the M.Sc. programmes at Aberdeen has always been the predominantly environmental theme – including both physical and human aspects. The geospatial technologies are of increasing importance in many areas of commercial, industrial and government employment, for example: small and large businesses, nature conservation agencies, hydrocarbon exploration and management, offshore survey, environmental consultancy, civil and coastal engineering projects, environmental modelling, precision agriculture and viticulture, archaeology, transport, marine and coastal zone management, marine studies and oceanography, and marine spatial planning – to mention but a few. The different geospatial technologies are used to collect data in the field, process and analyse spatial data, facilitate mapping, extract information, generate databases, undertake modelling, communicate information in the form of maps and visualisations and via the Internet.

> ***"The programme also draws upon a wide range of international, national and local expertise..."***

Combining education and training The Aberdeen programme promotes the integrated study and application of the geospatial technologies through theory and practice, combining core techniques and practical skills with environmental applications. The programme also draws upon a wide range of international, national and local expertise and covers the fundamental techniques and tools for acquiring, storing, processing, classifying, analysing, and visualising spatially referenced data, and their application to the study of the environment. It includes exposure to spatial databases and data models, programming, simulation, and modelling, global positioning systems (GPS), digital mapping, cartography, map design and geovisualisation, airborne, satellite, UAV and underwater remote sensing, digital image processing, GIS, WebGIS and Internet-based atlases, field data capture and mobile GIS.

To facilitate the best learning experience we use

a wide range of state-of-the-art hardware and both commercial and open source software in a dedicated classroom to explore the application of the various different technologies. We also have access to several computer visualisation suites. The learning environment is supported by a new state-of-the-art library containing a wide range of subscription journals and up-to-date geospatial textbooks.

Understanding the origins and history of GIS is an important part of the new programme. It aims to cater for students who come to GIS from a wide variety of different backgrounds seeking new job opportunities and career paths, and to provide them with background and insight into how the geospatial technologies have evolved over time.

The human aspect of geospatial technologies is also an important consideration for the student to help them understand the role that humans play in GIS from developing the hardware and software, to implementing and using the technology, to managing project and corporate databases, and understanding their impact on organisational structure and operation.

New modules in GIS now offer students a basic introduction to the subject matter and functionality whilst a second module gives students the opportunity to use the tools and techniques for advanced geostatistics and spatial analysis. Subsequent modules then enable students to apply the tools and techniques to a number of different projects of their choice – all designed to provide opportunities to specialise in tools, techniques and current applications of specific interest to their future career.

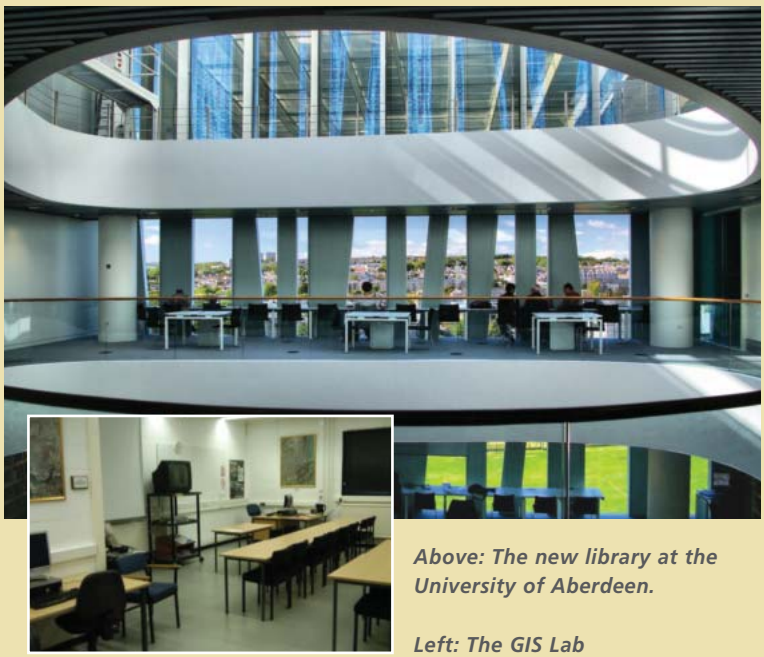
Where appropriate within each module, the use of different data sources is covered, e.g. acquired through field data collection with mobile GIS platforms and UAVs, remote sensing from airborne and satellite platforms, as well as exploring the different requirements of individual applications, and the importance of planning and executing a project.

Throughout the programme emphasis is placed on the need to develop a sound theoretical knowledge of the fundamentals including coverage of the necessary mathematics and statistics, map coordinates and projections, databases, technology, sensors, programming, modelling and simulation, together with the use and application of the technologies for a range of different application areas such as underwater remote sensing, image data acquisition using UAVs, mobile GIS mapping, and creating spatial apps. Special attention is also paid to fieldwork and developing a practical approach to problem solving.

A ticket to a job The final component of the degree programme is the planning, execution, writing and presentation of a dissertation or thesis on a topic of the student's choice. This is the culmination of their experience in the programme and presents a valuable opportunity for the student to demonstrate both their theoretical and practical knowledge and understanding of the subject.

The M.Sc. dissertation is also highly prized by employers as an indicator of the student's ability and potential employability. In direct response to this we now participate in the *Making the Most of Masters (MMM) Programme*, a recent innovation being trialled by the GIS degree programme. MMM is a partnership between the Universities of Aberdeen, Edinburgh and Stirling, and aims to improve collaboration between employers and universities by providing opportunities for

> ***... emphasis is placed on the need to develop a sound theoretical knowledge of the fundamentals...***



Above: The new library at the University of Aberdeen.

