SPATIAL DATA INFRASTRUCTURE - AFRICA NEWSLETTER

SDI-Africa Newsletter

The Spatial Data Infrastructure - Africa (SDI-Africa) is a free, electronic newsletter for people interested in Geographic Information System (GIS), remote sensing and data management in Africa. Published monthly since May 2002, it raises awareness and provide useful information to strengthen SDI efforts and support synchronization of regional activities.

The Newsletter is prepared for the GSDI Association by the Regional Centre for Mapping of Resources for Development (RCMRD) in Nairobi, Kenya.

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The Regional Centre for Mapping of Resources for Development (RCMRD) implements projects on behalf of its member States and development partners. The centre builds capacity in surveying and mapping, remote sensing, geographic information systems, and natural resources assessment and management. It has been active in SDI in Africa through contributions to the African Geodetic Reference Frame (AFREF) and SERVIR-Africa, a regional visualization and monitoring system initiative. Other regional groups promoting SDI development in Africa are ECA/CODIST-Geo, RCMRD/SERVIR, RECTAS, AARSE, EIS-AFRICA, SDI-EA and MadMappers

Announce your news or information

Feel free to submit to us any news or information related to GIS, remote sensing, and spatial data infrastructure that you would like to highlight. Please send us websites, workshop/conference summary, events, research article or practical GIS/remote sesning application and implementation materials in your area, profession, organization or country. Kindly send them by the 25th of each month to the Editor, Gordon Ojwang' - gojwang@rcmrd.org or sdiafrica@rcmrd.org. We would be happy to include your news in the newsletter.

This would be interesting to a colleague

PLEASE share this newsletter with anyone who may find the information useful and suggest they subscribe themselves. You can visit the GSDI website: Newsletter back issues - http://www.gsdi.org/newsletters.php. You can join the GSDI Association at http://www.gsdi.org/joinGSDI.
Enjoy Reading - the SDI-Africa team

Support and Contributions to this Issue

Thank you to the Global Spatial Data Infrastructure (GSDI) Association; Harlan Onsrud, University of Maine (USA); Hussein Farah, RCMRD (Kenya); Tasfaye Korme, RCMRD (Kenya); Karen Levoleger, Kadastre (Netherlands) and Kate Lance, GSDI listserv moderator (USA) for their contributions to this issue of the newsletter. We also acknowledge the various websites and links refered as source of information.

SDI News, Links, Papers, Presentations

GSDI 14 World Conference and AfricaGIS 2013 - November 4-8, 2013

EIS-Africa, the GSDI Association, the International Geospatial Society, and the United Nations Economic Commission for Africa (UNECA) are pleased to announce a close partnership in offering the joint AfricaGIS 2013 Conference and the GSDI 14 World Conference. This combined conference will take place at the UNECA Conference Center in Addis Abbaba, Ethiopia from November 4-8, 2013.

AfricaGIS is the largest regularly occurring GIS conference in Africa with participants from the entirety of the continent. The GSDI World Conference has built a reputation for excellence in content and moves across the globe to offer geospatial specialists in all parts of the world opportunities to better exchange ideas and learn from global peers in building spatial data infrastructure.

The selected theme of the conference is "Spatially Enablement in Support of Economic Development and Poverty Reduction." GIS, spatial data infrastructure concepts, and affiliated tools and technologies are being utilized worldwide to help address the associated issues.

Please consult the conference web site on a regular basis as the Call for Papers and details about the program, facilities and sponsorship opportunities become available.

Experts discuss framework for better use of geospatial information in Africa

Geospatial science and technology experts from Africa and other parts of the world held a three-day meeting in Addis Ababa to prepare guidelines on legal and regulatory frameworks for use of geo-information in Africa. They discussed experiences, impacts and outlook on governance, legal and regulatory frameworks that exist in Africa and around the world.

The ICT, Science and Technology Division of Economic Commission for Africa (ECA) says dedicated efforts are required to create the environment for sharing the benefits of geographic information with decision makers and users in Africa. Such efforts would require the development of specific action plan, mandates and responsibilities for data producers or custodians; technical components to ensure that the various datasets can be integrated seamlessly, as well as access rights, legal and regulatory frameworks to enforce the standards, the rights and responsibilities. It is expected that the meeting will foster the adoption by African countries of appropriate mechanisms for the cooperative production, management, dissemination and use of geo-information resources at the global and national levels around the continent.

In an opening remark, Ms. Aida Opoku-Mensah, Director of the ICT Science and Technology Division (ISTD) at ECA said ECA was promoting best practices in policies governing geospatial information management because Africa does not have a formal regulatory framework yet. "We want to draw from the various experiences of experts in evolving best practices that can ensure the delivery of a more joined up approach in providing geospatial information and services to government, business and citizens", she said.

A draft study on issues pertaining to geospatial legal and policy frameworks was presented to the experts It is expected that discussions would generate ideas that will guide the governance and development of holistic geospatial information in the continent. *ECA Press Release - Addis Ababa, 12 December 2012.*

Geospatial, big data will be used more strategically in 2013

Google - Software giant expects businesses to use other forms of data for more strategic decision making. 2012 showed that the "consumerisation of IT" trend is no longer just changing the workplace culture of start-ups and small businesses. They are also leading some businesses to dabble with the Cloud. That is according to Google APAC enterprise managing director, Doug Farber, who also saw big companies from various industries dabble with the Cloud this year.

"Australian big businesses across a broad range of industries, such as Fairfax Media and Woolworths supermarkets, are moving to Cloud-based tools like Google Apps for Business because they facilitate more mobile, social and collaborative styles of work," he said. Farber said this is happening because businesses have come to the conclusion that they need to "be more global and move much faster," and the way to do that is make use of the Cloud.

Beyond the continued growth of Cloud, mobile and social technologies in the workplace, Farber also expects to see an increased use of geospatial data and big data set crunching for more strategic decision making. In the past, geospatial analysis may have been an expensive and highly specialised area, as there were normally only one or two people within organisations that knew how to use the systems, but Farber says these technologies are now "more accessible from a cost and a usability perspective."

"Now basically anyone who knows how to use Google Maps or Google Earth can use these tools," he said. "This is allowing companies from real estate to retailers to utilities to media to better use location based information in making business decisions." When it comes to finding patterns in large data sets quickly, creating new analytics products and building business analysis tools, Farber said businesses also have access to tools such as Google BigQuery. "Free White Paper Download - "A Practical Path to Unified Identity Across Data Center, Cloud and Mobile"

MESA: A leap forward for earth observation applications in Africa

The African Monitoring of Environment for Sustainable Development (AMESD) program will come to an end in June 2013. A new €37 million program – 'Monitoring of Environment and Security in Africa (MESA) will bridge AMESD with the follow-up 'Global Monitoring for Environment and Security (GMES)' Initiative. The implementation of MESA will start in 2013 and run until 2018. Since its inception in 2007, the AMESD program has taken the Preparation for
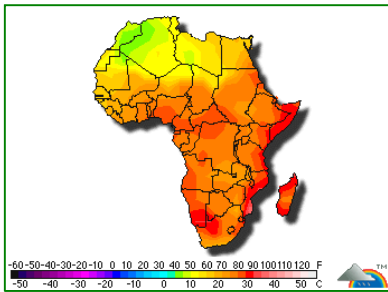
the Use of Meteosat Second Generation in Africa (PUMA) a step forward by extending the use of Earth observation technologies and data to environment and climate monitoring applications. MESA, likewise, will build on the results of AMESD to address the needs for improved management of natural resources and environmental security towards sustainable development in Africa, at continental, regional and national levels, including all Sub-Saharan African countries.

This will be achieved by providing infrastructural support, including upgrading and maintenance of receiving stations and information and data management. MESA will also consolidate and further develop information services in the thematic areas that are addressed by AMESD, with the inclusion of new thematic areas such as climate services and forest information. Promotion of cross-fertilisation of environmental monitoring services and applications among the five partner regions will be one of the main objectives of MESA. In addition, strengthening of policy development frameworks and capacity building are key components of the program. Monitoring of soil and water conditions for agriculture, tracking forest degradation and desertification, providing information to policy and decision makers in order to lessen and/or adapt to effects of climate change and reducing the risks of natural and human made disasters, for example, are all areas where MESA will bring added value.

MESA is funded by the 10th European Development Fund (EDF). The program will be implemented under the coordination of the African Union Commission, which has been delegated by 5 regional economic communities (CEMAC, ECOWAS, IGAD, IOC & SADC) and by the African Caribbean and Pacific Secretariat. The EU Delegation to the African Union is the lead delegation. Summary of the regional rainfall, vegetation and fire conditions in sub-Sahara Africa for the 2012 period is provided in the AMESD Continental Environmental Bulletin #3 - November 2012.

Africa urgently requires a continental weather satelite

At the African Ministerial Conference on Meteorology (AMCOMET) held in Victoria Falls in October 2012, the member States were challenged to establish a continental meteorological satellite to monitor weather activities so that Africa would be warned of imminent climate disasters on time. Officially opening the second session of AMCOMET, the Vice-President Joice Mujuru said such a development would adequately prepare people, save lives and infrastructure destruction.

Thirty-seven African countries were represented with 29 ministers attending the conference. "I would like to add my voice to the increasing calls for AMCOMET to spearhead the establishment of an African Meteorology Space Programme leading to the launch and operation of an African Meteorological Satellite," said VP Mujuru. "With the increasing devastating impacts of weather related disasters due to the accelerating change in the climate, the time has come for Africa to join the rest of the world to be able to monitor extreme weather events. "These are becoming more severe and costly in terms of life and property. Your ability to provide timely meteorological early warning services and forecasts will save the continent of billions of dollars every year. I have been advised that the costs of launching and maintaining the satellite are not astronomical and are miniscule compared to the gains to be made."

She said Africa had vast financial resources adding that what was needed was the will and commitment from politicians, technocrats and technical experts. "We need to develop our own meteorological products, strengthen our human capacities and use our own financial resources. Establishing the AMCOMET Trust Fund is an urgent must, therefore, if Africa has the regional African Satellite Communication Organisation (RASCOM) satellite on communications, why should AMCOMET not have its own? I look forward to witnessing the launch of the first African meteorological satellite," said VP Mujuru.

