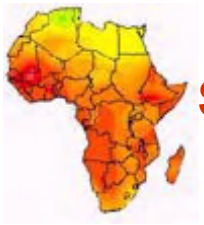

Spatial Data Infrastructure – Africa Newsletter

GSDI
Global Spatial Data Infrastructure

SDI-Africa Newsletter **April 2010** **Vol. 9, No. 4**

Spatial Data Infrastructure - Africa (SDI-Africa) is a free, electronic newsletter for people interested in GIS, remote sensing, and data management in Africa. Published monthly since May 2002, it raises awareness and provides useful information to strengthen SDI efforts and support synchronization of regional activities. ECA/CODIST-Geo, RCMRD/SERVIR, RECTAS, AARSE, EIS-AFRICA, SDI-EA, and MadMappers are some of the other regional groups promoting SDI development.

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Please mention SDI-Africa as a source of information in correspondence you may have about items in this issue.

The SDI-Africa newsletter is prepared for the GSDI Association by the Regional Centre for Mapping of Resources for Development (RCMRD) in Nairobi, Kenya. RCMRD builds capacity in surveying and mapping, remote sensing, geographic information systems, and natural resources assessment and management. RCMRD has been active in SDI in Africa through its contributions to the African Geodetic Reference Frame (AFREF) and SERVIR-Africa, a regional visualization and monitoring system initiative. RCMRD also implements projects on behalf of its member States and development partners.

If you have news or information related to GIS, remote sensing, and spatial data infrastructure that you would like to highlight (e.g., workshop announcements, publications, reports, websites of interest, etc.), kindly send them in by the 25th of each month. I'd be happy to include your news in the newsletter.

PLEASE share this newsletter with colleagues who may find the information useful and suggest that they subscribe themselves.

Back issues of the newsletter are at the GSDI website: http://www.gsdi.org/newsletters.php
Best regards, Gordon Ojwang, Editor, SDI-Africa AT gsdi.org or sdiafrica@rcmrd.org or gojwang@rcmrd.org

Input to this Issue

Thank you to Kate Lance, NASA/SERVIR-Africa (USA); Hussein Farah, RCMRD (Kenya); Tesfaye Korme, RCMRD (Kenya); Muya Kamamia, RCMRD (Kenya) and Clifford Okembo, ESRI Eastern Africa (Kenya) for their contributions to this issue of the newsletter.

SDI News, Links, Papers, Presentations

GIS week to address agricultural issues in Africa

Africa Agriculture GIS Week

Africa Agriculture GIS Week (AAGW) 2010 will be held during June 8-12, 2010 in Nairobi, Kenya. Call for presentation is closing on April 12, 2010. The event is inviting members of the GIS fraternity including professionals, students with a keen interest in the discipline and all enthusiasts for GIS in agriculture. AAGW is jointly being organised by the Consortium for Spatial Information (CSI) of the Consultative Group on International Agricultural Research (CGIAR), HarvestChoice and the Agricultural Geospatial Commons (AGCommons) Programme. This event will provide an opportunity to learn from some of the industry's leading experts. One can share experiences, knowledge and ideas. It could be a platform for networking with the people in geospatial domain. However, AAGW 2010 has a broader scope and will be presented as a "GIS ShareFair", complete with a market place that will include exhibitors, training sessions, thematic workshops, presentation sessions, CGIAR Spatial Science Sessions, the third gathering of WhereCampAfrica, and the unveiling of the AGCommons service bureau. Here, one can get chance to win prizes in following categories:

- First time presenters (including students and young professionals),
- Most innovative idea,
- Most innovative medium for presentation delivery,
- Overall best.

African Geodetic Reference Frame (AFREF) - Newsletter, Number 10, January 2010

The purpose of this newsletter is to create a forum for discussions and exchange of information and experiences in the implementation of AFREF. The objective of the AFREF initiative is to unify and modernize the geodetic reference frame for Africa and the national and regional reference networks. In this issue:

1) Report on the AFREF Experts Group Meeting Held at Ile-Ife, Nigeria on 9-11 February 2010 on determining the Optimum Locations of Permanent GNSS Stations for first Computation. The meeting was attended by high-level experts selected from academia, research institutions, government, the private sector and other regional and international organizations. ECA organized and supported the all costs of the meeting. The main aim of the workshop was to enhance regional and national expertise for implementation, operations, processing and analyses of modern geodetic techniques.
2) Acquisition and Installation of OSGOF AFREF CORS station in Nigeria
3) OSGOF AFREF Stations Vision
4) More accurate Geoid from Satellite Gravimetry
5) The Role of Orthometric Heights Baseline in Validating the EGM08 for Africa Introduction
6) The Role of Baseline Orthometric Heights

Also log on to the AFREF website, http://geoinfo.uneca.org/afref/ for more information on AFREF and invitation for call for participation. The call for participation paper is downloadable from the site. For further information, contact the AFREF Secretariat at the Regional Centre for Mapping of Resources for Development (RCMRD), P.O. Box 632-00618 Ruaraka, Nairobi, Kenya. Tel: +254-20-8560227/8561775; Fax: 254-20-8561673; E-mail: farah@rcmrd.org or muyack@rcmrd.org.

Geospatial data management within South Africa's national mapping organisation

South Africa's National Mapping Organisation, the Chief Directorate Surveys and Mapping (CDSM), was renamed the Chief Directorate National Geo-spatial Information (CDNGI) in 2009. The CDNGI forms part of the National Department of Rural Development and Land Reform (the former Department of Land Affairs). The CDNGI provides geodetic and topographic surveying and geospatial information services in terms the Land Survey Act (Act 8 of 1997). Products available are:

- National topographic line map series' at scales of 1:50 000, 1:250,000 and 1:500 000.
- An orthophoto map series, at 1:10 000 scale, covering metropolitan and national development areas.
- National horizontal and vertical control survey networks.
- An active Global Navigation Satellite System (GNSS) base station network named TrigNet.
- A national imagery database comprising aerial photography dating back to 1936.
- A National Digital Elevation Model (NDEM).
- International Civil Aviation Authority (ICAO) maps of Southern Africa, on behalf of the Civil Aviation Authority, at scales of 1:500 000 and 1:1 000 000.
- A topographic names database from which the nine provincial gazetteers have been produced for the South African Geographical Names Council (SAGNC).

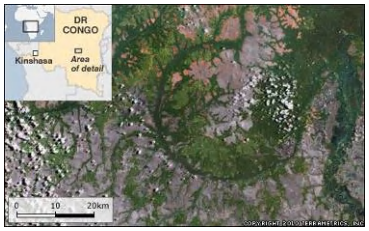
The Directorate National Spatial Information Framework (NSIF) has now been incorporated within the CDNGI structure. The NSIF's mandate is to co-ordinate South Africa's Spatial Data Infrastructure in terms of the Spatial Data Infrastructure Act (Act 54 of 2003). The Act establishes the South African Spatial Data Infrastructure (SASDI), the Committee for Spatial Information (CSI) and an electronic metadata catalogue. The CSI is required to administer and co-ordinate the capture and sharing of spatial information by identifying data custodians, specifying standards and other prescriptions to which spatial data must comply, capturing and publishing metadata of spatial data and avoiding duplication of spatial data.

Land dispute brews over Ghana's oil field

Even before Ghana goes partying over its latest discovery of oil in deep waters offshore in the Western Region, La Cote d'Ivoire, Ghana's Western neighbour, is said to be laying claims to portions of the oil field.

Alhaji Collins Dauda, Minister for Lands and Natural Resources, explained in a telephone interview with The Chronicle, that Ghana's boundary with Ivory Coast had not been clearly demarcated, but both countries have since shared and respected a ' median line' which has served as a boundary between the two countries. But, this long shared and respected boundary changed when Ivory Coast, in its recent correspondence with the government of Ghana, indicated that it no longer respected the existing "median line" dividing the two countries, and subsequently served the United Nations with a similar correspondence. The Minister was of the opinion that the claim by Ivory Coast was baseless, as the claim by Ivory Coast was not in line with certain acceptable internationally standards of determining maritime boundaries.
Collins Dauda disclosed that last year, Ghana appealed to the United Nations to extend its maritime boundary by 200 nautical miles, and as a precondition, the country was directed to negotiate boundaries with its neighbours, he disclosed.
He said the government was in the process of fast-tracking the establishment of a National Boundary Commission, to negotiate the country's maritime boundaries with Ivory Coast, adding that the bill for the institution of the Commission had since been sent to Parliament, under a certificate of urgency. "A National Boundaries Commission will be put in place that would engage our neighbours in La Cote d'Ivoire, with a view of negotiating our maritime boundary between ourselves and our brothers in Ivory Coast."
AO Lukoil, Russia's second-biggest oil producer, and closely-held Vanco Energy Company, made yet another significant find of oil and gas deposits in deep waters in the Western Region.
The partners, together with the Ghana National Petroleum Corporation, drilled a well at the Dzata field off the Cape Three Points deep-water block in the Gulf of Guinea. The Dzata 1 well, drilled to a depth of about 4,500 meters (14,500 feet), tapped a 94-meter-thick hydrocarbon column. The new discovery puts Ghana in the limelight, as it is set to become one of Africa's newest oil exporters later this year, when production begins at the Jubilee Field, which has potential resources of as many as 1.8 billion barrels, according to Tullow Oil Plc, its operator.