Left: The GIS Lab

Programme Structure and Modules

First Half-Session
- The History, Origins and Evolution of GIS
- GIS Tools and Techniques I/ II
- Aspects of Digital Mapping and Visualisation
- People Management for GIS

Second Half-Session
- Fundamentals of GIS and Spatial Analysis
- Current Applications of GIS
- GIS Tools and Techniques I/II
- Planning, Managing and Presenting a GIS Project

DISSERTATION in Geographical Information Systems

Typical Programme Software:

Erdas Imagine / ER-Mapper	Global Mapper
Esri ArcGIS	MapWindow
ArcGIS Server	QGIS
Intergraph Geomedia	TimeMap
Fledermaus	UDig
MapInfo	Surfer
Idrisi Selva	Voxler

Some Recent Projects

- The challenges of presenting high quality GIS data from an AUV and its use in marine archaeology.
- Multibeam Echosounder data and Spatial Analysis Techniques for the contribution of Marine Renewable Energy development in Scotland.
- An Assessment of Roof Mounted Photovoltaic Solar Panel Suitability in Aberdeen using GIS.
- Spatio-temporal Crime Mapping of Vehicle Crime in London.
- Creation of a Wheelchair Accessibility map for a selected area of Aberdeen City.

masters students to undertake work-based projects. Students work with an industry partner and this opens up the possibilities of pursuing a topic and application that is of direct relevance to their future career path.

Acquiring key skills Past experience has shown that many students seek postgraduate courses to provide them with the basis for a future career; some are changing career paths, others are trying to enhance their job prospects by acquiring a range of specialised skills, and some desire training on industry standard software. To this end, the new M.Sc. programme combines education with elements of training.

Additional seminars and workshops available to the students throughout the year provide important opportunities to acquire and improve their transferable skills and techniques in scientific research, writing, professional presentations and communication, together with career development. Links with industry are a key component of the programme and include seminars with external invited guest speakers, working on projects with industry, exposure to professional workshops and conferences for networking, and student membership of the Association for Geographic Information (AGI).

Future developments Future plans are to obtain RICS (Royal Institution of Chartered Surveyors) accreditation for the new programme, to include opportunities for industry work placements, offer a January start (as well as the current September start) and to provide a field course option.

Designed as a flexible programme to cater for both full-time and part-time students, there are also opportunities to acquire the M.Sc. in GIS with a specialism in one of the many different applications on offer.

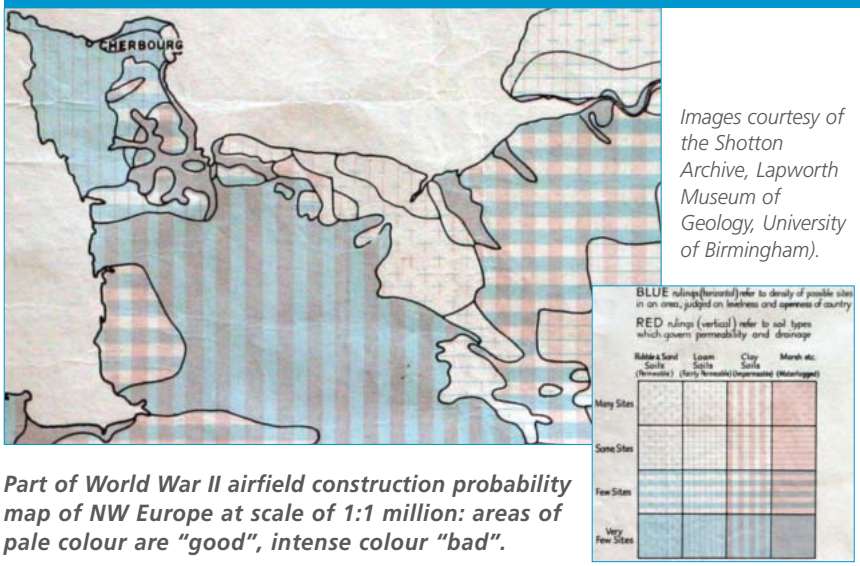
As we start another academic year, to use an old quote: *our future's so bright, we gotta wear shades!*

Programme Contact Details

Internet: www.abdn.ac.uk/gis
Facebook: https://www.facebook.com/gisaberdeen
Twitter: @gisaberdeen

Student Recruitment & Admissions Service (SRAS)
University Office, King's College, Aberdeen AB24 3FX
Tel: +44 (0)1224 272090 or +44 (0)1224 272091
Fax: +44 (0)1224 272576
Email: sras@abdn.ac.uk

Graduate School Admissions Unit:
http://www.abdn.ac.uk/cops/graduate/prospective-students-213.php



Images courtesy of the Shotton Archive, Lapworth Museum of Geology, University of Birmingham).

Part of World War II airfield construction probability map of NW Europe at scale of 1:1 million: areas of pale colour are "good", intense colour "bad".

Nostalgia to cutting edge 'geoint'

The Defence Surveyors' Association's recent "Maps and Surveys" seminar offered delegates a fascinating history lesson as well as insight in to the future of geographic intelligence. **Robin Waters** reports.

HAVE YOU EVER served in the forces or as a civilian in any military related mapping role? Then you are probably eligible to join the Defence Surveyor's Association. Even if you just have an interest you will probably still be welcomed. The main benefits are attendance at the annual "Maps and Surveys" seminar and access to the Ranger magazine, which has now gone digital.

Mapping tales from around the world Some of the presentations and articles are absolutely fascinating, not least those at this year's seminar held at the Royal School of Military Survey at Hermitage, near Newbury in June. The content of the seminars was an eclectic mixture of surveying and mapping on several continents, at sea and in the air. In time these ranged from hydrographic charting in the 18th century to on-going boundary disputes in the 21st century and in space from the Americas, through Europe and Africa to South East Asia. Naturally, the defence element was prominent with coverage of colonial wars, both world wars, the cold war and 21st century border skirmishes. I have picked out some highlights.