She further called on African countries to capacitate appropriately their meteorological authorities so that they could adequately provide early warnings on disasters. "Often we turn to our weather authorities only after a calamity such as drought, flood or tsunami and blame them for their failures to produce accurate forecasts or inability to provide warning. We are blind, most times not deliberately to the fact that they too have immense problems, chief among them being inadequate resources, technology and equipment for effective weather forecasting, early warning system, research and development," she said. "On our part as governments, we have to change the way we have been handling weather and climate issues. We need to move away from crisis management and become more proactive, and hence less costly and well-coordinated responses. I challenge AMCOMET to find a mechanism to make sure that warming reach the highest decision makers directly in the shortest time so that we act swiftly, appropriately and effectively."

The World Meteorological Organisation (WMO) secretary-general Mr. Michel Jarraud said there was a need for a concerted effort in dealing with climate change, which he said was affecting the socio- economic

programmes in member countries. "Climate variability and change were posing significant challenges in strategies and programmes supporting peace, security and development in Africa, particularly, agriculture development and food security, disaster risk reduction, water resource management, access to health and sanitation, all of the priority areas of the Global Framework for Climate Services (GFCS), the development of which was unanimously decided by the Third World Climate Conference (WCC-3) in 2009".

Also see: Weather Forecast - Africa : Local & Long Range and other numerious Africa continental and regional weather providers for local & long range weather forecast, weather reports, maps & tropical weather conditions.

African countries urged to undertake detailed mapping of natural resources

Last month, in Maputo, the World Bank's deputy president for poverty reduction and economic management, Otaviano Canuto advised African countries endowed with enormous reserves of natural resources should undertake detailed mapping of them, in order to be in a better condition to negotiate contracts with companies wishing to exploit those resources.

Giving a lecture on "The Extractive Industry: Challenges and Prospects for Mozambique", Canuto said that, although Mozambique could reap enormous benefits from its mineral resources, the lack of an exhaustive geological survey would make it difficult to arrive at a reasonable estimate of the size of the reserves. "Countries can make enormous gains, but more detailed maps have to be drawn up about the riches in the subsoil, and these have to be in the public domain", he said.

The World Bank, Canuto added, insists that this should be on the list of priorities for any government. He also stressed that government should establish an environment of transparency in the contracts they sign with investors. That was a sine qua non for assessing who gains what from the exploitation of resources. He advised that contracts should not be rigid, but also should not be too flexible – in general they should contain clauses which envisage how to deal with situations that will vary over the life span of the contract.

"This is a healthy principle about contracts that we can generalise about, based on experience from across the world", he said. The possibility of changing circumstances should be envisaged at the time contracts are negotiated and signed. Other challenges facing governments are establishing the tax framework for investment in natural resources and building up the capacity of the public sector, so that it can make proper cost-benefit analysis of the investment, and advocate fairer measures in distributing the benefits.

ECA work re-aligns to better serve Africa's transformation agenda

The new Executive Secretary of the Economic Commission for Africa (ECA), Mr. Carlos Lopes announced a major restructuring of ECA's work programme to better reflect a "changing world, a new phase of globalization" and the present realities of rapid urbanization in Africa which is recording steady economic growth but few jobs and which needs to accelerate its transformation agenda.

He told hundreds of ECA staff members in a Town Hall meeting that he had consulted a broad spectrum of stakeholders, including ECA's strategic partners and staff members over the past three months, and developed a better and more targeted structure with new business processes designed to serve Africa better. He announced the creation of Macroeconomic Policy Division, Regional Integration and Trade Division, Special Initiatives Division, Social Development Division and a strengthened and expanded African Centre for Statistics which will be charged with collating and collecting credible data and statistics on African development issues. These Divisions will take charge of ECA's renewed focus on "Policy Research".

To carry out "knowledge delivery", he announced the creation of an Office of Partnerships and a Capacity Development Division which is composed of an African Union and NEPAD Team as well as a team of highly skilled experts who will serve as Regional Advisers. With this Division, Lopes expects that ECA will better respond to the capacity needs of the African Union and its NEPAD programme as well as benefit from the experience of renowned experts in various capacities around the world.

Since the most significant change has to do with data collection and statistical analysis, Lopes said ECA's five Sub-regional Offices (SROs) (in Lusaka, Kigali, Rabat, Niamey and Yaoundé) would be strengthened and re-focused to reflect this objective. Accordingly, the SROs will have the primary task of serving as Data Centres, collecting credible statistics on various development issues and challenges in the countries that they cover. They will also cater to subregional "special initiatives".

The new structure is expected to take effect from March 2013. While some Divisions (Food Security and Sustainable Development; ICT, Science and Technology; and Governance and Public Administration

Divisions) appeared to have disappeared, Lopes said their programmes had actually been absorbed in other new structures. For instance, Food Security, Agriculture and Land, are now part of the Regional Integration and Trade Division, while the African Gender Center is now part of a wider Social Development Division. He said no priority of Africa had been overlooked in the present structure, stressing the overall objective of ECA being known for fewer things, but considered to be the best in those things. "For example, we do not need to get involved in gender advocacy; instead we should develop the tools for others to carry out such advocacy, and when we work on food security, it should have a focus on regional integration" he said.

The overall reaction of ECA staff appears to be one of optimism as they get ready to embrace the change.
ECA Press Release - Addis Ababa, 12 December 2012.

African Statistical Yearbook 2012

The Yearbook series (Full Version) is a result of collaborative efforts by major African regional organizations to set up a joint data collection mechanism of socioeconomic data on African countries, as well as the development of a harmonized database. The African Statistical Yearbook aims to break with the practices of the past, where each regional/subregional organization published their own statistical data on African countries. This led to duplication of efforts, inefficient use of scarce resources, an increased burden on member countries, and sometimes conflicting data for users. The joint collection and sharing of data among regional institutions seeks to promote wider use of country data, reduce costs, significantly improve the availability and quality of the data, and lead to better monitoring of development initiatives on the continent.

The data in this issue of the Yearbook are arranged generally for the years 2003-2011, or for the last eight years for which data are available. The Yearbook is published in a single volume consisting of two parts: a set of summary tables followed by country profiles. The summary tables are presented by selected sectors. Each table presents indicators for all African countries for comparison purposes. The indicators are grouped in nine main sectors.

Summary Tables (Tableaux Résumés)

- Social and Demographic Indicators (Indicateurs démographiques et sociaux)
- Economic Statistics (Statistiques économiques)
- Monetary and Financial Statistics (Statistiques monétaires et financières)
- Economic Infrastructure and Investment Climate (Infrastructures économiques et climat des affaires)
- Millennium Development Goals (Objectifs du millénaire pour le développement)
- Country Tables (Tableaux par pays)

A checklist for developing early warning system

The Third International Conference on Early Warning (EWC III) held in Bonn, Germany from 27-29 March 2006 provided the opportunity to present new and innovative early warning projects and to discuss natural hazards and risks around the world and how their impacts can be minimised through the implementation of people-centred early warning.

The present document "Developing Early Warning Systems: A Checklist" was developed as a conference outcome, to both inform and draw upon the discussions and practical examples raised during the conference, and to support the implementation of the early warning components of the Hyogo Framework for Action.

It presents a series of practical checklists that cover elements, actions and good practices to assist in developing, evaluating or refining early warning systems. It is presented as a non-technical reference tool rather than an extensive 'how-to' list for designing early warning systems. The document also provides background information on early warning, which includes an overview of four key themes (risk knowledge, monitoring and warning service, communication, response capability), as well as cross-cutting issues such as governance and involvement of local communities. It also outlines the roles of key actors (such as local governments and international bodies) within each theme, without discussing any overlap of responsibilities and how they relate to the different elements of early warning systems. See also: WMO - Guidelines on Early Warning Systems and Application of Nowcasting and Warning Operations (pdf).

Smartphones writing off paper-based surveys

Done well, opinion polls and other surveys can be designed to represent the opinions of a population or other constituencies. On-site data collection surveys using paper forms are slow and error-prone. Data collected

this way is often poorly organised and difficult to access and analyse. As mobile device technologies such as smartphones and tablets are increasingly becoming an indispensable part of our lives, more and more companies are moving away from paper and pen.

Users log in at www.episurveyor.org to create survey questions, which can be downloaded to any Java- and GPRS-enabled mobile phone that can then be used to collect and upload data in real time to an EpiSurveyor cloud account or to a laptop, as needed. However, employing smartphones in underdeveloped rural areas requires solutions for issues such as: limited battery life in the absence of reliable electricity supplies, low screen-brightness in direct sunlight, and lack of cellphone and internet access.

Mobile apps spurs social change in Africa

With the explosion of mobile phones in Africa, Africans are catching the app fever. (An app is a piece of software that can run on electronic devices like mobile phones, computers or MP3 players). In Kenya, under the slogan "fix my community," people are using an app named Huduma to denounce inadequate or missing public services. With it they can send a text message from their phones to alert elected officials and community activists to problems such as broken water pipes or report a doctor who is absent from a public hospital. Huduma's popularity has grown to the point that members have meet-ups, organized through the social-networking tool Facebook, to talk about pressing issues. The citizen-driven platform, created by the Kenyan-based company Sodnet-Infonet (Social Development Network Innovations), has recently been extended to Uganda, Mozambique and Nigeria.

Another app that is changing how ordinary Africans interact, connect and engage with their educational system is Not in My Country. The Ugandan-based user-generated platform, relying on data contributed by individual website users, is an untraceable and anonymous online space to report corruption at university campuses. Since reporting corruption can be risky, the founders of Not in My Country hide their identities, but remain active on social media sites like Facebook and Twitter to encourage audiences to report incidents - and thus improve the quality of higher education in Uganda. See: Africa Wired - Texting your way to health.

COMESA to establish Innovation Council and Regional ICT Fund

During the 16th Summit of the COMESA Authority of Heads of State and Government, held in Kampala on 23-24 November 2012, the establishment of the Innovation Council, an Annual Innovation Award and a Regional ICT Fund was endorsed. The establishment of the Innovation Council has been driven by the need to put mechanisms in place to harness and mobilise existing knowledge in a structured manner that benefits all Member States. The Council will incorporate representatives from academia, private sector and government and it will advice the Member States in relation to existing and new knowledge and innovations, and the best ways of applying the knowledge and innovations in the Member States.

An Annual COMESA Innovation Award will commence in 2013. The Ministers responsible for Science, Technology and Innovation (STI) in the COMESA region believe that the creation of the ICT fund will enable the COMESA region to develop and implement science and technology programmes and projects from the design stage. The COMESA Secretariat will establish a regional fund to provide grants that match national level funding. It is recognised that support for entrepreneurship, Science, Technology and Innovation is essential for the future of the region.