Gigantic crater in DRC revealed by satellite imagery



An Italian scientist team announced the discovery of Wembo-Nyama crater, a gigantic impact crater, in Democratic Republic (DR) of Congo, with the help of satellite imagery. They have recently presented their findings at the latest annual Lunar and Planetary Science Conference, held in Houston, Texas. The new crater, which measures between 36 and 46 km in diameter, is claimed by some scientists to be one of the largest craters discovered in the past ten years or so. The ring shape is clearly visible in the satellite image by TerraMetrics Inc with the Unia River flowing around the ring structure, underlining its round shape. The central part of the Wembo-Nyama feature is irregular and about 550m in elevation. This is about 50-60m higher than the depression where the river flows. Although this might sound counter-intuitive, experts say that impact craters can sometimes lift up dense rocks. The surrounding rocks may subsequently erode, leaving a dome. Italian researchers who have had a chance to look at the feature proposed a number of causes for its creation, but eventually they themselves came to the conclusions that nothing but a space impact, most likely an asteroid or a comet could have formed this hole.
Only about 25 terrestrial impact craters are of comparable size or larger, according to the web-based Earth Impact Database. Giovanni Monegato, from the University of Padova, said "The feature was revealed only after trees were cleared from the area over the last decade." The putative crater lacks a well-defined outer ridge, though the University of Padova team said that this could be explained by deep weathering and erosion in the tropical climate. They add that the drainage pattern in the ring is very similar to those found in large impact craters in humid environments. See also: Ring may be giant 'impact crater'. Monegato said the team would now have to travel to the region to carry out field studies. Researchers would examine rocks from the site for tell-tale signs associated with space impacts. These might include shocked quartz - a form of the mineral which occurs where rocks have been hit suddenly by a massive force. It is found only at nuclear explosion sites and at asteroid impact sites.

Kenyan farmers insured through mobile phones

Kenyan farmers fear that droughts or excess rains will wreck havoc with their crops and rob them of their savings. These farmers can now protect their harvest from extreme weather conditions with an innovative micro-insurance plan. The unprecedented plan protects farms as small as one acre with affordable insurance

by incorporating mobile phone and solar powered weather station technologies. The insurance plan is called "Kilimo Salama" - which means, "Safe farming" in Kiswahili - and differs from regular insurance in accessibility and cost. "Regular agricultural insurance covers multiple perils and is based on field inspection and on-site loss assessment," Brugger explained this type of insurance is only economically viable for big farms. Therefore, farmers with small plots of land had no chance of affording risk coverage.
Mobile phones are used to provide farmers in rural areas access to this new insurance by distributing information and to transfer money. "To make this distribution channel work and to bring down transaction costs we use mobile phones," said Brugger. When a farmer purchases farming products, the barcode is scanned using the camera on the phone and the information is sent to the Kilimo Salama server. For a small premium each bag of seed or fertilizer bought is insured and confirmation is received via text message on the phone.
Small solar powered weather stations distribute information to the network and notify if a payout is due because of severe weather. "Compensation to each farmer in case of a payout is done over mobile phones," said Brugger. He explained with this system there is no paperwork and there is always a real-time overview of policies being sold. The program is a partnership between the Syngenta Foundation for Sustainable Agriculture, UAP Insurance, and telecoms operator Safaricom, and was initially tested in Laikipia, Kenya.

Kenya, Tanzania in joint wildlife census

Kenya and Tanzania conducted a joint census in the Amboseli ecosystem to assess the impact recent prolonged drought had on wildlife. The count is targeting large mammals and covers the entire 6000 square kilometre of the Amboseli ecosystem, including the Amboseli National Park and the surrounding community ranches on the Kenyan and Tanzanian sides. According to the Kenya Wildlife Service, the count will establish the ecosystem's wildlife population size and distribution following the drought - the worst in many years. The result will be used for ecological balancing (increasing some species in areas their population is less and reducing others where they are in oversupply).
The exercise will also determine how the distribution and abundance of large carnivores relate to vegetation types and human activities, to help in regenerating vegetation and restoring habitats. "This year's census is particularly crucial given that the park's ecosystem was among the hardest hit by the recent prolonged drought which led to massive deaths of zebra, elephants, buffaloes and wildebeest as well as the local community's livestock," according to KWS.
The exercise will be performed by a technical team and experts who will carry out both ground and aerial survey in the area for five days. It comes at a time when KWS has sounded alarm bells over the decline of large carnivores in the country [Daily Nation]. Specifically, lions are the most endangered. With their population declining by 100 every year, conservationists have warned that they may become extinct in the next two decades if the trend is not stopped. The rhino and elephant are the other species whose fate is on the spot following a tussle between African countries on whether a ban on ivory trade should be extended. While Zambia and Tanzania want the ban lifted, Kenya and other African countries want it extended, fearing that such a move would be a set back to conservation.
The last aerial census in Amboseli was carried out in 2007, and since then, the region has experienced a series of droughts that have not only put pressure on humans and livestock but also on the wild population, increasing human-wildlife conflicts. According to KWS, the Amboseli National Park remains a crucial dry season refuge for wildlife for the bigger ecosystem due to the availability of water. The park has the highest density of most species, hence its importance in the conservation efforts. The KWS has pumped in Sh3.2 million for the census.

Expert warns of more landslides in Uganda

A senior meteorologist, Deus Bamanya has said most of the country is expected to have above normal rains and warned of more landslides and flooding in that period. The El Nino rains are expected to last up to June. Bamanya explained that the extreme weather conditions in southern Europe weakened the high pressure systems in North Africa, which in turn pushed the intercontinental zone (the rain belt) down to Uganda. "This is the reason why Uganda is having heavy rains even in the normally dry season," he said. The most affected areas are expected to be around Lake Victoria and districts in the Buganda, western and

eastern regions. The north and the north-west regions will have normal rains, Bamanya said, adding that Karamoja will not be dry this season.

REDD measurement, reporting and verification workshop in Tanzania

Tanzania, a UN-REDD Programme pilot country, has been developing measurement, reporting and verification (MRV) tools and methodologies over the past year, with the support of various international initiatives. REDD - Reducing Emissions from Deforestation and Forest Degradation in Developing Countries - is an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development. Nearly 60 people from various organizations and agencies attended the workshop, which took place in Dar-es-Salaam, 3-5 February 2010. Among the list of represented organization were: Tanzania's Ministry of Natural Resources and Tourism, Sokoine University of Agriculture, Norwegian University of Life Sciences, Norwegian Space Centre, Norwegian Computing Centre, Global Witness, FAO's National Forestry Resources Monitoring and Assessment NAFORMA) and its Forest Resources Assessment (FRA) Remote Sensing Survey, the UN-REDD Programme, UNEP's World Conservation Monitoring Centre (WCMC), The World Bank, The Clinton Climate Initiative, the Forest Carbon Tracking Task (GEO FCT) and Google Earth.
Key outputs from the workshop included the decision to enhance coordination among various MRV initiatives in Tanzania and to develop the National Forest Inventory by NAFORMA, using tools such as LIDAR, estimations from remote sensing, Geographic Information Systems (GIS) and carbon models. Google announced its support to provide NAFORMA with data collector handheld sets to test new technologies that can improve data collection and data integrity from the National Forest Inventory.
Workshop participants agreed that Tanzania's MRV efforts could be used as a case study for other REDD+ countries, given that MRV initiatives in Tanzania are on track to be ready for a post-2012 agreement. [Source: SERVIR-Africa community blog]

Egypt to propel African science agenda

Egypt has vowed to "maintain momentum" in building African science and technology (S&T) capacity when it takes over as chair of the African Ministerial Council on Science and Technology (AMCOST). The two-year role will pass to Egypt from the current chair, Kenya, when AMCOST meets in Cairo (7-10 March). "Science and technology is at the top of our national agenda and we have made great progress in the past two years. We hope that our experience will be passed to our African colleagues, and we will keep the momentum going," Maged Al-Sherbiny, Egypt's assistant minister for scientific research, told SciDev.Net.
25 African science ministers are expected to attend the meeting along with a host of foreign organisations, including the WHO, various UN agencies and the US National Science Foundation. A delegation from Japan's Office of the Prime Minister will also attend to discuss ways in which it can support African science. The meeting will address the funding shortages that have thwarted pan-African science initiatives such as the Pan-African University.
In October last year, African Union science, technology and human resources commissioner Jean-Pierre Ezin told a conference in Durban, South Africa, that his organisation was short of money as a result of the global financial downturn (see Financial crisis squeezes African science funding). The meeting will discuss how to deal with the financial crisis, adding that he was expecting the European Commission to deliver good news about funding.