Historic geoint **Hugh Hamshaw Thomas**, known to his friends as "Ham" was a world-renowned palaeobotanist who served as a photo interpreter in both world wars. In the Royal Flying Corps he was credited with some of the earliest map-making from air photos during Allenby's campaign against the Ottomans in Palestine. In WWII he was a photo interpreter at RAF Medmenham, concerned particularly with investigating the German V weapons. **Chris Halsall**, a trustee of the Medmenham Collection at Chicksands in Bedfordshire showed how innovative Ham was for his time.

Ted Rose delighted us with a brilliant and really heartfelt tribute to the very few geologists officially employed as such during WWII. He is now an honorary research fellow at Royal Holloway but was senior geologist in the Royal Engineers from 1974-90. He told us that there were three official geologists in the army in WWI, three in WWII and there are still three in 2013! He compared this to the several tens employed by the Germans in both wars and concludes that it is the number we should stick with. Their contributions varied from predicting the best site for water boreholes to "going" maps that show where different vehicles are best deployed. Map colours were kept to a minimum due to limited printing facilities but also so as not to confuse the top brass!

The Mulberry harbours for D-Day are well known. But Gooseberries? Apparently they provided the outer breakwaters. **Chris Howlett** from the UK Hydrographic Office took us through the history and then described an extensive survey of the remains at Arromanches-les-bains, using a modern multi-beam echo sounder and a terrestrial laser scanner.

We now think nothing of zooming and panning digital maps in real time and rightly assume that our pilots and navigators have the same facilities in their cockpits. But analogue moving map displays? These were used by the RAF for some forty years and were **Richard Chesney's** specialty at the Survey Production Centre, RE (in Feltham). These displays were standard in all Harrier, Jaguar and Tornado aircraft from the 1970s. Photographing the maps and producing the strips of film was complex and laborious. But the mind boggles at the idea of an opto-mechanical device in every aeroplane being loaded with a huge reel of microfilm maps that had be wound backwards and forwards if the pilot (of a supersonic fighter) decides to fly across the film instead of straight along it!

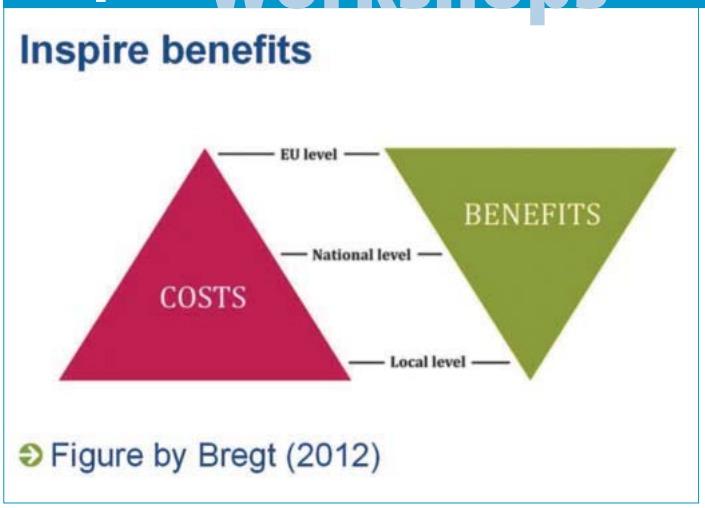
The discipline today **Alastair Macdonald** is still advising international boundary commissions and visiting disputed borders more than fifteen years after retiring from Ordnance Survey. The task takes him from African deserts to the International Court of Justice at the Hague via map libraries, braided rivers and disputed watersheds.

Major **Stuart Fairnington** gave us a short briefing on the latest equipment programme for the Royal Engineers (Geographic) 'discipline'. It combines IT systems and bespoke vehicle-mounted containers that have been delivered this summer. Also explained was the move of 42 Regiment to its new base at RAF Wyton in Cambridgeshire, which is already home to the Defence Geospatial Intelligence Fusion Centre (DGIFC), successor to the Joint Air Reconnaissance Intelligence Centre (JARIC) from RAF Brampton.

• Visit **www.defencesurveyors.org.uk** for more information.

> ***"Map colours were kept to a minimum due to limited printing facilities but also so as not to confuse the top brass!"***

Inspire workshops



Above: Figure One – Stefan Carlyle's diagram showing an irony of Inspire – how the costs and benefits are not aligned at the same levels of governance.

Progress of Inspire

What is expected to happen in order to meet the next set of deadlines for delivery of data and services? A free workshop hosted by Defra and the AGI Inspire SIG in August aimed to provide some answers. **Robin Waters** reports.

BACK IN AUGUST, Defra, which has the lead role in coordinating INSPIRE implementation in the UK, and the AGI Inspire SIG, hosted a free workshop in London. Despite the holiday season and the relatively short notice, over forty practitioners turned up to find out more about progress and, in many cases, what they will be expected to do for their councils or departments to meet the next set of deadlines for delivery of data and services.

Inspire compared to school uniform! December 2013 is the target date for view and download services to be available for the 21 so called Annex III spatial data themes, which affect many more public sector organisations than the 13 Annex I and II themes already made available. This includes, in particular, local authorities at district, county and unitary levels in the UK. **Jason King**, from Defra, explained that 'view services' must be publicly accessible network services providing an image of the whole or part of a spatial dataset as a web map service (WMS). They do not provide access to the data itself. 'Download services' are also a publicly accessible network service but providing a dataset or subset as a Web Feature Service (WFS) or an ATOM feed to a pre-defined dataset. Neither type of service is a web mapping application or a full GIS. Full guidance is provided at **http://data.gov.uk/location/guidance_and_tools**.