During the meeting of Ministers responsible for STI in Lusaka in June 2012 it was also agreed to harmonize the ICT curricula in the COMESA region for all learning institutions providing courses that relate to information technology and innovation and also allocate at least 1% of GDP to research and development. It is hoped that each Member State will set aside no less than 1.5 million USD to establish national innovation funds. To date Zimbabwe has established a national Innovation fund of 1.5 million USD to support research, development and commercialisation, which will be disbursed annually on a competitive basis by the Ministry of Science, Technology and Development.
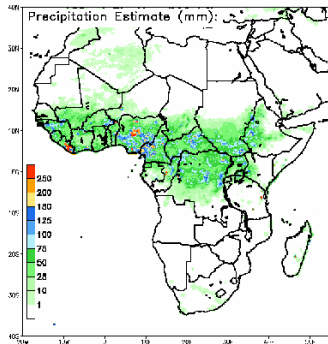
Tunisia: First Fire Remote-Sensing System in Areas Classified As Cultural Heritage Launched

The Tunisian Technologies and Image Laboratory (COSIM) launched in December 2012 in Tunis, the first system of fire and natural disasters remote-sensing and monitoring in regions classified as "cultural and civilisational heritage" (firesense), on the occasion of the first scientific days: "Communication, Information and Environment Technologies".

147 applications of meteorological information to agriculture in West Africa
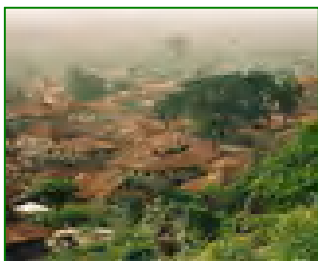

By Giampiero Maracchi and Simone Orlandini

Abstract: The application of agricultural meteorology can be considered particularly important in developing countries, providing information in order to support decision making. Early warning systems, technical assistance during the agricultural season and improving production systems can be considered as the main goals of agrometeorology. In this paper several examples of agrometeorological applications are described. They have been realised by several research institutions in Florence, to support the activity of agricultural producers, particularly for the forecast of rainy season and the monitoring of crop production.

The described procedures can be operationally applied in providing important applications for the improvement of crop cultivation. Particularly important are the possibilities for optimising the exploitation of water resources, generally representing the limiting production factor of these areas. The range of elaborated information can be very important for successful agrometeorology applications, as well as the possibility of a real time dissemination of information satisfying end-user needs. Also in less developed countries Internet can be a good solution to reach the local services, but it is possible to use local or national broadcasting.

Nigeria: National climate policy for greater management and use of climate data

Nigeria must close a "communication gap" to ensure that vital information on climate change-related events reaches all those who could use it to help minimize their impact, the head of the country's meteorological body has warned. Speaking at the yearly meeting of the African Science Academies, held in Lagos (12-14 November 2012), Anthony Anuforom, director-general of the Nigerian Meteorology Agency (NIMET), said that a 'national climate service policy' would ensure greater management and use of data on events such as flooding, prolonged droughts and heat waves.

"Extreme weather events are increasing in frequency and intensity. We have evidence of an increasing frequency of thunderstorms. We need to think of establishing a national framework for climate service," he said. Anuforom said the framework would ensure better public communication of climate issues such as rainfall, flooding, drought and rising temperatures. "Users would include farmers, policymakers, health workers, environmentalists and universities in Nigeria". According to Nigeria's National Emergency Management Agency, 363 people died and a further 2.1 million were displaced between July and October because of flooding. Anuforom said that inadequate information on disaster risk reduction and the lack of a framework to ensure that climate data are passed between agencies such as NIMET and policymakers was partly responsible for the damage and deaths caused by these floods.

In 2009, the World Meteorological Organization adopted the global framework for climate service, which aims to ensure effective use of climate information in global decision-making. Anuforom said Nigeria should create its own national system to guarantee that climate service providers are connected with service users. "If we had a proper framework, we would be on our way to ensuring proper mitigation of climatic effects," he said.

In a statement read at the meeting by minister of science and technology Okon Ewa, Nigeria's president, Goodluck Jonathan, said: "It is estimated that 90 million to 220 million Africans will be exposed to increased water-related stresses induced by climate change by 2020. Without adequate study and timely actions, the manifold effects of such occurrences will undoubtedly worsen environmental problems in our continent." Chukwu said: "Climate change is expected to increase the burden of climate sensitive diseases, such as heat-related illnesses, vector-borne and diarrhoea diseases, injuries from extreme events and respiratory diseases". Public health institutions need to modify their approach in anticipation of these impacts, he said.

Ghana proudly presents its Open Data portal

Another African country goes open data! After Kenya (Kenya OpenData) the next African state is set to open up! Ghana has opened its open government data portal for journalists, students and the civilians to access public data. Data includes 80 government datasets for a start, covering information on previous population census and elections, health, education, agricultural, budget and procurement systems. "The vision is to develop an open data community bringing together government, civil society organizations, media practitioners, developers, academia and citizenry to interact

with one another through an open data portal," said Edwin Opare, an official at the Ghana Open Data Initiative (GODI).

The Ghana Open Data Initiative Portal is available online since November 2012. It is an initiative by the Ministry of Communications, implemented by the National Information and Technology Agency (NITA). During 2010 and 2011, the Web Foundation undertook a feasibility study in relation to establishing an Open Data Initiative in Ghana. In the context of the completion of the roll-out of the eGovernment Network Infrastructures across the 10 regions in Ghana, it made sense to look at commencing this project during 2012. The Web Foundation will support NITA during 2012 and 2013 to develop an open Data strategy for Ghana taking into account the relevant actors (political, public administration and civil society), and different dimensions of Open data (political, legal, organisational, technical, social and economic).

GODI, in collaboration with the World Bank Institute, Google and the African Media Initiative, organized a Data Journalism Workshop to train journalists, software developers and civil society to develop applications on open data ahead of the official launch of the Portal by December 2013. Building this expertise is an important step towards unlocking the full potential of open data. It is anticipated that over time through the platform decision and policy making will become based on accurate data. The establishment of an Open Data Community and monitoring and evaluation of the Ghana Open Data Initiative will also be undertaken. Ghana hopes that this initiative will improve public services, economic growth, accountability and transparency. The GODI Technical Team is working to continuously improve the portal by introducing interesting visualizations of data and user-friendly applications.

Ethiopia's urban property registration bill to be tabled

A draft bill that will enable the government of Ethiopia to undertake land and real property registration, in all urban areas nationwide, will be tabled to the Council of Ministers, by January. If ratified; the bill will require all urban residents to register any property for which they have a land use right. This can be done by presenting land deeds, or equivalent proof, to an assigned government body. Any immovable property, such as buildings erected on the land, are also required to be registered.

The registering government body will survey the land, match the title deed with their own land information system, and finally issue a title certificate or book. These will serve as proof of land use rights, or immovable property ownership, similar to title deeds. Any dispute or claim to land use rights, will be based on possession of these title certificates or books, according to the draft. All registered parcels will be given a unique identification number, which will be used as a pass key to access information about the land, the draft reads. The identification number will also be written on the title certificate or book to be issued to title holders. A Federal Land & Real Property Registration Agency has already been set up to oversee the registration process. Regional counterparts will also be set up to administer the property registration system. The agency for Addis Ababa has also already been set up and recruiting staff, according to an official from the federal agency. The re-registration project aims to identify urban land resources, help protect citizens' rights to land use and develop a complete cadastral map. The information gathered from the registration will also be used as input in creating digital and paper maps, the Bill states.

It will also help towards completing the cadastral map, at the capital and federal level, which the government has undertaken since 2010. The bill is necessary since the current system is marred by incomplete information, a lax protection of land information, leading to forgery, and a large number of disputes over property, according to the agency official.

Kenya's first 'Silicon Valley' technopolis on track

The realization of Kenya's first Information Communications Technology city appears on track last with the search for a consultant to draw up the master plan for the same. Once complete, the $7 billion Konza Technology City project will be the first of its kind in eastern Africa. Kenya's Ministry of Information and Communications which is in charge of the multi-billion dollar project announced the beginning of its search for a consultant who will be charged with designing the master plan for the project expected to kick off early this year. The first phase of the project will be constructed at a cost of $2.3 billion. The government is still sourcing for financiers for the projects will already a lot of local investor interest. Of much attention is the escalation of the real estate projects around the area.
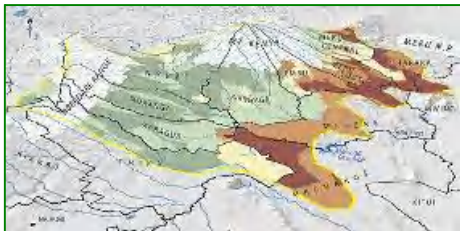
The ministry in an 'expression of interest' advert appearing in the dailies said the master development plan partner will also be charged with advising on the various infrastructure side projects expected to come with the main project. "The consultant will be hired and work under the Konza Technolopolis Development Authority," said the Ministry in the advert. The Authority is a state corporation under the Ministry of Information and Communications charged with overseeing the development of the Konza project expected to be complete in four phases over a period of 20 years.

President Mwai Kibaki is expected to preside over the ground breaking of the project in January. Once complete, the project is expected to have business processing outsourcing, a number of business suites and parks and some residential properties especially targeting the expatriate community. The master planner is expected to construct these facilities and lease them out to the business community. The project will complete with its governance and a Central Business District (CBD).

The Konza Technolopolis is one of the flagship projects under Kenya's development blueprint, commonly referred to as the Vision 2030. Initially there were fears that land buying companies and speculators had infested the area, hiving off chunks of land and retaining them for speculative purposes. The government however moved in and froze any clandestine land dealings in the area. The entry of the master planner will put this situation under check as the consultant will be the only one with land buying and leasing rights.

There lies a lot of Business Process Outsourcing potential in Kenya especially given its strategic placement geographical on the continent and the availability of excess fibre optic capacity and infrastructure. The Konza project alone is expected to provide some 200,000 jobs. According to the Ministry of Information and Communications, the out of the total number of the jobs, 80,000 will be in the BPO sector. Kenya is currently served by The East African Marine Systems (TEAMS), EASSY, LION among other fibre optic cables, and one of the countries with excess bandwidth that calls for deeper investments in the sector.