Africa could join high-speed science network

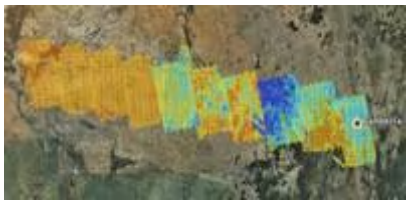
African science ministers are hoping to extend a high-speed fibre optic network - currently linking Egypt to the northern hemisphere to other countries in Africa. The Global Ring Network for Advanced Applications Development (GLORIAD) connects national laboratories and institutes across Canada, China, Korea, the Netherlands, Russia and the United States, enabling scientific collaboration in areas ranging from weather forecasting to high-energy physics.
Recently, Egypt, India, Singapore and Vietnam were added to the network via the 'Taj' expansion, officially launched at the fourth meeting of the African Ministerial Council of Science and Technology (AMCOST IV) in Egypt (7-10 March). "All the ministers [at AMCOST IV] agreed that we will use the hub established in Egypt to extend the network into the African continent," said Maged Al-Sherbiny, assistant minister for scientific research in Egypt.

GLORIAD provides high volume data transfer, videoconferencing and remote control of scientific instruments, and is largely funded by the US National Science Foundation (NSF), which raised US$2.3 million for the extension to Egypt. "This new network will provide not only access to videoconferencing but also 3D telepresence, a more advanced technique that requires a high speed network," Amr Hussein, an independent information security specialist based in Egypt, told SciDev.Net. "Training to use new instruments by virtual reality is much needed in technology fields."

ICT in Africa's insurance business

The insurance sector is grappling with the same sorts of cost pressures evident in other industries, and "outsourcing is a trend" among most players, says Haydn Pinnell, MD of Gallium. The insurance sector in Africa only represented about 1.3 percent of the global insurance business in 2007, according to Swiss Re Economic Research. In the 'South African Insurance Industry Forecast to 2013' by RNCOS Industry Research Solutions, 85 percent of the current African insurance market is in South Africa. Both figures demonstrate the undertapped potential of the insurance market on the continent. This interest will naturally lead to opportunities for the ICT industry. For example, the International Livestock Research Institute (ILRI) has developed satellite technology to assess weather conditions, such as drought patterns, which could lead to livestock deaths. This technology will help insurance agencies determine whether or not to honor such claims. Eric Gerelle, director of IBEX Projects in Switzerland, says there is a gap in the market for ICT providers. To deliver insurance products and services effectively on the ground, agencies of any size need a strong back office and ICT infrastructure.

Validattion of SMOS data: Australia field campaign



To ensure the integrity of an Earth observation mission, it is often essential to compare the data being delivered from space with measurements taken on the ground. Accordingly, the first field campaign to validate soil moisture data from European Space Agency's (ESA) Soil Moisture and Ocean Salinity (SMOS) mission has been carried out in Australia.

The campaign to validate soil moisture data was recently completed in southeast Australia. The field campaign, called Australian Airborne Calibration/Validation Experiments for SMOS (AACES) was led by the University of Melbourne and funded by the Australian Research Council. The airborne and in situ data collection strategy covered a 500 km transect of the Murrumbidgee Catchment in southeast Australia. The experience gained in earlier campaigns carried out for SMOS, such as the Australian National Airborne Field Experiment in 2005, ensured the campaign was well planned and ran smoothly. The data collected in Australia will be fed into the International Soil Moisture Network, which is a new system initiated by the Global Energy and Water Cycle Experiment (GEWEX) in cooperation with the Group on Earth Observations (GEO) and the Committee on Earth Observation Satellites (CEOS) and ESA. The International Soil Moisture Network will bring together data collected in field campaigns worldwide and provide a standardized global database to share freely with the scientific community.

Launched in November, SMOS mission is still being commissioned, but already delivering its first calibrated images of 'brightness temperature'. As a measure of radiation emitted from Earth's surface, these images can be used to derive global measurements of soil moisture and ocean salinity to improve our understanding of the water cycle. In addition, data from SMOS will help to improve weather and climate models, and have applications in areas such as agriculture and water resource management. Both the observed brightness temperature data and the derived data products for soil moisture from SMOS need to be validated. To achieve this, data were collected from the air and on the ground. A light aircraft carrying an L-band radiometer and a thermal imager was used to make observations similar to those acquired by SMOS, while data on soil moisture were collected by a team on the ground.

OGC and World Meteorological Organization to collaborate on meteorology standards

The Open Geospatial Consortium, Inc. (OGC) and the World Meteorological Organization (WMO) have signed a Memorandum of Understanding (MoU) to enhance the development and use of geospatial standards. It is anticipated that this collaboration will support the implementation of the WMO Information System which aims at providing a single coordinated global infrastructure for the collection and sharing of information in support of all WMO and related international programs. The MoU formalizes the partners'

planned collaboration in the development, application, and promotion of standards and best practices for the content and exchange of meteorological, climatological and hydrological data for the benefit of the worldwide scientific and operational communities of meteorologists and hydrologists.

Desertification from space: ESA DesertWatch Project

Desertification is defined as the degradation of land in arid, semi-arid, and dry sub-humid areas. It is caused primarily by human activities and climatic variations. It occurs because dryland ecosystems, which cover over one-third of the world's land area, are extremely vulnerable to over-exploitation and inappropriate land use. Combating desertification is essential to ensuring the long-term productivity of inhabited drylands. Unfortunately, past efforts have too often failed, and around the world the problem of land degradation continues to worsen. Recognizing the need for an internationally coordinated approach, 193 governments have joined, as of October 2009, the United Nations Convention to Combat Desertification.

The DesertWatch Information System (DW IS), which was developed in the course of the project, is a user-friendly tool for monitoring desertification. Automated processing algorithms were included to enable non-specialised users to operate the system and produce the necessary information in all areas with comparable accuracy. The DesertWatch Information System can monitor up to 11 desertification related parameters, ranging from simple geo-referenced indicators (e.g. urban sprawl, irrigated areas, forest fires, vegetation abundance and health, soil erosion, etc.), to complex models that can simulate future scenarios of desertification and risk maps. A comprehensive demonstration phase has been carried out for testing the processing chain results over vast areas of Italy, Turkey and Portugal using data covering the last 20 years.

Monitoring desertification requires the evaluation of a complex set of indicators, related to climatic (e.g. rainfall, evapotranspiration, aridity indexes), biophysical (e.g. morphology, soil and vegetation properties), socio-economic (e.g. population density and age, employment) and management (e.g. policies, protected areas, master plans) factors. The DW IS uses primarily EO data, in combination with some ancillary data, into a seamless data processing facility. To assess the needed indexes the following principal approaches/techniques were used:

1) In desertification monitoring, land cover maps are invaluable instruments as they allow the user to directly extract a number of useful indicators.
2) The semi-empirical model, known as *Spectral Mixture Analysis* (SMA), describes spectral reflectance signatures as a mixture of few prototype spectra, also called *endmembers*
3) The Land Degradation Index (LDI) exploits remote sensing images, in conjunction with climatic and physiographic parameters, for assessing the landscape status with respect to its natural resources potential.
4) A spatial modelling tool has been used for simulating Scenarios of Desertification (named ScenDes).

The DesertWatch project follow-up is currently under development. It will exploit the same paradigm as the original project, with three significant highlights: (i) enhanced data processing methodology aimed at improving classification accuracy; (ii) finer resolution, obtained by integrating additional high resolution data sources, such as SPOT and Kompsat; and (iii) extension of the demonstration cases to areas outside the Mediterranean, such as Mozambique and Brazil.

2010 – The International Year of Biodiversity

The year 2010 has been designated as the International Year of Biodiversity (IYB) by the United Nations, in order to bring greater international attention to the issue of the continued loss of biodiversity. It intends to inspire action to safeguard biodiversity by raising awareness of and celebrating life on earth and the value of biodiversity. The CBD Secretariat has the main responsibility for the coordination of events and activities going on throughout this year.

Events and activities relating to biodiversity and its celebration are happening all over the world, including, amongst others, meetings, conferences, workshops, exhibitions and high level international meetings. Among the early celebrations was the North American Launch of the Year of Biodiversity on 10 February 2010, an event sponsored by UNDP that was held at the American Museum of Natural History in New York City and attended by over four hundred biodiversity enthusiasts who braved storm and snow.