He also drew attention to the licences required to make sure that data sharing was straightforward and that Ordnance Survey licencing was critical under the Public Service Mapping Agreement. Full compliance with Inspire data specifications will require internal changes and/or the provision of transformations by 2015 for new datasets or 2020 for existing Annex III data. So what does Inspire have in common with a school uniform? They both ensure a consistency of approach; they both have quality standards; and the interpretation of both is a challenge!

> ***So what does Inspire have in common with a school uniform? . . .the interpretation of both is a challenge!***

Terms and conditions! **Stefan Carlyle** from the Environment Agency showed a diagram that illustrates one of the biggest ironies of Inspire – that the costs and benefits are not aligned at the same levels of governance (see figure one). Most of the costs arise at local level whereas most of the benefits are at national or international levels. What is needed, in the view of EU Inspire experts, is a raft of 'apps' that can enable the public (and specific industries) to not only use the information being made available but also to provide feed back and updated information – to make the interactive 'second generation' spatial data infrastructure. One of EA's contributions has been the "My Environment" exercise with Natural England and Defra running a mobile app competition, which provided some useful lessons about spatial data on the environment. One of these was the ease with which Google maps can be used for such apps and the reluctance of app creators to understand the Ts&Cs for OS Open Data!

Transformation challenges **Alex Coley** from Defra tackled the challenge of transformation, which may be simple or very complex depending on how close internal data schemas are to the Inspire standards. Some providers may convert completely and change their internal processes to work with Inspire schemas; others will develop a transformation process and treat Inspire as a separate product.

Miles Gabriel suggested that a real benefit of Inspire to the data provider is that it triggers an audit and better data management within the organisation, which can lead to a much better understanding of why and for whom data is being produced. This was echoed by several local authorities present at the meeting. Inspire should be seen as part of a legislative continuum including Freedom of Information, Public Sector Information and Environmental Information laws and regulations. As a consequence, it is also very difficult to tease out the costs and benefits of any individual change process.

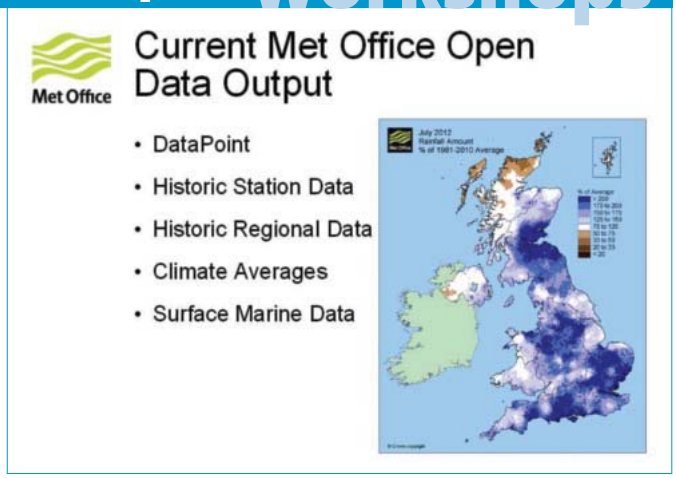
Ashley Wright of Ordnance Survey announced the new licence for public sector mapping agreement (PSMA) members, which should cover the majority of organisations supplying Inspire data. They will need to licence "end users" of datasets deemed to be derived from OS data separately for Inspire datasets and for non-INSPIRE datasets. The former puts the

responsibility for "appropriate use" on the end user and absolves the PSMA member from having to collect any details of those users. Although these licences exclude commercial use we understand that they are applicable to the "third sector".

Opportunities In her presentation, **Gesche Schmid** from the Local Government Association and chair of AGI's Inspire SIG, concentrated on the opportunities presented by Inspire to local government in general. Some councils have really taken advantage of the directive to provide innovative services for their citizens (e.g. Barrow, Hampshire and Bristol) but many others have not put in the necessary resources to make progress. Gesche is also disappointed at the lack of interest from the private sector – which mirrors the EA experience. Perhaps this needs universal availability of the necessary data – not just from some authorities – and simple licence terms, including to any underlying OS data. However, the efficiencies already being realised should not be underestimated – improved services, better data management, easier data sharing and improved transparency. A guide to Inspire compliance in Local Government can be downloaded from **www.local.gov.uk**.

The Met Office, represented by **James Penman**, is perhaps entitled to be a little smug about their international cooperation, which has been exchanging spatial data with international standards for tens of years! They are an Annex III data provider and see Inspire as an opportunity to share more easily and to better realise the value of some of their public sector information. Their most high profile contributions are to flood forecasting where there is now very good cooperation with the EA to predict floods from all potential causes (see figure two).

• *GiSPro would like to acknowledge Gesche Schmid for her help in writing this article.*



Above: Figure Two – An example of flood forecasting from James Penman, The Met Office.

AGI - "Open for business" – in more ways than one

another successful GeoCommunity event, growing membership and a vibrant community of geo people and GI players herald a busy autumn and winter period ahead.

Dr Anne Kemp is a geographer who has worked in the infrastructure industry for 25 years. She is currently serving as Chair for AGI and is also Director at Atkins and Vice Chair of BIM4I, and of ICE's BIM Action Group.

"MAPTEMBER" has been a really busy time for us – but the spirit of AGI has risen to the challenge, and I'm delighted that this article has been a real collaborative effort across Council. Which is an apt time to say a huge thank you to ALL our volunteers who help the organisation to be the buzzing and vibrant community that is continually evolving, and pushing ahead.

Geocommunity and FOSS4G This year's AGI GeoCommunity Annual Conference was promoted with the headline "Open for Business" and the scope and content more than lived up to this expectation.