Carbon trade to gain momentum with new technology

In our last issue, we highlighted the Kenya Forest Service (KFS) having set up a new device to assess the forests. Now, the Government is being challenged to make public data generated from remote sensing technology it adopted to aid accurate mapping of forests in the country. Exact details such as biomass in the forest would easily be availed to facilitate carbon trade.

Forest stakeholders welcomed the new technology but asked the Government to make the information easily available to members of the public for participatory forest management as per the new rules. "We already have key government institutions such as Surveys of Kenya (SoK), Department of Resource Surveys and Remote Sensing (DRSRS) and Regional Centre for Mapping of Resources for Development (RCMRD) that have capacity to generate critical information for managing forests, the challenge has always been access to information generated," Rudolph Makhanu, the National Co-ordinator, Kenya Forest Working Group, said. "Basic forest resource; land use and land cover information should not be categorized as sensitive and locked out of the public domain, and measures should be put in place to facilitate access to generated information and data to stakeholders in the forest sector," he said.

He noted that ready and easily accessible information would make it possible to members of the public to participate in forest management as required by new forest laws. Through the help of World Bank and Japan, the Kenya Forest Service acquired a modern national forest cover mapping system for accurate reporting on the status of forests. The new system uses remote sensing technology mapping out various activities in the forest, as a package it comes with a website where the information collected can easily be accessed online by members.

Unearthing sunked Chinese vessel in the Kenyan coast

The recovery of a Chinese ship that sunk in the Indian Ocean over 100 years ago will start soon. The third and final phase of the underwater excavation in Lamu is set to start after the National Museums of Kenya announced the arrival of 20 experts, including archeologists from China. The experts will be working on three assignments part of which will be to try locating the ship, whose wreckage will be vital in trying to trace the historical connection between Kenya and China.

NMK assistant director for Coastal region Athman Hussein yesterday said the Chinese archeologists and those from Kenya will do the Sh200 million excavation agreement signed four years ago between the two governments.

"The team will have four archeologists from Kenya and will also try to assist the NMK to locate some of the dhows that sunk in Malindi-Ngomeni and Mombasa since local fishermen have been informing us that they have been seeing some sort of wreckage in the deep sea," said Athman.

He said the experts will use the latest technology to locate the vessel. During the second phase of the underwater and land excavation that stretched up to Mambrui in Malindi and Mombasa, several artifacts were discovered, including Chinese coins, porcelain and a mass grave bearing skeletons of the early inhabitants of the area. "From the discovery, we came to the conclusion that Malindi and Mambrui are among the oldest settlements that were inhabited by the iron-age period class," said Athman. "There is a lot of data being processed for the first and second phases of the project and will be revealed to the public soon." The first phase that was done in 2011 in Lamu, included mapping out the areas and coming up with conclusions on the depth of the water, currents and other relevant issues.

New vegetation map of Tanzania developed

Tanzania is currently in the last stages of finalizing a vegetation map that will show different vegetation zones across the country. The exercise that started in 2010 will enable the government have an official database of all tree species, said Professor Rogers Malimbwi from the Forest Department, Sokoine University of Agriculture (SUA). Speaking in Dar es Salaam, Prof. Malimbwi said "the field teams have assessed soil and its carbon content, which act as massive carbon stores, the soil samples are being analyzed at SUA". "Areas that could not be reached by the field teams constituted only 11 per cent and did not have roads, the forests cover was dense, and we had a principle that if an areas takes more than three days, it should be left out," he explained. Another reason, Prof Malimbwi explained is that, it would be difficult for human beings to have reached those areas to destroy them from cutting trees for charcoal or timber.

He noted that South Africa and Tanzania are the only countries that have conducted Forests Inventory Assessment, adding some countries have started showing the interest. He explained that some of the field teams will be dispatched to Zambia for experience sharing exercise and the team will also help Zanzibar start its inventory exercise in January 2013. Preliminary results of a three-year National Forest Resources Monitoring and Assessment (NAFORMA) project show that Tanzania has about 74 billion trees. Professor Malimbwi from the SUA and a NAFORMA consultant said a complete result will be given out early next year, once the analysis is completed.

"The exercise took in all trees including those that are individually owned, farm lands and national forests. Coconuts, baobabs, cashew nut trees were also counted". According to FAO, National Forest Resources Monitoring and Assessment (NAFORMA), the exercise cost nearly 6 US million dollars, with the government through the Ministry of Natural Resources and Tourism contributing 794,200 dollars, the rest coming from donors, mostly the government of Finland.

Statistics show that one third of the country is forest and approximately 1% of the forest is lost annually to deforestation. He noted that the database will help the country assess its forest resources including carbon stock stored within its forests under the requirement to Reduce Emission through deforestation and sustainable management of forests and enhancement of forest carbon stocks (REDD+). Prof Malimbwi noted that the database will be valuable to policy makers in the country, who will formulate policies that ensure the country's most valuable forests is conserved and utilized in a sustainable way, which will in turn help mitigate climate change. NAFORMA field teams gathered information from more than 3,000 sites, including biophysical data about trees, landscape and socio economic information gathered through interviews with locals. Also see National Forestry Resources Monitoring and Assessment of Tanzania (NAFORMA), Field Manual - Biophysical Survey.

Tanzania: ARU Calls for land experts' part in farming projects

Land experts should be involved while carrying out huge agricultural projects so as to leave a legacy of productive land, Ardhi University (ARU) Vice Chancellor, Prof Idrissa Mshoro advised. Addressing 6th anniversary of the School of Geospatial Science and Technology (SGST) at ARU in Dar es Salaam, Prof Mshoro said since land is the backbone for national development there is a need for the natural resources to be used wisely.

"The only people who can facilitate the ideal usage of land while implementing agricultural projects are land experts," he said. Prof Mshoro said Geospatial Science and Technology course was introduced deliberately to address problems

pertaining to the land including land pollution, saying the course provides the students with knowledge on environmental management.

"Our mission is to provide the country with enough land experts to promote national development," he stated. He said despite the country depending on agriculture by 80 per cent for the national development there are meagre harvests, saying 45 per cent of the harvests is lost because there is no value added for the land.

Prof Mshoro pointed out that the enrollment rate at ARU has increased by over 100 per cent in comparison to the past six years during the ARU establishment, saying the university is currently enrolling 3,700 students from 1,360 students during the university establishment. "As we plan to improve the university infrastructures the number is estimated to reach 7,500 in future," he said. Prof Mshoro said there was a need for the government to deploy a good number of land experts to address the problem of unplanned settlements, saying only ten per cent of the country's land has been measured.

Regional conference to share experiences on land information systems projects, Uganda: January 17-18th 2013

Secure land rights are vital to the reduction of poverty in emerging economies and enhancing economic development. With the support of international development banks several African countries have initiated the implementation of land information systems. But many countries still lack adequate information on land issues and effective land administration systems.

To help address this, IGN France International is happy to inform you that the international consortium currently engaged in the DeSILISoR project in Uganda (Design, Supply, Installation, Implementation of the Lands Information System and Securing of Land Records) is organizing a 2-day regional conference:

- January 17th - Modernization of land administration and management systems - Implementation of land information systems (LIS): sharing experiences, innovations and good practices.
- January 18th - "Land administration projects: IGN France International's expertise and feedback"

Based on shared experiences and valuable best practices, this two day event has several objectives:

- Highlight the link between land administration issues and economic growth
- Present several LIS projects in Eastern African and see how by making land information available, they increase confidence of land buyers and stimulate the economy
- Explore the common issues encountered during the implementation phase related to technical tools and processes, human resources, capacity building, and organization.

For further information and pre-registration, contact: alamendour@ignfi.fr. Skype: aude.lamendour, Tel: +33 1 42 34 56 56 - +33 6 81 76 91 23.

Call for Presentations: ESRI Survey Summit

Shape a memorable Esri Survey Summit for yourself and hundreds of your industry peers by submitting a presentation abstract. Take advantage of this opportunity to share your expertise and be recognized for the work you do. You are invited to submit your abstract in one of the following tracks:

- Surveying
- Architecture, Engineering, and Construction
- GIS Software and Workflow
- GPS Technology
- LiDAR and High-Precision Scanning

By presenting your best practices and lessons learned, you will enrich the Survey Summit experience for yourself, your organization, and for other attendees. Space is limited, so be sure to submit your abstract soon. Visit the Esri Survey Summit website for abstract submission guidelines. The deadline for submissions is January 17. Space is limited, so get your abstract in soon.

Namibia - South Africa Joint Science and Technology Research Call

The 3rd Call for projects under the Namibia - South Africa Joint Science and Technology Research Call is currently open with a closing date of 28 February 2013. The Governments of Namibia and South Africa have a joint Programme of Cooperation to facilitate scientific and technological cooperation between the countries supported by researchers from universities, universities of technology, science councils and public research institutions. Thematic areas open under this Call include:

1. Biosciences (with focus on food, agriculture and health technologies)
2. Space Science (with emphasis on astronomy and earth observation)
3. Indigenous Knowledge Systems
4. Environment (with focus on climate change)

5. ICT - Wireless communications and future wireless technology (quality, broadband, rural, digital inclusion); Broadband services infrastructure (usage of freed-up spectrum, digital dividend, TV white spaces); Mobile application development - education, health, agriculture, mobile enhancements for crime reporting; ICT in Earth observation-Environmental monitoring (disaster, fire, global change, flooding, land use)- alerting and forecasting; ICT in Health - rural health services improvement (logistics, diagnostics, and telemedicine); E-Government services- interoperability of governments' services.

6. Social sciences (poverty alleviation, STI governance/policy, and human environment)

The joint application for funding must include two Principal Investigators, a Namibian and South African and researchers must be employed at a recognized higher education or research institution such as a university, university of technology or science council in South Africa or Namibia. At least one principal investigator should be in possession of a PhD. The Principal Investigators will be responsible for the scientific and financial reporting, as well as other technical and administrative co-ordination of the project. They will also be required to submit an annual and final report to their respective funding agencies upon completion of the project. Researchers employed at private companies will not be allowed to apply under this programme.

South Africa and Namibia will fund successful projects up to a maximum amount of R200,000 per project per year. Researchers should therefore note that two separate budgets are required. Each team should apply to their respective agency - Ministry of Education, National Research Science and Technology Directorate for Namibian applications and National Research Foundation for South African applicants.

