GIS for the United Nations and the International Community Conference

Conference and Trip Report by Roger Longhorn (ral@alum.mit.edu)
Senior Information Policy Analyst, Compass Informatics Ltd, Dublin, Ireland

This conference was organized by UNITAR's Operational Satellite Application Programme (UNOSAT) and Esri, Inc., on 3-5 April 2012, at the World Meteorological Organization, Geneva, Switzerland. Roger Longhorn attended the Conference with Peter Pissierssens, from the IOC IODE Project Office in Oostende, Belgium, travelling to Geneva on the evening of 2 April and returning following the Technical Workshop on evening of 5 April.

The Conference

The goal of the conference was to explore the role of GIS in supporting the shared mission of Esri and UN agencies to work together on global issues surrounding humanitarian assistance, disasters, and climate change. The invitation only conference saw 250 participants representing more than 100 organisations from the UN, other international and regional institutions, private industry, NGOs, academia and consultants.

The conference proceedings are available from http://www.gisfortheun.com, where presentations from the main speakers have been posted, covering topics such as enterprise configurations, oil field analysis, data management, and more.

Day 1 – 3 April

The conference began with a plenary session on 3 April, with a welcome from Pascal Oehrli, Director of SITG, the Geneva Territorial Information System, during which he presented the various web apps that have been developed for Geneva. He was followed by Betty King, US Ambassador to the UN, whose presentation focused on humanitarian uses for spatial data, boundaries, natural disaster preparation and mitigation, including the work of US AID in this respect, and how spatial data is being used in numerous other humanitarian ways around the globe.

Mrs. King was followed by Esri President, Jack Dangermond, with a lengthy introduction and review of the many ways that GIS and geospatial data are helping us to 'understand the world'. Dangermond, as co-organizer of the conference, noted that there were over 100 organizations represented at the conference, from among the more than 250 participants. His presentation followed the development of GIS from its desktop roots through to enterprise solutions and on to 'GIS in the Cloud', leading to a world of 'geo collaboration'. Among the products or services produced were the Esri Global Needs Atlas, "story telling maps" (storymaps.esri.com), full integration of mapping/visualization from within Esri tools and Microsoft Office, imagery integration, etc. Jack's presentation helped those in the audience who were not GIS specialists to better understand the "power of GIS" when coupled with geodata from local to national and global levels. Especially for this target audience, his presentation of the power and ease of use of ArcGIS Online was very well received.

Francesco Pisano, manager of UNITAR's UNOSAT, then gave a run down of how geospatial data and maps are used within UNOSAT, where over 1000 maps have been produced, tasking for 250+ disasters, emergencies, and conflicts, plus training and R&D activities. Actions include Humanitarian Aid & Relief Coordination, Human Security (monitoring, human rights, safety and security), Territorial Planning and Monitoring (in-country project development and capacity development plus technical assistance), and downloadable UNOSAT analytical reports. A key

message, and role of UNOSAT, is that we "don't need satellite photos – we need satellite-derived information" on which to act. (More info from www.unitar.org/unosat/).

Robert Mardini, from the International Committee of the Red Cross (ICRC) then took the podium to present his views on 'Why Location Matters'. He debunked the notion that ICRC information was somehow 'secretive', noting that 90% was made available to the public and openly shared. The value of GIS was in shortening needs assessment time delays in times of crisis, in order to get relief to the appropriate locations as quickly and efficiently as possible. Regarding the value of crowdsourced data, there were quality issues that needed addressing, as well as practice in integrating such data with other official data sources. Quality is also important in using maps for evidence-based decision making.

In response to questions following the plenary presentations, in reply to questions on crowdsourcing, Jack Dangermond responded that crowd sourcing is indeed raising new challenges, especially in regard to data quality issues. However, he predicted that, in the next few years, we would see ever increasing integration of official and crowdsourced data, especially in disaster response and security situations. For example, some crowdsourced data following the Japanese tsunami and earthquakes was 'extremely valuable', even though collected by 'non-GI-professionals'.

Regarding ArcGIS Online versus Google Earth (and lookalikes), Dangermond noted that the Esri product/service was based on OGC standards to allow for full interoperability with other OGC-compliant web services and had 'more GIS functionality' built in than found on the more 'consumer oriented' offerings. In response to a question on how secure users' data is once put up on the ArcGIS Online servers – in the cloud – including guarantees of long-term access, Dangermond replied that, first of all – "policy no. 1" – is that users own their own data, regardless of where it is held, including in the cloud. However, as Esri are a private, for profit company, once a user's data volume grows too large, they will have to charge something for storing that data in their cloud, but that would be the same with any other cloud service provider – and there will not be any charge for using ArcGIS Online to access and use that data or to combine it with other datasets (layers) thanks to the OGC web services compatibility. Generally, using the cloud is a less expensive option than trying to store the data and host it on one's own servers.