A series of high quality presentations demonstrated that the geographic community continues to shape the way we live and work and is an integral part of the large scale investment decisions currently being considered by business and government alike. Projects such as HS2, flood risk modelling and the innovative approach being adopted by the conference winning paper of the Glasgow Future Cities demonstrator model, not only captured the imagination but highlighted the potential to apply the geographic approach to a wide range of programmes.

The pace of development was perhaps even more evident in the realm of data management, where the UK is leading the drive to create world class 3D data management and data modelling capabilities. Presentations from Ordnance Survey and the GeoInformation Group highlighted that the process of capturing and managing geographic data is undergoing a transformation that will not only change the way geographic data is integrated but will change the way our industry adds value by providing analysis and insight. This was underlined by the appearance of David Philp as a plenary speaker – who sees geospatial as a core part of the UK Government's Strategy (**www.bimtaskgroup.org**).

The keynote speech from Vanessa Lawrence, the Director General of Ordnance Survey encapsulated all these thoughts by focusing on the work recently undertaken by the UN Global Geo-Spatial Information management programme, which highlights the importance of national geospatial databases to enable governments and corporations alike to plan and manage resources effectively and sustainably. The scope of the vision was particularly pleasing as it is entirely in line with the AGI's mission – which is to provide tangible insight and leadership in current geographic information and location based issues.

> ***. . .the UK is leading the drive to create world class 3D data management and data modelling capabilities.***

This year's conference saw a number of firsts. The number of first-time attendees was a record, and for the first time the International FOSS4G conference, supported by the AGI, came to the UK. Over 850 international delegates gathered over three days with the conference strapline "Geo For All", showcasing the potential to integrate open source geospatial technology with more traditional data sources and analysis tools. There was a tremendous buzz around the event and the co-location with our own GeoCommunity conference allowed unparalleled opportunities for networking and cross-overs for delegates who wanted to visit both events. We would like to congratulate the conference team for their many months of work to bring the event to the UK and its huge success. We will be working closely with them to develop the legacy from FOSS4G and "Geo For All".

Further (and good) news AGI's membership numbers are once again rising (you can apply here (**http://www.agi.org.uk/i-membership**) and the year ahead will enable the AGI to continue to build on the successful programme of events which have been developed this year (**http://www.agi.org.uk/events**), offering sponsors and delegates alike the chance to engage with our members and to tailor their business to meet the range of new challenges, which the AGI showcase each year. We have had three very good years in Nottingham and the residential format introduced seven years ago in Stratford has proved incredibly successful, allowing a really successful mixture of conference and networking. 2014 is the 25th Anniversary of AGI and we will be looking to once again refresh the whole conference structure to keep it fresh and current. We will be looking for your feedback so please look out in the autumn for this opportunity to contribute.

August saw the official launch of a revitalised Individual membership offering. We now offer direct debit either annually or monthly to remove barriers to membership. With membership now from just £5 + VAT per month (£5.50+VAT if paid monthly) we want to ensure that membership is affordable to all. We now offer free membership to students, and also to the unemployed to ensure this vital link to industry is not lost. If you are not a member, or know anyone who isn't, please encourage them to consider membership. You may also be part of a Corporate AGI membership, but not a named member. If you are, then this may also be of interest. Not only will you receive information directly from AGI or the various Regions and SIGs, but

you will also be able to participate in the CPD scheme and receive various publications directly. To encourage membership we have also introduced a "Recommend a Friend" scheme whereby if you introduce someone who subsequently joins, you will receive a 50% discount at a future showcase event (**http://www.agi.org.uk/individual**).

In November a number of positions on the AGI Council will be contested via elections and individuals with the vision and drive to build on our existing momentum are encouraged to apply. (**http://www.agi.org.uk/agi-news/2012/8/31/agi-council-elections-2013.html**). Council members are all volunteers and give up their time to steer the AGI on behalf of the Geocommunity. However it is very rewarding and gives opportunities to work with a cross-section of the GI Industry from all parts of public, private and voluntary sectors. With running any organisation a range of skills are needed and we would encourage interest from across the business skills including Sales & Marketing, Finance, IT and Strategy. If you would like to know more, please contact the AGI team and they can put you in touch with someone from Council who will be happy to discuss what's involved (**http://www.agi.org.uk/agi-council/**).

Awards Dinner The year will conclude with the AGI's Annual Awards Dinner – and it promises to be a lively and entertaining event. There is still time to submit case studies and demonstrations of innovative applications of geographic information. This is your chance to showcase what either yourself or your organisation has achieved. There are many categories to choose from, and this year we have introduced a best paper for the various Regional Showcase Events. In December the Awards come from the Royal Geographic Society in London, the new home for AGI. If you have never been to the RGS, this will be a great opportunity to visit, mix with friends old and new, and see some of the fantastic exhibits on display here. Your submission will be welcomed so please consider how you can enter. (**http://bit.ly/18Qcb9h**).

L-R are Sgt Andy Racktoo, Hon. Col (Dr) Vanessa Lawrence (CBE), Major Stuart Batey, Sgt David Olajide and Anne Kemp, Chair of AGI.

The year ahead promises to be equally exciting and eventful. We still have Regional events in Northern Ireland (October 10th), North (14th November) and Cymru (3rd December) which we are looking forward to. In the meantime, we at Council are looking forward to our business planning weekend – with some great progress this year, and some really encouraging feedback, support, challenges and ideas from both members and the industry at large, we feel excited by the possibilities and what AGI can deliver for industry. We look forward to your engagement – do feel encouraged and moved to get involved and help!!