REDD+ is of great importance to the conservation of biological diversity for two reasons. First, an effective REDD+ mechanism will provide climate change mitigation, which will reduce the negative impacts on biodiversity from a changing environment. This should lessen the pressure on species to adapt or migrate. If

global mean temperatures rise more than 1.5-2.5°C (relative to 1980-1989), 20-30% of species will be at risk of extinction (IPCC 2007). Second, maintaining forests in developing countries, many of which are biodiversity rich, will significantly aid the conservation of biodiversity. It is estimated that half of the world's species can be found in tropical forests (Myers 1984; Wilson 1992).
UN-REDD Programme contributes to IYB - through its work on these key biodiversity co-benefits, the UN-REDD Programme is contributing to the International Year of Biodiversity. For example, UNEP's World Conservation Monitoring Centre (WCMC) has been working with the Tanzanian Forestry and Beekeeping Division of the Ministry of the Environment to map areas of high biodiversity/ecosystem services and how they overlap with areas of high carbon. Work is also planned with Viet Nam and Bolivia. The International Year of Biodiversity provides the opportunity to highlight the biodiversity aspects of REDD and, more specifically, what the UN-REDD Programme is doing to help address the issue of biodiversity loss.
On the International Day for Biodiversity on 22nd May, celebrations and activities will be happening worldwide. From 20th-22nd September, the UN General Assembly will meet in New York, and one day will be devoted to a high-level discussion, featuring heads of state and government, on biodiversity and its contributions to the Millennium Development Goals. Finally, from 11th-29th October major meetings of the Parties to the Convention on Biological Diversity (COP-MOP 5 and COP-10) convene in Nagoya, Japan. More information on these and other events can be found on the IYB website.

Call for papers: 8th International Conference of the African Association of Remote Sensing of the Environment (AARSE)-2010, 25-29 October 2010, Addis Ababa, Ethiopia
Theme: Earth Observation for Africa's Development Agenda. The four major scientific sub-themes of the conference are:

- Food and Water Security
- Energy Resources
- Disaster Risk Reduction
- Marine and Coastal Management

Conference sub-themes of a more operational nature are:

- Capacity-building: achievement and challenges
- Spatial Data Infrastructure, SDI
- Space Policy in Africa
- National and regional programs and projects
- Products

Abstract deadline: 30 April 2010. Final paper submission: 1 September 2010. Submit abstracts to: abstracts@aarse-africa.org.

5th Conference of African Association of Women Geoscientists, 11-17 April 2010, Grand Bassam, Ivory Coast
The African Association of Women Geoscientists (AAWG) was created in 1995. It had been noted that during geological meetings, the participation of women geoscientists typically was very limited. In order to help to rectify this discrepancy, a decision was taken to form an association in order to encourage women geoscientists to participate in Earth Sciences related conferences and to inform about or become involved in gender issues related to the Earth Sciences. AAWG's objective is to increase women participation in Geosciences and encourage African countries to involve more women in the management of natural resources to fuel sustainable socio-economic development in order to establish a sustainable peace on the continent.[Source: SERVIR-Africa community blog]

4th African International Conference on Open Source and the Digital Commons, 17-21 May 2010, Accra, Ghana
The fourth African Conference on FOSS and the Digital Commons (IDLELO 4) will be held on 17-21 May, 2010, in Accra at the Ghana-India Kofi Annan Centre of Excellence in ICT. This knowledge-building and sharing event under the theme: "Development with Ownership" is a forum for African experts and their global partners to share experience in order to expand awareness of the 'open' philosophy and the creation and use of open technologies for the benefit of our people. The emphasis on concrete examples of best practice presented by leaders in the field will further build capacity increasing the momentum of achievements from the previous editions of Idlelo held in South Africa, Kenya and Senegal.

WhereCamp Africa 2010, 12 June 2010, Nairobi, Kenya
This event is community driven and is what you make it. Topics might include:

- Mobile location
- Remote Sensing
- Geoinformatics
- Mapping and Agriculture
- Food Security and Location
- Community Mapping
- Local Search
- social cartography
- Crisis Mapping

Expect to participate in conversations on the technology of place as described in pixels, whiteboards, rays, on paper, and by social practice!

Africa FOSSGIS 2010, 27-29 September 2010, Monash University, Johannesburg, South Africa
Free and Open Source Software (FOSS) for the GIS (FOSS GIS) is an emerging field. The aim of this conference is to promote the FOSS approach and FOSS solutions in Africa by exploring the uses and applications of FOSS GIS in an African context. In tandem with this, the conference will provide a forum for the transfer of valuable FOSS GIS skills and knowledge. AFOSS GIS 2010 will be the first Africa-focused conference on FOSS for the GIS practitioner. It will focus on solutions and the application of FOSS GIS in the African context. The conference is brought to you by the OSGeo Africa chapter and Monash University, South Africa (the principle sponsor). Contact: tim@linfiniti.com.

22nd International CODATA Conference, 24-27 October 2010, Stellenbosch, Cape Town, South Africa
Theme: Scientific Information for Society: Scientific Data and Sustainable Development. Abstract deadline: 30 April 2010.

Map Africa 2010, 23-25 November 2010, Cape Town, South Africa

5th Session of the International Conference Geotunis 2010, 29 November - 3 December 2010, Tunis, Tunisia
Theme: The use of GIS and remote sensing for sustainable development. The 5th GeoTunis session in front of distinguished scientific users of GIS and remote sensing for the most recent experiments and applications in scientific fields will include 4 major scientific themes that address the various uses and applications of geographic information systems as well as numerous practical workshops supervised by the major international institutions active in the field. The presence of a large number of ministries is ensured to discuss the reality of the use of GIS and remote sensing. It takes on the International Exhibition of Technology Geographic Information Systems to showcase the latest technological additions in the field of geographic information systems and related sciences. Contact: atigeo_num@yahoo.fr.

Map World Forum, January 18-21, 2011, Hyderabad, India
GIS Development announced that the third edition of the Map World Forum 2011 is scheduled to be held in the IT city of India – Hyderabad from January 18 to 21, 2011. Discussions at the Forum will revolve around the theme, "Dimensions and Directions of Geospatial Industry."
Map World Forum will see the participation of major players of the geospatial industry from across the globe ranging from policy makers, government departments, large user organisations, academicians, researchers and student community. In past, this event has proven to be an important networking and learning platform for its participants. This year, it is expected to host around 2000+ delegates, half of them will be representing countries other than India. The theme of Map World Forum 2011 will steer presentations and discussions to unfold the potentials that geospatial technologies hold with respect to making it more accessible and useful for societal development. Map World Forum 2011 shall enable technologists to get a peep into what the future holds for the decision makers and users alike in terms of usage and applications of this technology. On the other hand, users will attempt to present to the scientists and technologists their demands and expectations in order to best utilise this tool for their respective domains.

Another highlight of Map World Forum 2011 will be the 'Geospatial Users Forum', which shall bring together 50 large and innovative users of geospatial industry from across the globe to share their success stories from a single platform. These users will also be felicitated at Map World Forum. Apart from the above, the conference will have the world's leading speakers on geospatial technologies from industry, government agencies, user organisations and academia on various connected topics at the plenary sessions, workshops, technical sessions and seminars. One of the major attractions of this event will be the concurrently held exhibition spread over more than 3000 square metre area displaying the latest and best technology available within the geospatial domain and its user community.

Practical SDI implementation materials from within and outside of Africa

Best Practices for Sharing Sensitive Environmental Geospatial Data

GeoConnections (Canada) has announced the availability of a guide to Best Practices for Sharing Sensitive Environmental Geospatial Data. This publication supports programs, services, businesses and/or applications related to the environment and sustainable development. It was developed in consultation with organizations from across Canada, including practitioners from government, NGOs, industry and academia who provided invaluable input and feedback. This guide highlights issues and concepts associated with the protecting, sharing and utilization of sensitive geospatial data related to the environment and sustainable development; provides frameworks for assessing data sensitivity; and describes potential mechanisms for facilitating the sharing of data, including online transactions.