Following lunch, the plenary continued, including a presentation by Daniel Eriksson of GICHD on UNAMID – the African Union/UN Hybrid operation in Darfur – and the Mine Action Atlas used to prioritise mine clearance actions, as density of mines is only part of the problem. The mine clearance planners also need to know where the population is located, where it travels, farms, gets water, where schools are located, etc. The information is also important in planning road repairs and building following disasters or conflicts. Only once all of this spatial information has been correlated and integrated can they identify the main priority areas for clearance activities. In this regard, information access and sharing, as opposed to software, are potentially barriers and a bottleneck to efficient delivery of the services. He mentioned MASCOT – an ArcGIS extension with a 'lower skill threshold' to empower local government and increase the use of spatial data for decision support.

The afternoon of 3 April was then divided into four 'breakout' sessions, covering Preparedness for More Effective Response and Recovery, Climate Services and Their Evolving Needs, Technology for Enabling a UN SDI Today, and a Technical Workshop on 'ArcGIS for the United Nations' during which Esri staff presented ArcGIS Online, ArcGIS Mobile and associated tools that can be used to help meet the needs of humanitarian and development professionals without having to

invest too much time in training or software and servers. The session format was for a moderator to introduce a number of speakers (three to four) who presented their experiences relating to the topics of the sessions. With the exception of the Technical Workshop, the speakers were all from UN or other international agencies working on a global basis. Many of the presentations are available for downloading from the conference web site at http://proceedings.esri.com/library/userconf/unic12/index.html.

Technology for Enabling a UN SDI Today

This session was moderated by Suha Ulgen, Senior Advisor on Spatial Data Infrastructure at OCIT and Co- chair of the **United Nations** Geographic Information Working (UNGIWG). He introduced the new Centre of Excellence for the UN SDI (CoE4UNSDI) and provided an introductory history of UNSDI developments beginning with the 2006 strategy paper. This introduced three core 'deliverables' covering 16 thematic data layers and services, with five strategic aims. Current work is focusing on standards deployment and developing a gazetteer framework across all UN agencies.

Bert Janssen from the European Environment Agency (EEA) then presented their work on "Eye on Earth", a crowdsourcing initiative by which citizens can record their local data on air and bathing water quality across Europe, using a web service. Issues still being addressed include aggregation of data, confidentiality and quality. Eye on Earth is a public-private partnership (PPP) involving EEA, Microsoft and Esri.

Ron Wit from UNEP/GRID then presented their work in regard to moving from Millennium Development Goals (MDG) to Sustainable Development Goals (SDG). He introduced the AfroMaison Broker (http://afromaison.grid.unep.ch:8080/gi-cat/) based on open source GeoNetwork software, developed with partial funding from the European Union, as well as the EnviroGRIDs (http://www.envirogrids.net/), another EU-part-funded project for "Building Capacity for a Black Sea Catchment Observation and Assessment System supporting Sustainable Development". Other products or services from UNEP include the UNEP Environmental Data Explorer (http://geodata.grid.unep.ch/) and the Global Risk Data Platform (preview.grid.unep.ch) where multiple agencies can share spatial data information on global risk from natural hazards.

Andrea Ajmar, from ITHACA (Information Technology for Humanitarian Assistance, Cooperation and Action) presented their work for the World Food Programme SDI implementation. WFP have over 13,000 staff of whom 90% are 'in the field', operating under six regional bureaus. Keeping the communication lines open and relevant information flowing is a key issue. There are no major technology issues, except that the technology continues to evolve so swiftly and the definition of an 'SDI' evolves with it – e.g. how do you include crowdsourced data into an 'official' agency SDI? How do you develop core datasets, when commercially available data may be more accurate, but not free, while crowdsourced data (especially in the public domain) may be free but of questionable (unknowable) quality. So they developed 11 indicators used for 'internal quality' checks, each with its own weighting factor. Also, IPR and terms of use need to be investigated and well understood. There was still a lack of metadata in standard formats, and these were organisational issues, as much as technical.

The session concluded with a presentation by Athina Trakas, Director of European Services at OGC Europe, the open geospatial standards and specifications industry body. She noted that UNGIWG had not joined OGC as a principal member and that OGC were on the Technical Advisory Group (TWG) for UNSDI. Key issues to be addressed relate to cross boundary data sharing, where the boundaries may be physical, political or disciplinary/thematic. OGC develops open standards in a

well established consensus building process in which all 450 members can participate. Many new domain working groups exist which are developing global data and service specifications that will have a direct impact on much of the data that is needed and used by UN agencies, from sensor networks through to thematic data necessary for disaster planning, management and remediation, humanitarian assistance and security monitoring, etc.