Practical SDI implementation materials from within and outside of Africa

"No Place like Home" shoes fitted with GPS sensors

Inspired by Dorothy's ruby slippers in the Wizard of Oz film, British designer Dominic Wilcox has produced footwear designed to guide the wearer to their chosen destination. Using Global Positioning Sensors (GPS) and tracking devices, the shoes can be programmed with a specific route. The wearer is then guided by LED lights that flash to indicate the right direction. An antenna on the heel tracks a satellite signal to plot the route.

The prototype shoes, named "No Place like Home", were commissioned as part of part of the Northamptonshire Global Footprint festival. Sunderland-born Mr Wilcox enlisted the help of an IT expert to produce the technology, which is embedded within the heel. "After uploading your required destination to the shoes via a piece of custom made mapping software and a USB cable, the GPS, which is embedded in the heel, is activated by a heel click. "It then communicates to the wearer via a ring of LED lights to point in the required direction. "The shoe with the GPS wirelessly communicates with the right shoe that has a progress bar of lights to show how close you are to the destination." Mr Wilcox said: "My work is all about reimagining uses for objects, and the relationships that exist between things. "I hope my GPS shoes will reconnect people to the craftsmanship inherent in shoe-making, but also stretch the boundaries of potential for the industry."

KWS raises red flag on jumbo numbers

The Kenya Wildlife Services has raised alarm over fall in the number of Elephants and grevy Zebra in the larger Laikipia, Samburu, Isiolo and Marsabit complex in the last three years. KWS director William Kipkoech Kiprono said the number of elephants had reduced from 7,415 in 2008 census to 6,361 in the 2012 census while that of Grevy's zebra had gone down from 2,400 in 2008 to 1,870 in 2012 aerial count.

He was announcing the results of the recent (December 2012) aerial census at Sarova Shaba Lodge in Isiolo. Kiprono attributed the drop in the elephant population to increased poaching because of the increased demand for ivory. He said drought, climate change and lack of pumps and signs on the Isiolo-Moyale highway were to blame for the deaths of zebras.

The director said illegal poaching has been on increase because of the availability of sophisticated guns especially in parts of Kwale where a number of elephants have been killed in the last few years. Kiprono said KWS is working on a strategic plan on the setting up of an advanced radio network and structures in collaboration with the local communities in the war against poaching and other wildlife issues. "I will not accept to supervise as director where animals were killed in masses. I would rather resign and watch from

outside," said Kiprono. He said the protection of wildlife should not be left to KWS alone, but other security agents, community and partners needs to be involved.

The census was done by KWS in collaboration Marwell Wildlife, African Wildlife Foundation, Save the elephant, Northern Range Land Trust, Department of Resource Surveys and Remote sensing, African Elephants specialists group, Borana Ranches and Space for Giants. The data collected will enable Kenya Wildlife Services and other organizations dealing in conservation management to tackle emerging challenges and come up with right approach towards addressing issues affecting the sector.

KWS employed the global positioning system technique with ARGIS soft ware used for plotting species distribution maps. The exercise kicks off at 6.30 in the morning and ends late in the evening while the staffs take break during the refueling at strategic point to avoid waste of time and energy. The survey also gathered information on large mammals such as lion buffalo, giraffe,eland and rhino as well as livestock. Other data to be collected included locations of human activities,logging,farming,settlement and cattle boma, water points and large birds like ostrich.

GIS Tools, Software, Data

Free TatukGIS Viewer - Natively opens most GIS industry vector, raster, and database layer map data formats, and even advanced spatial server databases and WMS and Web Map Tile services from the web. On-the-fly map layer reprojection between 3,000 supported coordinate systems. Other features include comprehensive visual layer property control for deep customization of the map appearance, legend control, scale control, thematic mapping, layer hierarchies, SQL Query Builder, advanced selection tools, and attribute data grid table.

- Raster: TIFF/GeoTIFF, JPEG, JPEG2000, PNG, BMP, IMG, MrSID, ECW/ECWP, SPOT, CADRG, GRD, FLT, BT, ADF, PixelStore…Vector: SHP, E00, MIF/MID, TAB, GML, KML, JSON, DXF, DGN, DWG2000, GDF, OSM, TIGER2000, VPF, S-57, GPX, CSV …Database: PostGIS, Oracle Spatial, MSSQL Spatial, ArcSDE & Personal Geodatabase, Geomedia, IBM DB2 Spatial Extender & Informix Spatial DataBlade.

ERDAS ViewFinder 2.1 - ERDAS' ViewFinder is a free viewing tool provided by Leica Geosystems' GIS & Mapping Division. It provides basic image viewing and manipulation capabilities, including the ability to display, query, roam, rotate, zoom, and reproject imagery. Requires: Windows NT / 2000 / XP. Company: Leica Geosystems. Download (19 MB).

CartoMap - Free map viewing Microsoft® Windows® comaptible software, designed for ease of use. I first came accross this product in my search for a quality Mapinfo data viewer - supports SHP and MIF data formats and provides users with the ability to pan, zoom, query, and order layers.

Geomatica FreeView - FreeView allows the viewing, enhancing, and examination of remotely sensed imagery such as LANDSAT, SPOT, RADARSAT, ERS-1, NOAA AVHRR, and aerial photography. Use FreeView to overlay GIS data and view associated attribute data. Size: 20 MB - Windows 98, ME, NT, 2000.

MSI Viewer - The MSI Viewer permits the display of any JPEG2000 compliant image. It also includes features specific to the mapping community including georeferenced pixel coordinate display for JP2 imagery created with MSI's GeoJP2 Encoder.

Map Maker Gratis - Map Maker Gratis gives students and novice users the opportunity to learn the basics of map making and GIS. Gratis is a thematic mapping program that can link to data tables and also be used to distribute map projects and data over the internet. Gratis comes bundled with the 30 day evaluation of Map Maker Pro version 3.5.

CARIS EASY-ENC - This new generation of the popular CARIS S-57 ENC freeware data viewer has been upgraded to support the following raster data types: GeoTIFF, BSB, HCRF, TIF/IGA, and TIF/TFW. It also supports the CARIS and VPF vector data formats.

ArcReader - New from ESRI, ArcReader is a free, easy-to-use product that allows anyone to view, explore, and print published map files (PMFs). Published map files are created with ArcGIS Publisher. ArcGIS Publisher is an optional extension to ArcView, ArcEditor, and ArcInfo that converts map documents (MXD) to PMFs.

Bentley View - Bentley View extends the accessibility of engineering data for MicroStation, AutoCAD, or hybrid projects. Bentley View is designed for casual users and enables the native viewing of both DGN and DWG drawings and models.

MapInfo ProViewer - ProViewer allows others to view and manipulate your creations - even if they do not have MapInfo Professional.

ENVI Freelook - ENVI FreeLook is designed to provide basic viewing, data selection, and data quality assessment capabilities for a wide variety of image data. Download at ftp://ftp.rsinc.com/pub/freelook.

Training Opportunities

Have you signed up to receive **SDI-Africa Newsletter** notices? It only takes a minute, and then the GSDI Association can notify you when a new issue of the SDI-Africa newsletter is available, plus alert you to particular GSDI announcements (like a call for GSDI grants, or a call for papers for a GSDI conference).
The GSDI Association also hosts an **SDI-Africa E-mail Discussion List** with intermittent news and announcements of opportunities (this discussion list is separate from the SDI-Africa Newsletter list).
- The **SDI-Africa E-mail Discussion List** is open and available to anyone to read on the web. To submit messages or to receive submitted comments or notices by e-mail, one first must register.
- To see the collection of prior postings to the list, visit the **SDI-Africa E-mail Discussion List Archives**.
- To post a message to the list, send an email to sdi-africa@lists.gsdi.org.

Call for Applications - GEM Course 2013

Growing population densities are putting increasing pressure on scarce land resources. Adequate solutions to environmental problems such as deforestation, overgrazing, and the depletion and contamination of land and water resources depend on integrated insights and improved management. Planners, managers, policy makers and researchers need to understand the complexity of the factors involved and be able to work together with professionals from a variety of disciplines. Geo‑information technology and, in particular, remote sensing, plays a central role in the search for clear analyses and viable policies. Skills in this field will therefore continue to be much in demand in industry, government and NGOs.
Five renowned European institutes offer you a unique Erasmus Mundus joint European Master of Science (MSc) Course in Geo‑information Science and Earth Observation for Environmental Modelling and Management (GEM).
The course has duration of 22 months and will be taught by world class faculty in five countries: Iceland, UK, Sweden, Poland and The Netherlands. While studying in at least two of the five universities, as well as studying in a multi‑cultural environment, students will gain valuable insight into the academic, social and cultural diversity of northern and central Europe. Graduates gain a multiple MSc degree from the consortium universities.
For the academic year starting in September 2013, we are pleased to announce that there will be EU Erasmus mundus scholarships available for both non-EU and EU students. In addition, for exceptional EU candidates, we will have a limited number of scholarships available that pay full-fees.
Deadline for EM scholarships: 31 December 2012.
Deadline for Self-funded non-EU candidates: 1 July 2013.
Deadline for Self-funded EU candidates: 1 August 2013.
Apply now online: http://www.gem-msc.org/application/Registration/. More information can be obtained from www.gem-msc.org or send an email to info@gem-msc.org.

2013 GIS short courses through continued education at University of Pretoria

- Certificate Course in Introductory Geographic Information Systems - February - June 2013, Web-based with workshops in Pretoria (proprietary and open source) and Cape Town (open source only)
- Certificate Course in Advanced Geographic Information Systems
  February - October 2013
  Web-based learning with workshops in Pretoria
- GIS Professional Practice
  February - June 2013
  Distance learning with workshops in Pretoria

- Introduction to Geoinformation Standards
  15 - 16 July 2013 in Pretoria
- Spatial databases with PostGIS
  25 - 29 March 2013 in Pretoria
- Introduction to Quantum GIS (on request)
- Remote Sensing (on request)
- The Basics of GIS (on request)

See www.up.ac.za/cgis / http://web.up.ac.za/default.asp?ipkCategoryID=16147&subid=16147&ipklookid=11

ESRI Technical Certification

ESRI has set the industry standard for GIS technology and is now establishing benchmark standards for individuals who use Esri software with the recently launched Esri Technical Certification Program. The ESRI Technical Certification Program recognizes qualified individuals who are proficient in best practices for using Esri software and are awarded in different areas of expertise at both an Associate and Professional level. The program is open to ESRI users worldwide and consists of 13 certifications recognizing expertise in desktop, developer, or enterprise use of ArcGIS. Users achieve certification by successfully completing computer-based examinations, which are offered in more than 5,000 testing locations in 165 countries. Users are able to test for five certifications. Establishing an industry recognized benchmark of expertise in using ESRI software will:

- Improve success with GIS by creating a community of professionals proficient in using ESRI software.
- Help organizations maximize their investment in ESRI products by employing a workforce certified in using best practices.
- Create professional development opportunities.
- Provide an opportunity for individuals, partners, consultants, and other organizations to distinguish themselves among their peers.
- Assist hiring organizations in assessing candidate skills and abilities.
- Workplace experience, combined with GIS education and ESRI training courses, is the best preparation.