Geographic dinner Finally, I would like to thank 135 Geographic Squadron for inviting me to their Endeavours Award Dinner early in September – and for delivering a fantastic plenary at Geocommunity. I must confess that I had not been aware of the drive to get geo-professionals to come forward to the Territorial Army – I was humbled and inspired by the individuals that I have met through this over the past few weeks – and indeed by the role that Vanessa has played with personal dedication since 2009.

agi
Association for Geographic Information

The AGI exists to "maximise the use of geographic information (GI) for the benefit of the citizen, good governance and commerce". Membership details are available from info@agi.org.uk or by calling: +44 (0)207 591 3190

Left: Dr Mike Wood, one of the founding members of BCS, had the honour of cutting the cake and (above) the heads of the five national mapping organisations, from left: John Wilkinson, John Ludden with BCS President, Pete Jones, Vanessa Lawrence, Ian Moncrieff and Paul Hancock.

Photography © Martin Lubikowski, ML Design.

50th anniversary celebrates tomorrow

The British Cartographic Society celebrated its 50th anniversary in style with a two-day symposium at Hothorpe Hall, Leicestershire in September where cartography enthusiasts from all over the world gathered together to discuss "tomorrow and beyond". Our editor **Robin Waters** reports.

FOR ITS FIFTIETH ANNIVERSARY year symposium, the British Cartographic Society chose as its venue Hothorpe Hall in Theddingworth, only a few miles from where it was born in Leicester in 1963. "Thorpe" as a place name is usually attributed to the Vikings and legend (at least) has long boats sailing up the River Welland to the grounds of this magnificent hall. Today it is surrounded on two sides by idyllic wooded glades while the other two look out over the fields to rolling hills and woods. A fitting setting for the annual symposium that is the high point of the society's calendar every year.

The BCS excelled themselves in 2013 by getting the heads of all five national mapping organisations on the same podium on the first day. Apart from several other speakers there was a choice of four workshops on both days – the first day covered map design over the last 50 years, Swiss mapping, an OpenData masterclass and visual and tactile mapping while the second featured mapping the meridian, mapping smells, the restless earth and editing OpenStreetMap. Although there were a few presentations looking back many years, even those moved into predicting the future and some started in the present or were looking ahead from the start. So the "Tomorrow and Beyond" strapline for the symposium was well supported (most presentations are available online at **www.cartography.org.uk**).

> ***. . . cartography and geospatial intelligence provide 'actionable knowledge for human security'.***

Actionable information

The morning began with **Mike Cooper** from Leica making the case for more integration of surveying and GIS. He was followed by **Max Baber** from the US Geospatial Intelligence Forum (GIF), which is a non-profit foundation supported by all of the big companies in the "GeoInt" field, most of which are American and defence related. GIF runs a large symposium and publishes the online *Trajectory* magazine as well as accrediting academic courses and offering scholarships. His thesis was that cartography and geospatial intelligence provide 'actionable knowledge for human security'. His revealing map of Terror in Afghanistan showed exactly where the latter is missing but unfortunately cannot tell us if the former is to blame (see map right).

Richard Carpenter from our Hydrographic Office took us through the chemistry of oxygen diHydride and the 'thermohaline circulation' before pointing out how easy it is to map other planets compared to the deep ocean. He believes that further deep sea exploration will be commercially driven but that different industries have very different requirements – from navigation to trawling and from drilling through the ocean bed to sucking nodules off the bottom.

After lunch we had a run through of the last 30 years with **Tom Timms** of Star Apic. His professional career and the company both started in 1983 and, probably not totally by coincidence, Star Apic have just been bought by 1Spatial – previously known as Laser-Scan – the company that Tom joined out of college!

During the 1980s, the nationalised utilities had just about got to grips with the digital mapping of their assets when they were broken up and sold off to the private sector. Some would say that is why, in 2013, we had **Graham Mills**, chairman of the Technics Group and

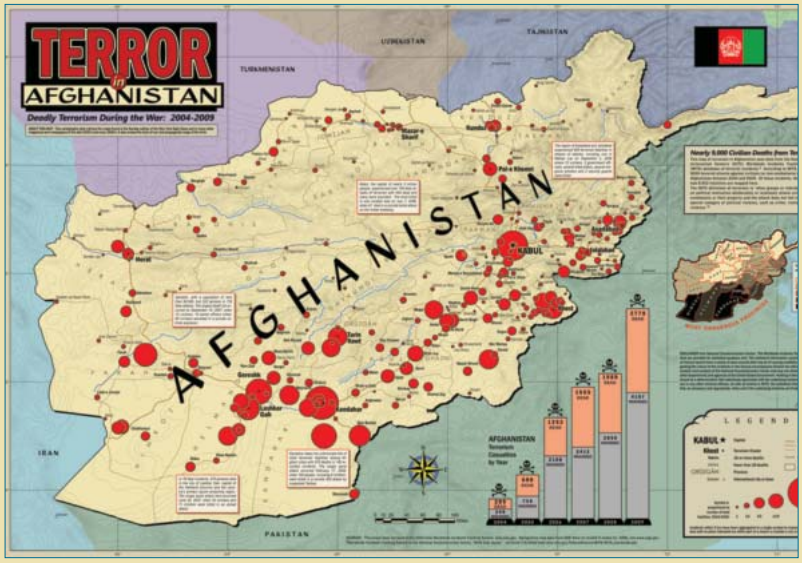
president of The Survey Association, talking about setting the standards for the future of utility detection and mapping. Why? Because there is currently no accepted standard for surveying or presentation of underground assets. The Utility Mapping Association is now trying to address this issue and "British Standards Publicly Available Specification (PAS) 128" is on its way to becoming a full standard in 2014, which should improve the quality and consistency of the information and its presentation. About time too!