Day 2 – 4 April

The second day of the conference began with four parallel breakout sessions, covering the topics of Enhancing Logistics and Personnel Security with GIS, Humanitarian Mapping in Action, Open Data and the Crowd: Collaborating for Action, and a User Session on "GIS Implementations and Best Practices in Humanitarian Response", during which presenters from GICHD (Mine Action), ICRC (Humanitarian Response) and UNITAR/UNOSAT (Remote Sensing) presented their geo-related work.

Attending the Open Data session, Lars Bromley of UNOSAT was lead presenter, highlighting the importance of 'operational imagery' – i.e. not just satellite images, but analysis based on such imagery addressed to specific challenges. They responded to around 35 incidents or situations per year, providing spatial analysis info to UN and NGO agencies on the ground. They are 'data agnostic', i.e. they will use any data that is available, as long as it helps to fulfill the mission role for each situation. They do not enter into licenses but do respect the open data 'ethics'. Most of their clients want to see finished information products, presented typically as PDF maps, not intermediate imagery or data. Software used includes Google Map Maker and OSM. They receive and give support from/to the URISA GISCorps (GI volunteers) and the Standby Task Force (volunteers who respond specifically to crisis situations).

Andrej Verity from OCHA then presented his/their views and main concerns, seeing GIS as a subset of wider ICT needs. He mentioned the Common Operational Datasets (COD) produced by Humanitarian Response (http://cod.humanitarianresponse.info/) and HXL – the Humanitarian Exchange Language (http://hxl.humanitarianresponse.info/ns-2012-06-14/). Challenges that OCHA faced were how to deal with the volunteer community effectively, and with crowdsourcing data, which was often the only data to hand (or collectable) in many humanitarian crises. There was a role for both the trained and untrained volunteer in gathering data, as long as the latter were given good direction and used appropriate tools. There was also a difference between geo-referenced data saying that 'the hospital is here' versus social media info saying that 'this hospital has run out of antibiotics' – both important pieces of information in humanitarian crisis response.

Frédéric Zanetta, International Director of IFRC (International Federation of the Red Cross and Red Crescent Societies), began his presentation by noting that 'ICT changes much more quickly than do big NGOs' and harps back to the importance of the data, regardless of the ICT tools that come along to process it. He was a strong believer in the open data movement and the value of crowdsourced data, which was often the only that was available in some situations. Working with social media raised a number of other/new issues. There is an IFRC Pilot Project underway to communicate mainly to the public, not to provide detailed situation analysis. They operate the Disaster Management Information System (DMIS) web-based tool made accessible only to Red Cross and Red Crescent staff working in National Societies, delegations and Geneva headquarters. It is a system from which users will be able to access real time information on disaster trends, online internal and external resources, and tools and databases.

The second morning breakout session offered the topics: Geographic Information in Postcrisis – Transition to Stability and Redevelopment, GIS: Improving the Impact on Global Health Investments, GIS and Capacity Building – How Territorial Planning Benefits from Geospatial Information, and the second opportunity to participate in the Technical Workshop: ArcGIS for the United Nations, again led by Esri staff.

Attending the session on "GIS and Capacity Building", introduced by Francesco Pisano of UNITAR/UNOSAT, the first speaker was Luca Dell'Oro from that same organisation. His presentation covered various aspects of territorial planning, including the different forms of planning, content and scale, and institutional and legal contexts. Managing the spatial dimension was crucial in territorial planning, especially across the breadth of sectoral issues to be addressed. He identified three levels of capacity development, i.e. at the individual, institutional and system-wide levels, within varying short and long term plans/programmes.

Then Cees Van Westen (ITC) presented the UN University at ITC, focusing on the SDI related curriculum, various thematic applications of GIS and remote sensing, plus local university collaboration.

Marc-Andre Bunzli, from the Swiss Humanitarian Aid Unit of the Swiss Federal Dept. of Foreign Affairs, focused on the 'water resource management' projects in which they were involved, noting the importance of hydrology/water to sustainable development globally.

The final speaker was Jan Moritz Kruger from WMO, who highlighted their experiences in regard to capacity building and the water theme, noting that a multi-disciplinary approach was needed in all cases, integrated management for flood planning and control was required, along with a better understanding (at all levels) of flood risks in creating an effective flood control strategy. Finally, it was important to 'define the message', setting out what was necessary and what was available, looking honestly at existing restrictions, e.g. financial, organizational, etc.