A Manager's Guide to Public Health Geomatics

In recent years a shift has been underway to incorporate and enhance the spatial aspect in public health analyses and evidence-based decision-making. Health analyses reveal more when they include such variables as socio-economic status, age, education, gender, environment, culture and family medical history, all of which are factors that determine Canadians' health. And, there is a growing appreciation that each of these variables can be studied more fully with respect to "place". Examples of where "place" can be used within public health practice include: program planning and evaluation; disease outbreak investigations; disease and injury surveillance; emergency preparedness; resource allocation; intervention program implementation; and evaluation, public awareness and policy activities. The purpose of this document is to provide a credible resource to those public health practitioners interested in:

- Learning the capacity and potential of various national organizations with respect to geomatics in public health
- Assessing the potential and role of geomatics in their organization;
- Learning through the experiences of others;
- Seeking resources to assist with their planning efforts; and
- Learning of best practices to adopt where applicable

The document provides the following:

- An overview of geomatics in the public health sector including the relevance of geomatics to public health matters, the current status of public health geomatics use in Canada and abroad, and common challenges encountered when applying geomatics within public health organizations;
- A review of GeoConnections funded projects pertaining to the public health sector including lessons learned and their significance;
- Insight into application areas and considerations when applying geomatics in public health; and
- The challenges and best practice guidance to institutionalizing geomatics in public health organizations.

SANY - an open service architecture for sensor networks

The Open Geospatial Consortium, Inc.(OGC) announced the availability of a new book "SANY - an open service architecture for sensor networks." The book provides an excellent introduction to OGC's Sensor Web Enablement (SWE) standards, which enable developers to make all types of sensors, transducers and sensor data repositories discoverable, accessible and useable via the Web.

OGC seeks comments on Modular, GML-based Web Coverage Service 2.0

OGC®
Open Geospatial Consortium, Inc.

The Open Geospatial Consortium (OGC) seeks public comment on the draft OGC Web Coverage Services (WCS) Interface Standard Version 2.0. The OGC WCS standard supports electronic retrieval of geospatial data as digital geospatial information representing

space/time-varying phenomena such as satellite imagery or digital elevation models.
The WCS 2.0 draft has several significant enhancements over previous versions. WCS 2.0 is harmonised with the Geography Markup Language coverage model, leading to increased interoperability across OGC standards. Further, WCS 2.0 is highly modular and follows the core/extension design pattern, which allows for standard that is easier to understand and implement.
The WCS standard defines a standard interface and operations that enable interoperable access to single or multi-dimensional geospatial coverage. Services implementing this standard provide an interface with a standard set of operations for accessing original or derived sets of geospatial coverage information. An important aspect of the WCS standard is that it allows access and retrieval of raw, unprocessed imagery, which is often required by rendering and processing services. Further information about WCS can be found at the WCS Service page (www.ogcnetwork.net/wcs) of the OGC Network.
The proposed OGC WCS 2.0 standard and information on submitting comments on this document are available at www.opengeospatial.org/standards/requests/61. The public comment period closes on 14 April 2010.

- WCS 2.0 RFC Package (PDF) (including schemas and models)
- WCS 2.0 Overview: Core & Extensions (09-153)
- WCS 2.0 Core Interface Standard (09-110r2)
- GML 3.2.1 Application Schema for WCS 2.0 (09-146)
- WCS 2.0 Extension -- KVP Protocol (09-147)
- WCS 2.0 Extension -- XML/POST Protocol (09-148)
- WCS 2.0 Extension -- XML/SOAP Protocol (09-149)
- WCS 2.0 Revision Notes (10-017)

Geospatial preparedness checklist

In all aspects of emergency management, geospatial data and tools have the potential to contribute to saving lives, limiting damage and reducing the costs of dealing with emergencies. A committee of the U.S. National Academies' National Research Council studied the role of geospatial data and tools in emergency management and produced a book with recommendations for improving the technology's use. It includes a checklist that emergency management officials can use to assess their application of such tools, with this specific guidance on the most valuable types of geospatial data and real-time data collection methods.

- Do you have electronic field data collection methods (using Global Positioning System-enabled handheld computers with wireless communication systems) available to determine the geographic extent of an incident?
- Do you have capabilities of obtaining digital photographs of incident sites and transmitting them wirelessly to the emergency operations center?
- Do you have agreements in place to acquire digital images via government or private-sector helicopter, etc., of event sites immediately after an event occurs?
- Do you have agreements in place and near-live data feeds from utilities detailing the geographic extent of power outages?
- Do you have live or near-live geospatial weather data?
- Do you have live or near-live geospatial data on road conditions and capacities or other transportation systems?
- Do you have any near-live data feeds from hospitals or other medical facilities detailing geospatial data on bed capacity or medication availability?
- Do you have the capability to track the distribution of your emergency equipment or supplies geographically?
- Do you have the ability to push out or pull in geospatial data or Web-based services across the Internet?

GIS Tools, Software, Data

New version of the MAPA layer available

With assistance from Google Earth Outreach, a new version of the MAPA layer is available (as of February 2010). If you already have the MAPA layer loaded on your computer, there is no need to load it again. The changes should be reflected on the layer the next time you open Google Earth. Alternatively, simply download it here. You'll notice a few changes from the last version of the layer: there is improved and

increased content for protected areas in most countries, and blogs and research projects that were on the layer before have also been updated. The MAPA effort aims to create the most comprehensive digital catalogue of Africa's parks and reserves available, including mapping their tourist and wildlife infrastructure. For the past year and a half, volunteers have been driving around Southern and East Africa's game parks creating a unique dataset. [Source: SERVIR-Africa community resource registry]

MosquitoMap

MosquitoMap is a geospatially referenced clearinghouse for mosquito species collection records and distribution models. Users can pan and zoom to anywhere in the world to view the locations of past mosquito collections and the results of modeling that predicts the geographic extent of individual species. Collection records are searchable and downloadable, users can map and upload their own georeferenced collection data or distribution models, and all contributions have full attribution. [Source: SERVIR-Africa community resource registry]

World database of large urban areas, 1950-2050

Using the data request service provided by the UN Population Division, Nordpil has assembled and georeferenced the data from the World Urbanization Prospects, 2007 revision. This database represents the historic, current and future estimates and projections with number of inhabitants for the world's largest urban areas from 1950-2050. The data covers cities and other urban areas with more than 750,000 people.Data was retrieved from World Urbanization Prospects: The 2007 Revision Population Database (online database), accessed June 8, 2009. The large urgan areas database is available for unrestricted download, under the Creative Commons 0 License (public domain). This entitles you to reuse and modify the data, without any restrictions. The developers would appreciate it if you would credit Nordpil and the UN Population Division if you use this data. [Source: SERVIR-Africa community resource registry]

Using Google Earth offline

One of Google Earth's speed features also has the benefit of enabling the application's use when Internet is not available. The key is the Google Earth cache file which stores imagery and other data locally on your hard drive. This speeds up your experience even when you have broadband Internet, but it also is the secret to offline GE use.

By using the GE cache, you can still use most of Google Earth's features while on an African Safari, while driving your car, while boating offshore, or just camping on a mountain. This includes the aerial/satellite imagery, the 3D terrain, and more. And, the iPhone Google Earth application has this feature as well. If you anticipate taking your computer (or iPhone) somewhere where you won't have an Internet connection, you can still use GE. Or you can use it for doing a demonstration somewhere without an Internet connection. You will need to do a little preparation first. First, go to the menu item Tools->Options and select the "Cache" tab. You will not need to change the memory cache for viewing the cache (there is a trick for storing the cache with this setting – see below). The memory cache is set automatically based on your system's memory. You can make the disk cache size as large as 2000 MB (i.e. 2 Gigabytes). This will give you more data to work with. Then, you need to move to the area you want data for and zoom into that area. The most recent things you have looked at will be what is in your cache. It is important you zoom to the closest view you think you'll use. Turn on other layers for information you want cached (for example, 'Terrain', 'Roads' and 'Borders' – the more you select, the faster the cache wil fill). Also, make sure you save any KML files you might want to use in files on the same computer. The more data you cache, the sooner the cache will fill, so be cautious. FreeGeographyTools has written some nice tutorials for some free tools for loading your GE cache in a more automated fashion – see here, here, here, and here. There is also a way you can save the cache files to extend the amount of area you can store (see this forum thread).

Topology Framework .NET (TF.NET)

TF.NET represents a managed topology manipulation API capable of handling managed objects representation of topological entities based on other popular APIs, exposing it's JTS-based common topology manipulation core to them. Supported external managed APIs include: OSGeo Feature Data Objects (FDO) geometries, OSGeo MapGuide Server (FDO-based) geometries and Autodesk ObjectARX geometries (a.k.a. entities). Functions provided include: Spatial predicates (based on the DE-9IM model), Overlay functions (intersection, difference, union, symmetric difference), Buffer, Convex hull, Area and distance functions, Topological validity checking, Coordinate systems manipulation (transformations),

Topological graphs manipulation, and more. TF.NET libraries are free, licensed under GNU LGPL and available for download from Google Code page: http://code.google.com/p/tf-net/

uDig
The User-friendly Desktop Internet GIS (uDig) is both a GeoSpatial application and a platform through which developers can create new, derived applications. uDig is a core element in an internet aware Geographic Information System.

deegree
deegree is a free software initiative founded by the GIS and Remote Sensing unit of the Department of Geography, University of Bonn, and lat/lon.