The ESRI Technical Certification Web site lists specific skills that will be assessed in each exam, as well as training courses that aid in acquiring and improving these skills. Read more.

ESRI South Africa presents a full spectrum of GIS courses: December 2012 and January 2013

The course covers GIS theory and functionality: The desktop products (ArcView, ArcEditor, and ArcInfo; Server products (ArcGIS server and ArcSDE); Programming to enable customization of the product, ArcGIS extensions, as well as Introductory and advanced courses in ERDAS Imagine Remote Sensing Software'

Various training venues are available at Esri South Africa, for further information contact: 011 238 6300 email the training team

GIS and Remote Sensing courses at Esri Eastern Africa

ESRI Eastern Africa is now offering update courses to conform to improvements in ArcGIS 10 and ENVI 4.8, conducted with skilled and experiences instructors together with conducive and state-of-the-art training facilities. Courses in the following tracks are offered:

- Fundamentals of ArcGIS Desktop
- Data and Map Production
- Geoprocessing and Analysis
- Enterprise GIS
- Multi-user Geodatabases
- Remote Sensing

Make plans and take advantage of the courses offered at the Authorized Learning Centre in Nairobi, Kenya. Arrangements can also be made for client's site training on request for 12-16 students. Download our course catalogue and current class schedule at http://www.esriea.co.ke/index.php/instructor-led-training. To register, visit http://esrieatraining.cloudapp.net/. For more information, contact by email: training@esriea.co.ke, telephone: +254 20 2713630/1/2 or visit the offices located on 3rd floor, KUSCCO Centre, Kilimanjaro Avenue, Upper Hill, Nairobi, Kenya.

University of Twente - Faculty of Geo-Information and Earth Observation (ITC) : Registration for courses (2013-14)

UNIVERSITY OF TWENTE.

ITC Faculty of Geo-Information Science and Earth Observation.

Apply online for courses starting in the academic year 2012-2013. Browse by programme (degree, diploma, and certificate), course domain (disaster management, earth sciences, geoinformatics, governance, land administration, natural resources, urban planning and water resources) or location in the course finder at www.itc.nl/CourseFinder. For printed copy of the study brochure, email: (alumni@itc.nl).

MSc degree course in GIS and Natural Resource Management with KNUST, Kumasi, Ghana. Starting date: 2 September 2013. Duration – 18.5 months.
For more information: Louis Addae-Wireko, MSc – KNUST and ir Louise van Leeuwen - ITC

Short-courses offered by RECTAS, Ile-Ife, Nigeria
The Regional Centre for Training in Aerospace Surveys (RECTAS) is offering a number of three-week courses. Also note that RECTAS is able to package and deliver customised training for intrested organisations. These could be either advanced or other certificate programs. Contact: info@rectas.org or thontteh@rectas.org.

RCMRD - Courses offered by the department of Remote Sensing, GIS and Mapping
The Centre offers the following courses in geo-information. The courses last between one week to three months, and offered through out the year.
- Introduction to Remote Sensing & Image Processing
- Introduction to Geographic Information Systems (GIS)
- Introduction to Global Positioning Systems (GPS)
- Application of Remote Sensing & GIS in natural resources management.
- Application of Remote Sensing & GIS in Early Warning Systems for Food Security Application of RS & GIS in Disaster Risk Management
- Geospatial database development and management for use in planning process and decision making
- Principles of Digital Cartography
- Application of GPS technology in resource surveys and mapping
- Integrated Water Management
- Application of GIS in poverty mapping, health care & good governance
- Land Information Management Systems
- Service and Repair of Survey equipment

Funding Opportunities, Awards, Support

African Climate Change Fellowship Program
The ACCFP builds the capacity of African professionals, researchers, educators, and graduate students on themes of climate change adaptation in Africa. In 2012, applications for teaching fellowships were due 12 March (monitor for changes 2013).

American Society of Primatologists - Conservation Grants and Awards 2013
ASP supports students and young researchers from habitat countries who are engaged in primate conservation. (i) The Conservation Small Grants (up to US$1,500) fund conservation research or related projects, including conservation education. (ii) The Conservation Award (US$750) recognizes students and young investigators in habitat countries who demonstrate potential for making significant and continuing contributions to primate conservation. (iii) The Subscription Award provides the American Journal of Primatology to worthy individuals in habitat countries who otherwise would have little access to the scientific literature on nonhuman primates. The ASP accepts online applications for grants from 01 through 31 January 2013. Nominations for the awards should be submitted by 31 March 2013.

Australian Government - PhD Awards in Agricultural Research for Africans in 2014
The Australia Awards program will support 20 eligible candidates in Africa for PhD studies in agricultural research at Australian universities, commencing in 2014. The program is open to nationals from the following countries: Benin, Burkina Faso, Burundi, Cameroon, Chad, Egypt, Ethiopia, Gambia, Ghana, Kenya, Liberia, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Tanzania, Uganda, and Zambia. The closing date for applications is 31 March 2013.

French Committee for International Solidarity - Family Agriculture in West Africa

The French Committee for International Solidarity (Comité Français pour la Solidarité Internationale - CFSI), in partnership with Fondation de France, funds projects that support small-scale farming in West Africa. In 2012, the application deadline was 29 March (monitor for changes 2013).

Global Biodiversity Information Facility - Young Researchers Award

The GBIF presents the Young Researchers Award to foster innovative research and discovery in biodiversity informatics. In 2012, the deadline for nominations was 15 March (monitor for changes 2013).

Global Sustainable Electricity Partnership - Support for Masters Studies in Sustainable Energy

The Global Sustainable Electricity Partnership comprises many of the world's largest energy companies in partnership with international organizations, development banks, institutes, and foundations. The program sponsors the ESED (Education for Sustainable Energy Development) to support outstanding students from developing countries to pursue Masters-level studies directly related to sustainable energy. In 2012, the application deadline was 9 March (monitor for changes 2013).

International Livestock Research Institute (ILRI) -- Africa Biosciences Challenge Fund

The Biosciences eastern and central Africa (BecA) Hub awards research fellowships to African agricultural scientists and students. Funding covers travel, accommodation, stipend, and research costs for short-term projects at the BecA-ILRI Hub in Nairobi. In 2012, the application deadline was 30 March (monitor for changes 2013).

International Tropical Timber Organization -- Freezailah Fellowship Fund, First Cycle 2013

ITTO makes grants through the Freezailah Fellowship Fund for training opportunities, demonstration tours, participation in conferences and workshops, preparation of technical papers, and post-graduate degrees. Grants are in support of sustainable tropical forest management. Applicants are young and mid-career professionals in ITTO's member countries; most grants are to individuals in the developing countries. ITTO normally invites fellowship applications twice a year. The next application deadline is 5 March 2013.

Panthera - Research and Conservation of Wild Cats 2013

Panthera makes grants for research and conservation of the world's populations of wild cats. (i) The Kaplan Graduate Award supports conservation and research in all areas of the world where wild cats are found. (ii) Liz Claiborne and Art Ortenberg Jaguar Research Grant Program support in situ jaguar conservation. (iii) Small Cat Action Fund provides grants for in situ conservation and research on the small cat species. (iv) Winston Cobb Memorial Fellowship is awarded to an exceptional early-career conservationist to acquire field skills for the conservation of wild cats. Panthera describes eligibility criteria and grant amounts for each award. The next round of applications opens 1 January 2013 and closes 1 March 2013.

Right Livelihood Award Foundation - Call for Annual Nominations

The Right Livelihood Awards are annually made to individuals and organizations offering practical and exemplary answers to the most urgent challenges facing us today. The Award is sometimes referred to as the "Alternative Nobel Prize." Past laureates include several whose work in issues of environment and natural resources advances social justice and grassroots development in the developing world. Normally, the Foundation makes three cash awards and one honorary award each year. Nominations are invited from anyone worldwide (excluding self-nominations, close relatives, and Foundation staff and jury). The deadline for nominations is 01 March of each year.

Swedish International Development Agency (Sida) - International Training Program 2013

Sida supports short-term training in selected development topics for participants from developing countries. The Global program includes courses in the following subject areas in year 2013: genetic resources (deadline 15 January 2013); efficient energy (deadlines 1 February and 1 August 2013); integrated coastal development (deadline 8 February 2013); and wind power (deadline 1 March 2013). Information about course content and eligibility are included with each course description. Note: Interested individuals should follow the website for additional courses that may be announced, including at regional levels.

United Nations Convention to Combat Desertification - "Land for Life" Award 2013

The UNCCD presents the "Land for Life" Award for inspiring efforts in land conservation and management. Eligibility is open to individuals and institutions worldwide that are making a significant and innovative contribution to reduce land degradation through land management, political leadership, policy, business,

advocacy campaigns, or scientific research. Three awards will be granted from a total prize fund of up to US$100 thousand. The deadline for applications is 15 March 2013.

United Nations University - Institute of Natural Resources in Africa

UNU-INRA offers support for research related to the development and management of natural resources in Africa. In 2012, the application deadline for the Visiting Scholars Program was 15 March (monitor for changes 2013).

Women's World Summit Foundation - Prize for Women's Creativity in Rural Life 2013

The Prize honors women and women's groups anywhere in the world exhibiting creativity, courage, and commitment for improving the quality of life in rural communities. WWSF aims to draw international attention to laureates' contributions to sustainable development, household food security, and peace. The Prize provides an award of US$1 thousand per laureate, and US$3 thousand for specific African women's organizations. Nominations are due 30 April 2013.