A very lively and informative Q&A session followed the presentations, touching on a range of issues, including planning tools (in Africa), marine and fisheries management, conservation versus sustainability, risk management (recognising the personnel issues), risk analysis (the CAPRA – Probabilistic Risk Assessment Tool – www.ecapra.org – developed by the World Bank), GEONETCAST and ESA Data Dissemination System Tool boxes for earth observation data analysis, plus the Multi-hazard Risk Assessment course run by ITC.

Following lunch, the first afternoon session on 4 April was a panel discussion on "Planet Earth, Planet Water", at which four representatives from IOI, UNEP/GRID,WMO and Univ. of Texas presented their views. Two presentations are available online from the Panel Discussion - one from David Maidment, University of Texas on "World Water Online" and the other from Cherdsak Virapat from the International Ocean Institute (IOI). Other panellists were Anthony Lenhmann from UNEP/GRID and Wolfgang Grabs of WMO.

Lehmann focused his intervention on various EU-funded projects dealing with water issues, such as enviroGRIDS, SWAT (Soil & Water Assessment Tool) and the Black Sea Commission and Danube Commission Portals. Grabs presentation focused on 'becoming active at the local level'; seeing new technologies as opportunities – not as challenges; demonstrating that new products had value and were useful and used; and the importance of providing useful information at local levels, i.e. information that could be used by non-experts as well as professional advisers.

The Conference closed on 4 April with a plenary during which feedback was provided, in summary format, from the moderators of the various breakout sessions held over the two days, followed by a demonstration of what could be achieved using a micro-UAV as deployed in mine clearing actions.

Esri ArcGIS Technical Workshop – 5 April

Key topics/issues covered in the GIS Technical Workshop on 5 April included:

- "GIS is not the core mission" – GIS is a toolset.
- You may need to publish your/our maps on all devices – desktop, mobile and web.

- For a preview of ArcGIS 10.0, visit http://resources.arcgis.com/en/.
- You can see resources for different communities at http://resources.arcgis.com/en/communities/ (check out ocean planning!)
- A demo on Aid Transparency is available at http://resources.arcgis.com/en/communities/aid-transparency/index.html
- Check out the Global Needs Atlas – NPOs and national government
- Ocean Use Planning – check on marine protected areas?
- ArcGIS for Emergency Management – updates to some of the templates to be released in May 2012; expect more updates as 10.1 is released.
- ArcGIS for local government
- Public Safety Resource Center – has the templates in the Public Safety community site at http://resources.arcgis.com/en/communities/public-safety/
- Esri Disaster Response Program can be seen at http://www.esri.com/disaster

The workshop leaders than presented a range of Esri support with tools, data and personnel. Esri provides many instructional videos at: video.esri.com – see short videos of tools, presentations, etc.

ArcGIS for Humanitarian Assistance is a new name/concept based on earlier disaster response program, for/from:

- non-profits
- national governments
- international institutions

Humanitarian Response mission – underlying information model? operational layers? clusters? ArcGISforHumanitarian@esri.com – e-mail for conversations on this topic.

- existing standard data models
- symbol sets? FEMA, OCHA, GICHD
- is there interest from this community for this initiative?

ArcGIS for Developers was presented.

- ArcGIS Desktop is where you get the full power for customisation of applications – not using ArcGIS Online.
- Client APIs - JavaScript, Flex and Silverlight are some of the main clients interfacing with ArcGIS Server, plus many others.
- Visit esriurl.com/arcgisservices
- Flex, Silverlight and SharePoint – main development communities on the web.

- Esri Developer Summit 26-29 March 2012 – now over and resources resulting from the summit should be online now.

Web Atlases – check out http://resourcesbeta.arcgis.com/en/webapis/community/

ArcGIS Mobile – "GIS on mobile devices"
A breakout session was organised on Mobile GIS – iOS (Objective C), Android (Java), Windows Phone (Silverlight), Windows Mobile (.NET) – there are "out of the box" apps for all of these computing environments. See resources.arcgis.com/mobile. Check out the URL to see what new resources are becoming available now or shortly.

Check out the "Atlas of Design" – in resources – blogs.esri.com/esri/arcgis/category/web/page/2/

Geospatial Platform for the United Nations System

ArcGIS Editor for OSM ver 2.0 – an add-in for ArcGIS Desktop
- Can edit and upload; can also download from OSM into ArcGIS Desktop

---

Analyzing social media data – Paul Doherty presentation

Thailand flooding example – using mobile message reports to act as 'hot spots', localized information backing up the imagery analysis. (But how are those reports geo-referenced?)