GIS Database Tools

- Geospatial Explorer (Trial)
  Geospatial Explorer has been written to enable geologists, environmental scientists, and engineers to apply innovative science and technology to enhance and expedite the reduction of risk to human health and the environment. Geospatial Explorer permits the user to identify, understand, and solve complex environmental problems better, faster, and cheaper.
- Geostatistics Package
  As part of Cyze & Associates' support for Geostatistical Analysis, Cyze & Associates provides a free Geostatistics package that compliments Geospatial Explorer by providing an interface to the SAGE 2001 variogram reports and GSLIB 2.0 kriging and simulation executables.
- FIELDS 3-D Viewer
  In an on going effort to support FIELDS Version 2.0, Cyze & Associates shall continue to offer download and registration for FIELDS Sample 3-D Viewer 2.1.7.
- Natural Neighbor for ArcView
  As part of Cyze & Associates' support for Developers, Cyze & Associates provides Natural Neighbor binaries and ArcView 3.x extensions free to our developer community.

Free GPS Software

- **GPS3d**
  GPS3D is a collection of utilities to manipulate a handled GPs device from your PC, and visualize the result in 3D. Even without a GPs device, you can still use GPS3d to play interactively with a 3D texture mapped model of earth.
- **GPStrans**
  GPStrans communicates with a Garmin Global Positioning System receiver and allows a user with a Garmin GPS receiver to upload and download waypoints, routes, almanac (satellite orbit elements), and track routes.
- **GPSMan**
  GPs Manager (GPSMan) is a graphical manager of GPs data that makes possible the preparation, inspection and edition of GPs data in a friendly environment. GPSMan supports communication and real-time logging with both Garmin and Lowrance receivers and accepts real-time logging information in NMEA 0183 from any GPs receiver.
- **GPSBabel**
  GPSBabel converts waypoints, tracks, and routes from one format to another, whether that format is a common mapping format like Delorme, Streets and Trips, or even a serial upload or download to a GPS unit such as those from Garmin and Magellan.
- **TMRS**
  Tiger Mapping and Routing Server (TMRS) is being written in order to facilitate the creation of open source GPS navigation software. Its goal is to simplify street level routing and map drawing functions essential for developing user-friendly interfaces. The data used in this software is available freely from U.S. Census and is called 'Tiger'.
- **JOpt.SDK**
  JOpt.SDK is a tour optimization JAVA library that uses specialized genetic algorithms to calculate an optimized allocation of orders and stops to mobile resources. The algorithm not only provides tours at minimum costs but also considers an arbitrary set of constraints for each tour.

Free Image Processing Software

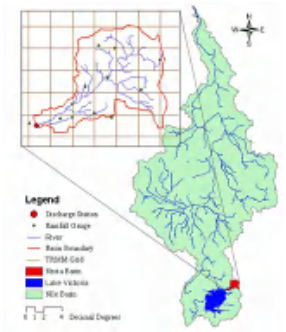
- **ScanMagic**
  Easy-to-use and powerful image processing software for MS Windows. Allows the user to visualize, manipulate, analyze and process remotely sensed imagery and geospatial data.
- **ScanEx Image Processor**
- Robust image processing software for MS Windows. This software allows the user to preprocess, visualize and thematic interpret of satellite and aerial remotely sensed data.
- **ScanEx NeRIS**
- Science intensive image processing software for MS Windows. This software uses neural network for classification and thematic interpretation of geospatial data.

Geospatial Research, Applications, Reference Material

Geospatial applications help mitigate flood effects in Namibia

In 2009, the southern African nation of Namibia experienced its worst flooding in decades as the Zambezi and other rain-swollen rivers rose more than 25 feet and inundated several regions of the continent. The flooding caused large-scale destruction to homes, schools, health facilities, mahangu and maize fields, and infrastructure. A result of heavy rains in neighboring Angola and parts of Zambia's Western Province, the flood also displaced more than 300,000 people and contributed to cholera and other disease outbreaks. The disaster in March 2009 followed a similar season of flooding in 2008.
This year, Namibian officials hope to get a head start against catastrophic weather situations. Their approach is to create a geospatial application that taps satellite imagery and river-height sensors and get an early read on when and where the flood waters are coming — helping them decide where to deploy the right resources. An international team of experts, including representatives from NASA and the National Oceanic and Atmospheric Administration, are contributing their expertise in satellite mapping and sensor technology.
Predicting floods might be a little easier than predicting earthquakes, but Namibia's project exemplifies an emerging, though largely untested, set of geospatial applications that are still in their technological infancy but promise to have many life-saving uses across the world. Indeed, across all sectors of society, geospatial experts are rapidly establishing a sensory connection between information systems and the real world. And that has big implications for government.
With little fanfare, geospatial information derived from sensors is already helping decision-makers better understand the context of problems that they face on a daily basis. Nearly anything in the physical world that needs to be managed has a location in space and time and can be measured. And it needs to be measured if it is to be managed well. Read more. [Source: SERVRI-Africa community blog].

Evaluation of the real-time TRMM-based multi-satellite precipitation analysis for an operational flood prediction system in Nzoia Basin, Lake Victoria, Africa



Satellite-based rainfall and geospatial datasets are potentially useful for cost-effective detection and early warning of natural hazards, such as floods, specifically for regions of the world where local data are sparse or non-existent. Many researchers seek to take advantage of the recently available and virtually uninterrupted supply of satellite-based rainfall information as an alternative and supplement to the ground-based observation in order to implement a cost-effective flood prediction in many under-gauged regions around the world. The goal of this study is to build disaster management capacity in East Africa by providing local governmental officials and international aid organizations a practical decision-support tool so as to better asses emerging flood impacts and to quantify spatial extent of water hazard risk, as well as to respond to such flood emergencies more expediently.
In this study, the applicability of TMPA 3B42RT rainfall estimates for distributed hydrological modeling over a flood-prone region, Nzoia, a sub-basin of Lake Victoria and Nile River was evaluated. In general, the results demonstrate that the TMPA 3b42RT precipitation data for flood prediction in this basin is acceptable,

although the 7-year (1985–2001) gauged-rainfall warming-up does not appear to yield greater benefit for consequent discharge modeling forced by 3B42RT at later time period in terms of relatively high bias ratio (26.6%) and low NSCE score (0.53). During the implementation time period (2002–2006), both gage calibration and 3B42RT simulation show good results. The authors also identified that improved flood prediction performance could be achieved with systematically bias-corrected TMPA 3B42RT rainfall data over original real-time data. Although the results justify to suggest to us that TMPA 3B42RT can be acceptably used to drive hydrological models for flood prediction purpose in Nzoia basin, full realization of the potential of seamless satellite-based rainfall estimates requires further investigation of optimal calibration strategy for integrating remote sensing data into a real-time hydrological modeling system for vast ungauged regions of the world (Hossain and Lettenmaier 2006). On the other hand, results of this study also demand continuous progress in spaceborne rainfall estimation technology in terms of both the accuracy and spatiotemporal resolutions of rainfall estimates. In this regard, future deployment of the Global Precipitation Measuring mission (http://gpm.gsfc.nasa.gov) would largely facilitate this particular study. Finally, it can also be concluded that to increase flood forecasting lead time, more reliable and more accurate short- or medium-range quantitative precipitation forecasts is a must.

Management of southern Africa's ecosystems supported by GPS technology

An ambitious ecological programme aiming to save 60-million hectares of indigenous ecosystems is currently being undertaken by the governments and conservation agencies of the Southern African Development Community (SADC) region and facilitated by the Foundation. The project includes bringing together the diverse systems and priorities of a range of disciplines across current borders, including customs and immigration officials, legislators, tourism bodies, local communities, conservation agencies and veterinary corps, and requires enormous commitment and cross regional coordination to make a difference. Peace Parks Foundation has invested time in designing, testing and implementing technologies that simplify the flow of information from the field through systems to support decision making. Some of these take the form of data collection tools, which range from simple, drop-down data capture handheld devices for field staff to more detailed and elaborate versions used by head office staff and researchers compiling species lists, determining human-wildlife conflict, and areas requiring prioritized intervention.

Peace Parks Foundation is compiling an up-to-date inventory of spatial information of these protected areas, in order to feed into the planning process which the foundation offers as part of the facilitation process to trans-boundary conservation. This high-tech data collection exercise harnesses cameras, laptops, GPS systems and satellite phones to record plants, reptiles and amphibians, birds, mammals, insects and spiders, and even fresh water fish in river and pan systems.

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.