African Network of Scientific and Technical Institutions (ANSTI) - ANSTI/DAAD Post-Graduate Fellowships 2013

The German Academic Exchange Service (DAAD) cooperates with ANSTI by offering financial support for Masters and Ph.D degrees at institutions in Sub-Saharan Africa. The fellowships are awarded to nationals in Sub-Saharan Africa for studies outside the applicants' home countries. Participants must be from ANSTI member institutions, and be less than 36 years old at the time of application. The application deadline is 31 May 2013.

University of Cape Town - CSAG Winter School

The Climate Systems Analysis Group (CSAG) at the University of Cape Town organizes a "winter school" intensive course in July. The course is presented by facilitators from CSAG and other institutions to take participants through the full spectrum of topics related to climate and climate change. CSAG may be able to provide a certain number of sponsorships. In 2012, the application deadline was 20 May (monitor for changes 2013).

World Food Prize Foundation - World Food Prize and Borlaug Field Award 2013

The World Food Prize Foundation invites nominations for the World Food Prize, and for the Borlaug Field Award. The World Food Prize (US$250 thousand) recognizes an individual or individuals who have made outstanding achievements to enhance the world's food production and its distribution to those most in need. The Borlaug Field Award (US$10 thousand) recognizes science-based achievement in international agriculture and food production by an individual under age 40 in the challenge to eliminate global hunger and poverty. Nominations must be submitted by 1 May 2013 for the World Food Prize, and by 30 June 2013 for the Borlaug Field Award.

No-profit supply of computers to Developing Countries

Computer Aid International has already shipped over 50,000 PCs to more than 90 developing countries. Out of those 50,000 shipped over 35,000 have gone to educational institutions while the remaining to community organisations working in fields as diverse as HIV/Aids, environment, human rights and primary healthcare. Computer Aid International aims to: (i) Increase the number of refurbished computers being re-used overseas; (ii) increase the number of UK organisations donating their used IT equipment for re-use overseas; (iii) identify and work with those organisations in recipient countries able to derive maximum value from refurbished computers; (iv) provide training and work experience in computer repair to people from socially excluded communities.

Catalyst Grants 2012: Unlocking the Potential for Groundwater for the Poor

The Unlocking the Potential for Groundwater for the Poor is a £10m international programme to fund interdisciplinary research, generating evidence and innovative tools to enable developing countries and their partners in sub-Saharan Africa to use groundwater in a sustainable way for the ultimate benefit of the poor. It is funded by DFID, NERC and in principle ESRC.

This call is for outline Catalyst Grant proposals which will provide an opportunity for the world's best researchers to develop and test new innovative ideas for addressing the programme's aim of enabling sustainable use of groundwater for the benefit of the poor. It is also an opportunity to facilitate the development of new interdisciplinary teams that bring developing and developed country scientists together.

Proposals are invited for funding of up to £150,000 (FEC). This call has a total available budget of up to £1·5m. Projects will be funded for a maximum duration of one year.

Submission of an Outline Proposal is mandatory in order to participate in the funding round at the full proposal stage. All Outline Proposals will be assessed by an Assessment Panel and successful applicants will be notified by the start of February 2013 that they are able to proceed to the Full Proposal stage. The closing date for outline proposals is 16:00 UK local time (GMT/UTC) on Thursday 10 January 2013.

ACP-EU Cooperation Program in Science and Technology, 2nd Call for Proposals

The EU announces S&T II as its second call for proposals to strengthen science, technology, and innovation in developing countries. Priority thematic areas are energy access and efficiency, as well as agriculture and food security. Grants will range from €300 thousand to €1 million (exceptionally to €3 million) for activities in capacity building, awareness raising, science promotion, and other support for S&T. The program is open to organizations in the developing countries defined by the EDF and DCI funding categories (i.e., most developing countries) -- and to international organizations. A proposal requires three or more partners, at least two of which must be located in ACP (African, Caribbean, and Pacific) member states. The application deadline is 7 February 2013.

Research on Climate Change and African Political Stability (CCAPS)

The CCAPS fellowships aim to support the next generation of researchers and thought leaders on the topic of climate change and political stability in Africa. CCAPS offers up to three pre-doctoral fellowships in residence at the University of Texas at Austin (Robert S. Strauss Center for International Security and Law) for an academic year, with preference for individuals who have made substantial progress towards the completion of their dissertations. CCAPS encourages applications from women, minorities, and citizens of all countries. The fellowship includes a nine-month stipend of US$24 thousand, and one round-trip airline ticket. The application deadline is 15 February 2013.

PhD Awards in Agricultural Research for Africans in 2014

The Australia Awards program will support 20 eligible candidates in Africa for PhD studies in agricultural research at Australian universities, commencing in 2014. The program is open to nationals from the following countries: Benin, Burkina Faso, Burundi, Cameroon, Chad, Egypt, Ethiopia, Gambia, Ghana, Kenya, Liberia, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Tanzania, Uganda, and Zambia. The closing date for applications is 31 March 2013.

Grants for Guest Researchers from Africa 2013

The Nordic Africa Institute provides funding to social science researchers from Sub-Saharan Africa for short-term collaborative assignments at the NAI in Uppsala, Sweden. Research areas include one on agrarian change, property, and resources. NAI provides travel, subsistence, an installation allowance, and in-kind support for stays of up to 90 days. The deadline for applications is 1 April 2013.

Employment Opportunities

Consultant - Food Security Analysis Unit, WFP Regional Bureau for West Africa based in Dakar, Senegal with travel to sub-region (25-50%)

Supervision received: The Consultant for the Food Security Analysis unit reports to the Regional Food Security adviser

Minimum qualifications:

Advanced university degree in sociology, economics, agriculture, geography, nutrition, rural development and or similar relevant discipline

Experience:

At least five years of postgraduate progressively responsible professional experience in food in food security, vulnerability analysis or a closely related area, such as food security or early warning

Knowledge:

Strong knowledge of food security analysis and the data collection, treatment, and manipulation techniques typically associated with it. Advanced computer skills, including at least intermediate skills in windows based word processing, spreadsheet, database and GIS applications

Language:

International Professional: Working knowledge (proficiency/level C) of English and French essential. Limited knowledge (intermediate/level B) of Portuguese would be an asset.

Desirable skills:

- Advanced knowledge of geographic information systems (GIS) and statistical analysis software such as SPSS
- Experience in early warning and remote sensing and familiarity with the specialty software applications associated with them
- Familiarity with quantitative and qualitative survey techniques
- Experience in the design and implementation of food assistance programmes
- Some experience in remote sensing interpretation and analysis, NDVI, CCD

Interested applicants should submit the documents detailed below to naouar.labidi@wfp.org, copying cedric.charpentier@wfp.org. The P11 Form can be obtained at: http://www.unon.org/docs/P11.doc Closing Date: Friday, 11 January 2013.

Other

Forest monitoring should integrate biodiversity and socioeconomic data, say experts

Countries need to ensure that their forest monitoring activities under REDD+ move beyond just measuring carbon emissions and changes in forest area – they should be integrated with monitoring of other forest values like biodiversity and rural social conditions, said experts on the sidelines of the UN climate talks in Doha. "We're not just talking about just a [forest monitoring] system here, we're talking about a tool for policy development…it's also about transparent and effective communication between the government and people," said Jim Penman, member of the Task Force Bureau for the IPCC Greenhouse Gas Inventory Programme.

REDD+ is a mechanism that sees money channelled to developing countries to incentivise them to adopt practices that reduce emissions from deforestation and forest degradation - estimated to account for 11-17 percent of global emissions.

Countries taking part in REDD+ activities will be required to report on their progress using national forest monitoring systems (NFMS). Such systems use a combination of remote sensing and ground-based forest carbon inventories for estimating man-made forest-related greenhouse gas emissions and removals, forest carbon stocks and other changes in forest area (e.g. deforestation rates).

 "[NFMS] can be a real domestic tool, which support not only REDD+, but other purposes as well" - Although many countries already have some form of forest monitoring systems in place, their capacity to monitor forests often falls short of the level required to participate fully in REDD+, often because they lack the technology and training to gather required data on a sustainable, long-term basis. A recently published CIFOR report focuses on how NFMS can be developed through a sustainable stepwise approach. Where possible, countries should build on their existing forest monitoring frameworks and technology to develop REDD+ monitoring. The report discusses key success factors for continuous improvement in national forest monitoring, taken from developing country experiences. Read more..

African scientists call for climate change evidence

African scientists urgently need to build more evidence on the impact of climate change on the continent, a conference heard. A joint statement issued at the eighth Annual Meeting of African Science Academies in 12-14November in Nigeria, notes that Africa lacks much home-grown data about the impacts of extreme weather events and sea level rise.

It says: "Actions required of science include contributions to the development of risk assessments and mapping for various anticipated climate-related extreme events. The refinement of modeling techniques, taking account also of natural systems and traditional knowledge, in developing early warning systems contributes to strengthen risk reduction."

Nigeria's president, Goodluck Jonathan, launched the statement, entitled 'Climate change in Africa: using science to reduce climate risks', and stressed that climate change information is needed for planning. "We believe that strong evidence-based knowledge on climate change will help policymakers take decisions and actions required to reduce climate risks in Africa," he said.

Roseanne Diab, executive officer of the Academy of Science of South Africa, toldSciDev.Net that a study on the impact of climate change on Africa would take at least two years and should be coordinated by the Network of African Science Academies (NASAC).

Patrick Kelley, director of the US National Academies' board on the African Science Academy Development Initiative (ASADI), adds that although the call should have come years ago, the recurrence of extreme weather effects, droughts and floods has made the situation more urgent than ever. "This is something that the scientific community has recognised for a few years now and Africa, I am glad to say, is getting on board now," he says.

Each African country should prioritise climate change issues and fund the engagement of scientists with policy makers, comments Doyin Odubanjo, executive secretary of the Nigerian Academy of Science.

He added that Africa scientists have so far made less than a fifth of the contributions to the global climate change debate. Odubanjo told SciDev.Net that huge funds are available after events such as floods in Nigeria and that investing some of this cash in climate change research and communication could avoid deaths and damage in the country and elsewhere. Link to statement by African Science Academies.

2012 Highlight - Ghanaian woman receives Geospatial World Leadership Award

Ms Aida Opoku-Mensah, a Ghanaian national was awarded with the 'Geospatial World Leadership Award for Making a Difference'. Ms Opoku-Mensah, who is also the Director of the UN Economic Commission for Africa's (ECA) ICT, Science & Technology Division, received the award during the 2012 Geospatial World Forum held in Amsterdam April 24, 2012.