Seppe Cassettari, a past president of BCS and CEO of the GeoInformation Group, explained why UKMap is the 'next generation' of large-scale 3D mapping, though he didn't convince everyone in the audience. But he did demonstrate, with the example of Canary Wharf, the need for actionable information about the inside of complex buildings, which may have at least three layers of transport infrastructure; several levels of shopping and tens of floors of offices – a security nightmare. In fact, the Geoinformation Group will be running a competition for the best cartographic processes likely to help communicate such information to police and other blue light services.

Before our high powered keynote speakers, we had the cutting of the cake and time for a good cup of tea! Fittingly, one of the founding members, Dr **Mike Wood**, who has spent most of his career at Aberdeen University, was invited to make the first incision.

Gathering of the mapping heads The heads of the mapping organisations gave us an overview of official mapping in UK and described their constant struggle to balance public tasks with the resources available while keeping up with new technology and customer expectations. Ordnance Survey GB, led by **Vanessa Lawrence**, delivers online digital data as well as conventional paper maps but is still trying to identify real commercial benefits from the OS Open Data programme financed by central government. Vanessa was at pains to destroy the myth that OS had ever introduced deliberate errors to detect copyright cheats but she did show examples of rather individualised depictions of some cliff faces that can reveal the initials of the cartographers involved! Fittingly, she announced a birthday present for BCS – a three-month paid internship at Southampton for the winner of a "carto hack camp", which will be coming soon.

Paul Hancock is the director of the Defence Geographic Centre, currently based in Feltham, with 400 staff dedicated to providing the UK defence forces with mapping and what is now called "Geoint" (geographic intelligence). Human geography is now recognised as vital to the conduct of campaigns such as that in Afghanistan where, though it sounds bizarre, they are adding 'postcodes' to the maps of the villages. I wonder how many villagers will be able to tell you what their postcode is? Geoint not only includes the information that is stored in DGC databases and output to commanders in the field, it also involves (or should have done) knowing that the Argentinians bought up the whole of Stanford's stock of DOS maps of the Falklands just before they invaded!



The map presented by Max Baber in his presentation on cartography and geospatial intelligence. Map designed and copyrighted by Stephen.T.Benzek@usace.army.mil.

"We now live in the Age of Spatial Reasoning, where access to geospatial data and technologies is becoming commonplace. In this regard, Geospatial Intelligence has emerged as a multi-disciplinary approach to problem-solving that leverages the breadth of geospatial science and technology to address many complex challenges facing contemporary humankind. Geospatial Intelligence is the process of revealing actionable knowledge derived from a vast array of Big Data, and it is also the exploitation of that actionable knowledge to more effectively guide public policy and competitive enterprise. This is a rapidly evolving and transformative technological era in the arc of human existence, and the future belongs to those who can optimise geospatial reasoning abilities."

– Max Baber, US Geospatial Intelligence Forum (GIF)

OS Northern Ireland has now been embedded in Land and Property Services with **John Wilkinson** as chief executive. This organisation embraces surveying and mapping as well as land registration, land and property valuation and rate collection services. This unique combination of public services is seen by some as the way forward and is being closely watched south of the border and in Scotland, although the concept appears to have very little traction in England and Wales.

The UK Hydrographic Office is still the only such office to provide global coverage of sea charts. **Ian Moncrieff** told us that they have a range of customers demanding charts in digital vector, digital raster and hard copy formats and that their overriding public task is the safety of life at sea. This means that their effort is therefore concentrated on areas where shipping (including submarines) can potentially come to harm from coastal or underwater obstacles.

> ***. . . constant struggle to balance public tasks with the resources available while keeping up with new technology. . .***

John Ludden leads the British Geological Survey, which has been prominent at recent mapping events with its immersive 3D displays based on extensive modelling of the geology under our feet. While obviously helping the 'extractive industries', BGS also lays down the 'environmental baseline' against which the effects of drilling, mining, fracking etc can be monitored and judged. Although BGS is very commercial, it is still within the National Environment Research Council and has very close links and programmes with universities.

The first question to this panel was about the effect that a Scottish vote for independence would have on their respective organisations. John Wilkinson suggested that LPS was a model for what could happen; BGS emphasised their new building and resources already in Scotland while HO, OS and DGC have clearly "scoped" the possibilities with Vanessa already advising the Scottish government and HO, affected most by the possible demise of the current base for our nuclear deterrent submarines. A question from a New Zealand entrepreneur about Open Data brought a plea from Vanessa for any examples of commercial exploitation that would help to justify the original government rationale of generating more business and taxes through opening up the public section information.

> ***When data capture was the dominant business of the mapping agencies they rested on their cartographic laurels. . .***

Creative cartography In the evening, drinks on the terrace were followed by a group photo and a delicious dinner prior to the traditional prize giving and the late bar with less formal networking and discussion.

As a Fellow of the Society I have been to several Symposia over the last thirty years and I would judge it to be in very good health. Apparently membership has recovered from a dip as GIS became more "sexy" and in some ways this reflects the technology. When data capture was the dominant business of the mapping agencies they rested on their cartographic laurels and either tried to precisely emulate existing specifications or gave up and produced a cheap and cheerful output from the primitive hardware and software available in the 80s and 90s. Now that most GIS software can provide very sophisticated cartographic tools or can easily feed graphic illustration packages, there is a return to more creative cartography that is geared not just to printed output but also to screens of many sizes.

We can be sure that cartographic skills are as vital as ever and I have no doubt that there will be a well celebrated 100th anniversary of the BCS, which some younger members will live to see! Next month we should have a review of *'A Celebration of 50 years of the British Cartographic Society'* – available now and full of wonderful maps from the Beeching cuts to the Jubilee Pageant and the London Olympics.