African Reference Frame (AFREF) and GNSS Data Processing Training Course, 24 August - 3 September 2010, RCMRD, Nairobi, Kenya

Since 2006, the RCMRD in conjunction with the Center of Geophysics of the University of Lisbon, Portugal and HARTRAO South Africa have been conducting an annual course on African Reference Frame (AFREF) and Global Navigation Satellite System (GNSS) Data Processing at RCMRD offices in Nairobi, Kenya. This year, the course will be held on 24 August - 3 September 2010. The content includes:

- Introduction to Global Navigation Satellite System (GNSS)
- Reference systems, datum, datum transformations and coordinate systems
- IGS data and products
- AFREF concepts and progress
- Establishment of Continuously Operating Reference GNSS Stations
- Practical field works on Static GNSS surveys
- GNSS data post processing
- On line GNSS Data processing

Application deadline: 23 July 2010. For further information contact: Muya Kamamia at muyack@rcmrd.org or rcmrd.@rcmrd.org. Website: http://www.rcmrd.org.

GIS course in sustainable land use (Sustainable Land Use 723), 9-14 August 2010, University of Stellenbosch, South Africa

The course will present an integrated approach to planning the use and management of land resources. It will consider the involvement of all stakeholders in the process of decision making on the future of the land, and the identification and evaluation of all biophysical and socio-economic attributes of land units. This requires the identification and establishment of a use or non-use of each land unit that is technically appropriate, economically viable, socially acceptable and environmentally non-degrading. The course will expose students to:

- The theory of integrated land use planning.
- Land use planning techniques.
- Participatory techniques for gathering socioeconomic data.
- The geo-informatics tools available to land managers and decision makers.
- Use of an open source GIS, MapWindow, to demonstrate the practical application of spatial software tools and GIS data to land use planning and management. Contact: Jos Liebenberg, University of Stellenbosch, crses@sun.ac.za.

Computer Foundation GIS Workshop, 10-15 October 2010

According to your skill level or previously attended courses, you may register in one of the following groups listed below:

- Introduction to ArcGIS 10
- Extended ArcGIS 10
- Geodatabase and ArcGIS server 10
- GPS Basics and Fieldwork

For further information, contact: charmainb@cf.co.za or lorainew@cf.co.za.

Training Workshops for PCSWMM/SWMM5, South Africa

Every year Computational Hydraulics Int. (CHI) hosts a number of SWMM5 and PCSWMM Modeling Workshops in South Africa. At these professional workshops, attendees are trained in the use of both the latest US EPA Stormwater Management Model (SWMM), and the new PCSWMM 2009 graphical decision support system. By attending a workshop, participants become proficient in the use of the software and learn how its application can enrich stormwater drainage and sanitary system modeling and design.

- Cape Town, October 12, 2010
- Kimberley, October 19, 2010
- Kruger National Park, October 26, 2010
- Durban, November 02, 2010
- Gauteng, November 09, 2010

Free ESRI Courses

Free online course modules from ESRI's Virtual Campus site. Learn the basics of many of their software packages and extensions or take some concept courses such as a review of projections.

Course on Demographic and Health Surveys, June 21-25, 2010, Nairobi, Kenya

University of Nairobi Enterprises and Services Ltd is offering professional short course on Demographic and Health Surveys. The course provides an overview of the DHS surveys and how to use DHS data to improve health programs. Demographic and Health Surveys (DHS) are nationally-representative household surveys

that provide data for a wide range of monitoring and impact evaluation indicators in the areas of population, health, and nutrition. Demographic and Health Surveys provide countries with a standardized tool to obtain indicators for the effective monitoring of national programs such as those on HIV/AIDS, health and family planning services available in a country. Contact: Prof. Mwanthi, mmwanthi@uonbi.ac.ke.

ESRI Eastern Africa Hands-on Training for GIS Professionals

ESRI Eastern Africa

The following courses are offered at the ESRI Authorized Learning Centre in UpperHill, Nairobi, Kenya. Special arrangements can be made on request for client-site training.

Fundamentals of ArcGIS Desktop	Duration (Days)
• ArcGIS Desktop 1: Getting Started with GIS	3
• ArcGIS Desktop 2: Tools and Functionality	4
• ArcGIS Desktop 3: Workflows and Analysis	3
• **Data Production and Editing with ArcGIS**	
• Field Data Collection Using ArcPad and ArcGIS Desktop **(NEW)**	3
• Building Geodatabases	4
• Data Production and Editing Techniques **(NEW)**	4
Analysis with ArcGIS	
• Performing Analysis with ArcGIS Desktop **(NEW)**	4
• Working with ArcGIS Spatial Analyst	4
• Working with ArcGIS Network Analyst	3
Cartography with ArcGIS	
• Creating and Publishing Maps with ArcGIS **(NEW)**	4
• Working with Cartographic Representations **(NEW)**	3
Enterprise GIS	
• Introduction to ArcGIS Server	3
• Introduction to the Multiuser Geodatabase	3
• Managing Editing Workflows in a Multiuser Geodatabase **(NEW)**	4
Programming with ArcGIS	
• Introduction to Programming ArcObjects using VBA	4
• Introduction to Programming ArcObjects using .NET **(NEW)**	4
• Introduction to Geo-processing using Python **(NEW)**	3

Contact: ESRI Eastern Africa at: training@esriea.co.ke, telephone: +254 20 2713630/1/2 or fax: +254 20 2713633.

ESRI South Africa course schedule for April 2010

Contact: Midrand: Queen Mofokeng, qmofokeng@esri-southafrica.com; Durban: Patricia van Schalkwyk, pvanschalkwyk@esri-southafrica.com; Port Elizabeth: Queen Mofokeng, qmofokeng@esri-southafrica.com; Cape Town: Kathi Wöhl, kwohl@esri-southafrica.com.

L'Ecole Régionale post-universitaire d'Aménagement et de gestion Intégrés des Forêts et Territoires tropicaux (ERAIFT) [Regional School on Integrated Management of Tropical Forests and Territories] **–**

Promotion : inscriptions ouvertes, Kinshasa, République Démocratique du Congo. Le cursus de l'ERAIFT aboutit à l'obtention d'un Diplôme d'Etudes Supérieures Spécialisées (DESS). Ce diplôme est l'équivalent d'un Master du système « LMD » (Licence, Master, Doctorat) des Accords de Bologne. Il est reconnu par le Conseil Africain et Malgache pour l'Enseignement Supérieur (le CAMES). Le programme du DESS comprend 16 chaires dont l'enseignement s'étend sur une période de 12 mois. L'étudiant dispos ensuite de 6 mois pour rédiger son mémoire. Le contenu de ce dernier repose sur l'approche systémique, et s'inscrit dans le cadre de l'aménagement intégré du territoire, du développement humain, durable et écologiquement viable, de la lutte contre la pauvreté et de la gestion rationnelle de l'environnement. L'autre grade décerné par l'ERAIFT est le Diplôme de Philosophiae Doctor (Ph.D.) en Aménagement et gestion intégrés des forêts et territoires tropicaux. Bourses disponibles, mais limitées en nombre. Contact: info@eraift.org.

Short-courses offered by RECTAS in 2010, 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.

ITC Distance Learning - Certificate

- Multi-Hazard Risk Assessment (6 weeks), Starting date: 17 May 2010. Deadline for application: 26 April 2010. Register.
- Principles of Remote Sensing (8 weeks). Starting date: 17 May 2010. Deadline for application: 26 April 2010. Register.
- Environmental Impact Assessment and Strategic Environmental Assessment using spatial decision support tools (6 weeks). Starting date: 7 June 2010. Deadline for application: 17 May 2010. Register.
- Principles of Geographical Information Systems (7 weeks). Starting date: 6 September 2010. Deadline for application: 16 August 2010. Register.
- Spatial Decision Support Systems (8 weeks). Starting date: 11 October 2010. Dealine for application: 20 September 2010. Register.
- Learning IDL for Building Expert Applications in ENVI. Starting date: 25 Oct 2010. Deadline for application: 4 October 2010.
- Digital Terrain Model extraction, processing and parameterization for Hydrology (3 + 3 weeks). Starting date: 29 November 2010. Deadline for application: 8 November 2010. Register.
- Principles and Applications of Remote Sensing and GIS in Natural Resources Management at KNUST, Kumasi, Ghana (12 weeks). Starting date: 20 September 2010. Register.

MSc and PG Diploma

- Water Resources and Environmental Management (Mc degree -18 months), Netherlands. Starting date: 13 Sep 2010. Deadline for application: 1 July 2010. Register.
- Water Resources and Environmental Management (PG Diploma - 9 months), Netherlands. Staring date: 13 September 2010. Deadline for application: 1 July 2010. Register.

ITC Refresher Courses 2010

Refresher courses, which are certificate of attendance courses (mostly of two-week duration) organised for alumni in their home countries or regions, are meant to increase the impact and prolong the effect of earlier training.