Ushadidi ArcGIS map ?
Check out esriurl.com/spatialstats
and
http://blogs.esri.com/esri/arcgis/2010/07/13/spatial-statistics-resources/

Full details and videos on pattern analysis (trend details) and regression analysis, including spatial statistics toolbox.

Main Esri Contacts following the workshop (for future reference) are:

rlanclos@esri.com
ssawaya@esri.com
jbaranyi@esri.com
pdoherty@esri.com

ArcGIS Viewer for Silverlight 1.0 and ArcGIS for SharePoint 2.1 now available!

On January 18, 2012, in Web, by rexhansen

We're very excited to announce the final releases of the ArcGIS Viewer for Silverlight 1.0 and ArcGIS for SharePoint 2.1. For both products, this is a major release that is packed with lots of great functionality. Both products allow you to interactively create and configure web mapping applications without writing code. You can easily configure the map, tools, and look and feel of each application, leveraging ArcGIS Server map and geoprocessing services. The Viewer creates applications as standalone websites, while ArcGIS for SharePoint integrates your web applications into SharePoint by hosting them in the Map Web Part.

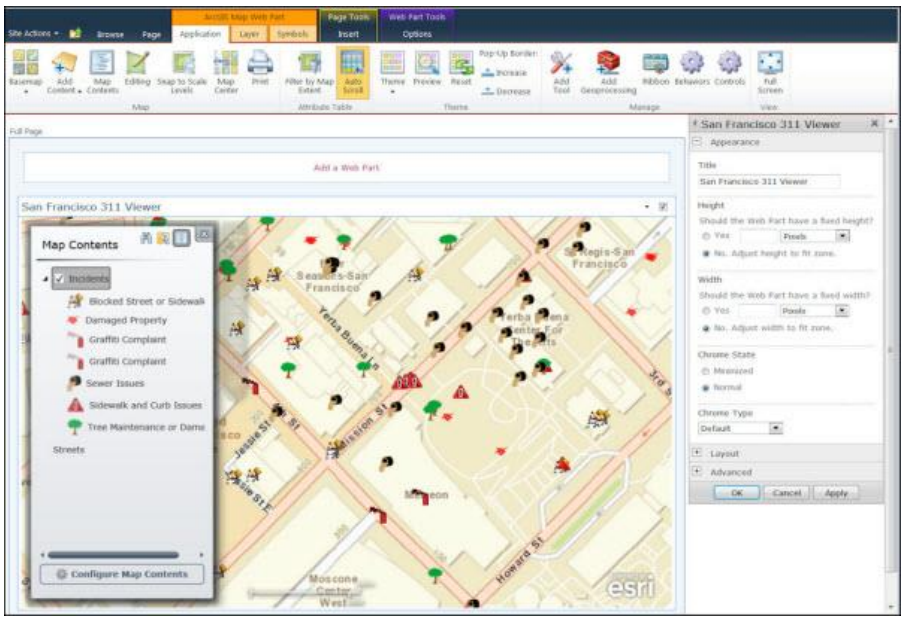
With this version, you can:

- Add and configure map data from ArcGIS Server map and image services, Spatial Data Services, Bing Maps, OpenStreetMap, and GeoRSS feeds
- Open Web Maps from ArcGIS Online that are public, shared within your organization, or owned by you
- Run GIS analysis operations using ArcGIS Server geoprocessing services
- Include a configurable map contents with legend
- View informational popups for features in the map by clicking on them
- Configure any layer to update automatically at a specified interval
- Edit features on the map
- Search for addresses and places
- Develop and plug in add-ins containing custom functionality
- Much, much more…

The viewer, which has been in beta for a while, has generated buzz for its ability to easily create a Silverlight-based web mapping application through an intuitive WYSIWYG 'Application Builder'.

ArcGIS for Silverlight Viewer 1.0

ArcGIS for Sharepoint 2.1 allows you to incorporate your GIS web services into SharePoint through a Map Web Part. You can also visualize your SharePoint data using a geocoding workflow.



ArcGIS for Sharepoint 2.1

For details on what's been added since the last release, check out the What's New topics for ArcGIS Viewer for Silverlight and ArcGIS for SharePoint. To get started using the products, refer to the Viewer and SharePoint's online help. And to get started developing your own tools, behaviors, controls, and layouts have a look at the Interactive SDK for both the Viewer and SharePoint. And don't forget, if you have questions or issues, be sure to use the Viewer and SharePoint forums to get help from the community.

The ArcGIS Applications Team
FYI, the ArcGIS Extensibility SDK for Silverlight is now available from here:
http://resources.arcgis.com/content/arcgis-viewer-silverlight-10-download