According to a statement issued by the ECA, the citation for Ms Opoku-Mensah's award read; she has "been a great advocate of geospatial technology in Africa and has provided leadership to several very valuable programmes and initiatives leading to capacity development of African countries with reference to geospatial competence and infrastructure, including promoting the UN GGIM initiative in Africa". Furthermore, the citation stated "her pro-active engagement with the geospatial community including academic institutions, policy makers, mapping agencies, the geospatial industry and end users has paved way for meaningful collaboration and cooperation amongst them for overall development of the continent".

An elated Ms Opoku-Mensah accepting the award, said she was humbled by the recognition from the global geospatial community and stressed that she was only implementing the work programme of the United Nations Economic Commission for Africa, "which happens to be one of the few institutions that sees the strategic importance of geospatial technology for sustainable development, whether it's in mining, natural resource management, monitoring elections, infrastructure development or measuring and managing the economy". Also see: UNECA ICT director gets world leadership award.

The award is given to persons who have made significant contributions towards development of geographic information science, technology, products, applications, capacity development and in turn helped towards the growth of the geospatial industry as well as making geographic information a public commodity.

OPINION: Rwanda made bold strides in ICT during the year 2012

As the year 2012 comes to a close, here's an opportunity to look back and see how the country fared in the ICT circles.

- The government injected Rwf375 million (with support from UNECA) into the Innovation Endowment Fund (RIEF) to support entrepreneurship development and research with priority areas in agriculture, Information Communication Technologies, and manufacturing.
- The National University of Rwanda (NUR) signed a joint MoU with eleven Swedish universities as part of an agreement of bilateral cooperation between NUR and SIDA. This cooperation has seen and will continue to facilitate PhD training of NUR staff and the introduction of new courses into the curriculum.
- Rwanda reached an agreement with Samsung to facilitate the roll-out of eGovernment solutions as means to efficient service delivery to citizens. This partnership will enforce collaboration in education and job creation development, youth leadership, consumer electronic devices and mobile applications development programmes featuring the Samsung Smart Government Solutions.
- In March, Airtel commenced operations in Rwanda; Airtel is the largest mobile operator in the world in terms of subscriber base. The induction of the third telecom giant in Rwanda saw mobile penetration shoot up to over 48 per cent nationwide (from about 40 per cent earlier in the year). Even with such great success the telecom industry failed to reach the target 60 per cent of mobile penetration set for December 2012.
- Kigali hosted the Startup World competition whereby ICT entrepreneurs pitched their business ideas to a panel of judges: Rwanda was one of only four African nations selected to host the competition.

Crowdfunding startup Zilencio Creative snagged the top spot and will head out to Silicon Valley in 2013 to contest on an international arena.

- In an out-of-the-box manner, the Ministries of Youth and ICT were merged early this year. The move was borne out of recognition that the greater part of the population is youth, and ICT is a viable tool for job and wealth creation.
- The Private Sector Federation (PSF), in partnership with several youth groups, came up with an innovative initiative dubbed eUmuganda that will map buildings in Kigali city, to ease their accessibility as well as extend various ICT innovations to communities.

Conferences, Events	

Items newly added to this listing of events since the last SDI-Africa issue are marked *** NEW ***

Date	Location	Event
December 2012		
3-5 December 2012	London, U.K.	**European Space Solutions 'Discover what space brings to your life**
4-5 December, 2012	Salzburg, Austria	**European LiDAR Mapping Forum** http://www.lidarmap.org/ELMF/
13-16 December 2012	Enschede, Netherlands	**Gi4DM 2012** E-mail: info@gi4dm.net
January 2013		
14 January 2013	Kampala, Uganda	**Symposium on statistical and other research methods** Information: Uganda Statistical Society
17-18 January 2013	Kampala, Uganda	**Regional conference to share experiences on land information systems projects**
19-20 January 2013	Netheravon Rd, Singapore	**2nd International Conference on Internet & Cloud Computing Technology (ICICCT 2013)**
21-23 January 2013	Paris, France	**CityGML in National Mapping** Workshop jointly organized by EuroSDR, OGC and Geonovum. www.geonovum.nl/3dpilot/aanmelden-workshopCityGML
24-25 January 2013	Redlands, USA	**2013 GeoDesign Summit**
28-31 January 2013	Tokyo, Japan	**Earth System Governance** United Nations University Headquarters
February 2013		
11-13 February 2013	Denver, Colorado, USA	**International LiDAR Mapping Forum** http://www.lidarmap.org/ILMF.aspx
12-15 February 2013	Villa de Leyva, Colombia	**Capacity Building for Conservation - An international exchange of opportunity & best practice**
24-25 February 2013	Algiers, Algeria	**5th Intl. Conference on Water Resources and Sustainable Development**
27-28 February 2013	Padua, Italy	**International Workshop on Hydrological Risk** http://www.cirgeo.unipd.it/geomatics4risk/
24 February-1 March 2013	Nice, France	**GEOProcessing 2013**
March 2013		
2-9 March 2013	Big Sky, Montana, USA	**IEEE Aerospace Conference** http://www.aeroconf.org/
22-23 March 2013	Oxford, UK	**International Conference on Development-Induced Displacement and Resettlement (DIDR)**
26-28 March 2013	Lyon, France	**International Conference on soils, sediments and Water**
April 2013		
7-12 April 2013	Vienna, Austria	**Successful Governmental policies and actions for a better soil management**

7-12 April 2013	Vienna, Austria	**Validation and uncertainty in soil erosion modelling: achievements and challenges**
7-12 April 2013	Vienna, Austria	**Soil System Sciences** (All relevant sessions)
8-10 April 2013	Pafos, Cyprus	**First International Conference on Remote Sensing and Geo-information of Environment**
11-13 April 2013	New Orleans, LA, USA	**Population Association of America 2013 Annual Meeting** Website: http://paa2013.princeton.edu/
16-19 April 2013	Barcelona, Spain	**12th International UFZ-Deltares Conference on Groundwater-Soil-Systems and Water Resource Management**
22-26 April 2013	Beijing, China	**35th International Symposium on Remote Sensing of Environment**
May 2013		
8-10 May 2013	Aachen, Germany	**9th International Conference on Web Information Systems and Technologies (WEBIST) 2013**
13-16 May 2013	Rotterdam, Netherlands	**Geospatial World Forum 2013** Contact: info@geospatialworldforum.org
14-17 May 2013 * NEW *	Leuven, Belgium	16th AGILE Conference on Geographic Information Science
21-24 May 2013	Bonn, Germany	**Water in the Anthropocene. Challenges for Science and Governance. Indicators, Thresholds and Uncertainties of the Global Water System**
22-25 May-13	Belgrade, Serbia	**2nd International Scientific Conference RESPAG** - Regional Development, Spatial Planning and Strategic Governance
28-30 May 2013	Kampala, Uganda	**UMEC 2013 1st Uganda, Mining, Energy Oil Gas Conference and Exhibition**
June 2013		
4-7 June 2013	Ohio, USA	**Mapping Global Change: Spatial Statistics 2013**
10-12 June 2013	Mittersill, Salzburg, Austria	**Symposium for Research in Protected Areas**
17-18 June 2013	Ghent, Belgium	**Conference on Desertification and Land degradation**
19-20 June 2013	Napoli (Italy)	**Four Decades of Progress in Monitoring and Modeling of Processes in the Soil-Plant-Atmosphere System: Applications and Challenges**
July 2013		
3-5 July 2013	Denmark	**From effective to intelligent agricultire and forestry**
6-9 July 2013	San Diego USA	**ESRI Survey Summit - The Esri Annual Conference**
7-11 July 2013	Catalonia, Spain	**9th European Conference on Precision Agriculture (ECPA)**
8-12 July 2013	San Diego, USA	**ESRI International User Conference**
21-26 July 2013 * NEW *	Melbourne, Victoria, Australia	**IGARSS 2013** Deadline for abstracts/proposals: 10th January 2013 Check the event website for more details.
August 2013		
25-30 August 2013 * NEW *	Dresden Germany	**26th International Cartographic Conference** - From Pole to Pole...
26-31 August 2013	Busan, Korea	**XXVII IUSSP International Population Conference**

25-30 August 2013	Hong Kong, S.A.R. China	**59th ISI World Statistics Congress**: Includes meetings of the Bernoulli Society, the International Association for Statistical Computing, the International Association of Survey Statisticians, the International Association for Official Statistics, the International Association for Statistics Education, the International Society for Business and Industrial Statistics, and The International Environmetrics Society. E-mail:isi@cbs.nl
26-29 August 2013	Sarawak, Malaysia	**8th International Symposium on Digital Earth 2013**
27-31 August 2013	Paris, france	**IAG International Conference on Geomorphology**
September 2013		
17-22 September 2013	Nottingham, U.K	**FOSS4G 2013 Conference**
23-25 September 2013	Technical University of Lodz, Poland	**2nd International Conference on Informatics & Applications (ICIA2013)** Abstract submission deadline is 5 August 2013. Email: icia@sdiwc.net
29 September-2 October 2013	Noordwijkerhout, Netherlands	**First International Conference on Global Food Security**
October 2013		
23-25 October 2013	Rio de Janeiro, Brazil	**Sixth International Conference on Agricultural Statistics-ICAS-VI**, Abstract deadline 15 December 2012 FAO: www.fao.org/economic/ess/ess-events/ess-icas/en/
November 2013		
4-8 November 2013 * NEW *	Adis-Ababa, Ethiopia	**GSDI 14 World Conference and AfricaGIS 2013 Conference** Please consult the conference web site on a regular basis as the Call for Papers and details about the program, facilities and sponsorship opportunities become available.
18 November 2013 * Updated *		African Statistics Day Celebrations - Organized by the UN Commission for Africa and the African Centre for Statistics.
December 2013		
28-31 December 2013	CRRAO AIMSCS, Hyderabad	CRRAO AIMSCS will be organizing a conference during the International Statistics Year, 2013 - **Statistics 2013: Socio-Economic and Sustainable Challenges and Solutions**
2014		
8-14June 2014	Jeju ICC, Korea	**20th World Congress of Soil Science (WCSS)**
2015	Durban, South Africa	**14th World Forestry Congress for SA**
1-31 August 2016	Cape Town, South Africa	**35th International Geological Congress**. Registration deadline: 30 June 2016.

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Global Spatial Data Infrastructure (GSDI) Association
http://www.gsdi.org