*There is more news of products and services on our website at **www.pvpubs.com***
To get your company featured on this page call Sharon Robson on +44 (0)1438 352617

Rugged antenna for GIS asset capture

Leica has launched the GG03 SmartAntenna with Ingress Protection (IP 68) certification, the top rating for protection against dust, moisture and water. The antenna is lightweight and designed for GIS asset collection and management tasks in harsh environments. Product manager Johannes Hotz states "The Leica Zeno GIS series is used all over the world in the most demanding environments. The IP68 rating further underlines the quality and robustness of the Leica Zeno GG03."

Asian launch for spatial suite

1Spatial launched its 1Spatial Management Suite (1SMS) at the Asia Geospatial Forum in Malaysia in September. The suite enables users to efficiently plan, maintain and publish large amounts of spatial data, whilst automating production workflows. It links the rest of the company's powerful and scalable product portfolio, enabling users to respond rapidly to real-time scenarios and ensure that their data is always current, accurate and trustworthy. It helps to improve productivity and reduce operational costs and risks by adopting an automated approach. The suite is underpinned by enterprise database and service oriented architecture technology from industry leaders including Oracle.

1Spatial is already a gold level member of the Oracle partner network (OPN) and has now also achieved OPN specialized status for Oracle Spatial. This has required the company to meet a stringent set of requirements based on the needs and priorities of the customer and partner community. By achieving a specialized distinction, 1Spatial has been recognized by Oracle for its expertise in delivering services around Oracle Spatial through competency development, business results and proven success.

Portal tests new mapping

Landmark Information Group has launched Promap Labs, an online portal enabling architects, surveyors and land or property developers to test new digital mapping product concepts before they are launched. The portal showcases new beta mapping datasets and applications giving clients the opportunity to contribute valuable feedback, or suggest new ideas for future development. The first new application is 'Promap Labs View' enabling easy viewing of a wide range of data from a single map interface. Examples include natural environment data such as Sites of Special Scientific Interest and Control of Major Accident Hazards (COMAH) sites. It is designed to view a location and understand what environmental factors may affect it, without needing to be a GI expert.

Support for OS National Grid

Europa Technologies has enhanced its viaEuropa hosted map service which enables organisations to utilise Ordnance Survey digital map data. It now supports the British National Grid system in addition to the popular "spherical Mercator" projection. The support for both systems facilitates widespread use across internal mapping applications, together with broad deployment using web mapping such as Bing and Google. This means that organisations do not have to re-project their own asset data to fit the base map, which can sometimes lead to unacceptable offsets between the assets and the maps or images in the background. Also confirmed was support for the WMS-C standard in the viaEuropa service which allows the use of a cache to optimise performance.

Free plug-in to AutoCAD

Landmark Information Group has launched a free AutoCAD 2014 plug-in for its Promap digital mapping service, which simplifies the process of integrating digitised Ordnance Survey MasterMap data directly into the CAD application. Users can now access the 'Promap Data Services' plug-in to digitise their area of interest using Bing Maps, and from this, request pricing for purchasing OS MasterMap. Once the file format and gridlines have been confirmed, the required dataset is then downloaded directly into AutoCAD for immediate use. The plug in can be downloaded from **http://www.promap.co.uk/autocad.php**.

Postcodes on two wall maps

Finally you can see all the UK postcode districts on the one map! In the past XYZ Maps has only been able to offer the seven UK postcode districts separately, but now they are available all as one on a 2×A0 wall map. Available on paper, plastic coated finish, framed pinboard and framed magnetic board formats, the map scale is 1:600 000 and features a political map base showing the counties and unitary authorities in pastel colours.

OS map for gamers

A team developing ideas for future products and services at Ordnance Survey has created a map of Great Britain for the popular Minecraft video game, featuring 22 billion blocks, using OS OpenData. OS Terrain 50 and OS Vector Map District were conflated and the result is shown in the picture of Southampton. All players will enter the Minecraft GB world via OS HQ and can add their own recreations of real-life features – such as Stonehenge or imagined environments such as Hogwarts Castle.
http://www.ordnancesurvey.co.uk/innovate/developers/minecraft-map-britain.html

calendar

| seminars | conferences | exhibitions | courses | events | workshops | symposiums |

We welcome advance details of conferences, seminars, exhibitions and other events which are likely to be of interest to the GIS community. Please mention the name of the event, venue, date and point of contact for further information and send to Hayley Tear, *GISPro*, 2B North Road, Stevenage, Herts SG1 4AT or e-mail: *hayley@pvpubs.demon.co.uk*.

OCTOBER 2013

Intergeo 2013
8-10 October, Essen, Germany.
More information:
www.intergeo.de/en/index.html

Everything Happens Somewhere Conference and Exhibition 2013
9 October, Institute of Education, London WC1H 0AL.
More information:
www.geoplace.co.uk

AGI Northern Ireland Showcase
10 October, Riddel Hall, 185 Stranmillis Rd, Belfast, BT9 5EE, UK.
More information:
www.agi.org.uk/events

AGI East of England Regional Group
15 October, Yare House, Norwich, Norfolk, NR1 1RY, UK.
More information:
www.eventbrite.com/event/8260512415

ERDAS Annual User Group Meeting
15-16 October, Eynsham Hall, Oxfordshire, UK.
More information:
www.sterling-software.uk.com

GIS & Web Cartography – Presentation from Jack Dangermond
25 October, Royal Air Force Club, London W1J 7PY, UK.
More information:
www.cartography.org.uk

NOVEMBER 2013

European LiDAR Mapping Forum / SPAR Europe Conference
11-13 November, Passenger Terminal, Amsterdam, The Netherlands.
More information:
www.SPARPointGroup.com/Europe

AGI North Showcase
14 November, FERA (Food and Environment Agency), York UK.
More information:
www.agi.org.uk/events

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