In 2010 ITC will co-organise the following refresher courses:

- Participatory Approaches to Slum Upgrading and Management (Kenya)
- Modern Techniques for Environmental and Sustainable Development of Earth Resources (Ethiopia)
- GEONETCast-Toolbox for natural and water Resource Management (Ethiopia)
- Preparing for Adaptations to Climate Change in West Africa (Burkina Faso)
- Strengthening Local Land Governance (Tanzania)
- The Application of GIS and Remote Sensing to Geologic Mapping and Mineral Resources Exploration (Tanzania)

More information will be available soon at www.itc.nl/Pub/Study/CourseFinder

Programme de Formation au CRTS 2010, Maroc

Le Centre Royal de Teledetection Spatiale est l'Institution Nationale responsable de l'utilisation, de la promotion et du developpement de la teledetection spatiale au Maroc. Il est charge de coordonner et de gerer les programmes nationaux de teledetection spatiale en partenariat avec les ministr¨res, les universites et les operateurs privates.

Geoinformatics (GFM.4) joint education diploma course of ITC and ARU, September 2010 - June 2011 (9 months), Dar es Salaam, Tanzania

The course is run at Ardhi University (former UCLAS) campus in Dar es Salaam, Tanzania. The aim of the course is to provide participants with the theoretical education and practical training needed to contribute to the digital production of maps and geoinformation using appropriate, state-of-the-art technology with in-depth knowledge in one of the specific aspects of the production process. GFM4 Course Application Form, Contact: Head Geomatics Department, Ardhi University at geomatics@aru.ac.tz.

Training Course: Offre et Programmation des séminaires de formation Pour le premier semestre de l'année 2010, Ouagadougou, Burkina Faso
Les séminaires de formation à l'IAVS visent le renforcement des capacités d'approche globale de la problématique des changements climatiques en lien avec les questions de développement et la maîtrise des outils et des méthodologies pour la prise en compte des considérations liées à ces changements climatiques dans les politiques et actions de développement. La programmation des séminaires pour le premier semestre de l'année 2010 se présente comme suit:

- Prévention et gestion des effets des changements climatiques dans le secteur de la sécurité alimentaire - Du 26 au 30 avril
- Séminaire méthodologique sur la prise en compte des changements climatiques dans la planification du développement national - Du 24 au 28 Mai
- Elaboration et mise en œuvre de campagnes d'information et de sensibilisation sur les changements climatiques et leurs implications - Du 21 au 25 juin

Short course: Introduction to GIS Standards, September 6-7, 2010, University of Pretoria, South Africa
The course provides an introduction to geographic information standards such as those developed by the ISO/TC 211, Geographic information/Geomatics and Open Geospatial Consortium (OGC). Course content shows where to find these standards, how to read, interpret and implement them.

Funding Opportunities, Awards, Support

Trust Fund for Statistical Capacity Building (TFSCB)
The Development Data Group of the World Bank is pleased to invite submissions of proposals for 2010 Spring Window of the Trust Fund for Statistical Capacity Building (TFSCB). TFSCB, a multi-donor trust fund, aims to improve the capacity of developing countries to compile and use statistics with an overall objective of supporting the management of development results. TFSCB works closely with PARIS21 to advance coordinated international efforts to improve statistics globally. Deadline: 23 April 2010.

Ramsar Convention's Small Grants Fund
Ramsar Small Grants Fund (SGF) is a mechanism to assist developing countries and those with economies in transition in implementing the Convention and to support the conservation and wise use of wetland resources, with a strong human and social dimension. The deadline for applications for the next round is 30 June 2010.The deadline for submissions of draft proposals for the SGF advisory service is 30 April 2010.

Humboldt Research Fellowships for Experienced Researchers
Humboldt Research Fellowships for experienced researchers are the instrument with which the Alexander von Humboldt Foundation enables highly qualified scientists and scholars from abroad who completed their doctorates less than 12 years ago to spend extended periods of research (6 to 18 months; may be divided up into a maximum of three blocks) in Germany. Candidates are expected to have their own clearly defined research profile. This means they should usually be working at least at the level of assistant professor or junior research group leader, or be able to document independent research work over a number of years. Scientists and scholars from all disciplines and countries may apply. Research projects are carried out in cooperation with academic hosts at research institutions in Germany. Candidates choose research projects, and the host in Germany is required to prepare a research plan. Details of the research project and the time schedule must be agreed upon with the prospective host in advance. The duration of the research fellowship (6 to 18 months) may be divided up into a maximum of three visits lasting a minimum of 3 months each. No more than 36 months may elapse between the beginning of the first stay and the end of the last stay. Short-term visits for study and training purposes or for attending conferences are not eligible for sponsorship. The fellowship is worth EUR2450 per month. This includes a mobility lump sum and a contribution toward health and liability insurance. Deadline: 31 December 2010.

Humboldt Research Fellowship for Postdoctoral Researchers
Humboldt Research Fellowships for postdoctoral researchers are the instrument with which the Alexander von Humboldt Foundation enables highly qualified scientists and scholars from abroad who are just embarking on their academic careers and who completed their doctorates less than 4 years ago to spend extended periods of research (6 to 24 months) in Germany. Scientists and scholars from all disciplines and

countries may apply. Research projects are carried out in cooperation with academic hosts at research institutions in Germany. Candidates choose research projects, and the host in Germany will be required to prepare a research plan. Details of the research project and the time schedule must be agreed upon with the prospective host in advance. Short-term visits for study and training purposes or for attending conferences are not eligible for sponsorship. The fellowship is worth EUR2250 per month. This includes a mobility lump sum and a contribution toward health and liability insurance. Additional allowances are available for accompanying family members, travel expenses, and German language instruction. Applications may be submitted at any time to the Humboldt Foundation in Bonn, Germany. The review process takes several months, and the selection committee meets three times a year to review applications. Deadline: 31 December 2010.

Rothamsted International Fellowship Scheme

The Fellowship scheme is managed by Rothamsted International and enables scientists from developing and emerging countries to carry out research projects for 6 to 12 months in collaboration with partner scientists at Rothamsted Research. The purposes of the scheme are;

1) Promote the exchange of vital scientific research skills to help agricultural and environmental needs in developing and emerging countries;
2) Assist in individual and institutional capacity building;
3) Foster long-term partnerships between overseas research organisations and Rothamsted Research.

Fellowships are open to mid-career scientists who wish to pursue strategic and applied research, learn new techniques or undertake other studies in the agricultural sciences and are entirely funded by donations from charitable trusts, foundations and individuals. Deadline: May 7, 2010.

World Forest Institute International Fellowship Program: Oregon, USA

Fellowship targets professionals in natural resources from around the world to conduct a practical research at the World Forestry Center. Download Fellowship brochure for details. Applications accepted year- round.

URISA Exemplary Systems in Government (ESIG) Awards

The Urban and Regional Information Systems Association (URISA) have recently posted the 2010 application materials for its prestigious Exemplary Systems in Government (ESIG) Awards. The awards recognize exceptional achievements in the application of geospatial information technology that have improved the delivery and quality of government services.

Applications may be submitted in two categories, Single Process and Enterprise Systems. Applications must be submitted by 3 May 2010. Winners in each category will be recognized at URISA's 48th Annual Conference, 28th September to 1st October 2010 in Orlando (FL, USA).

International ReSource Award for Sustainable Watershed Management

The International ReSource Award for Sustainable Watershed Management was launched by Swiss Re in 2002. It expresses the company's commitment to planning, evaluating and realisation of water-related projects and aims to promote awareness and the efficient use of this precious resource. The International ReSource Award is worth USD 150 000 in total and is granted to one or several projects selected by an international jury. The ReSource Award is an internationally recognised prize for leadership in implementing the principles of sustainability in watershed management. It is conferred annually. The prize money is awarded exclusively for project implementation activities and not for building up or strengthening the organisations that are submitting an application. The submission deadline for the ReSource Award 2011 is 30 April 2010 (download: Application form).

Captain Planet Foundation Funding for Youth Environmental Projects

The mission of the Captain Planet Foundation is to fund and support hands-on environmental projects for children and youth. The foundation's objective is to encourage innovative programs that empower children and youth around the world to work individually and collectively to solve environmental problems in their neighborhoods and communities. Through environmental education, the foundation believes that children can achieve a better understanding and appreciation of the world in which they live. The foundation offers small grants of $500 or less each, as well as a limited number of grant awards ranging from $500 to $2,500 each. Applicants must be at least 18 years old to submit a proposal. Deadlines for submitting grant applications are June 30, September 30, December 31. Grant proposals are reviewed over a period of three

months from the date of the submission deadline. Visit the Captain Planet Foundation Web site for complete program information and guidelines.

UN-HABITAT Urban Youth Fund Call for Applications
Youth-led organizations in developing countries working to improve the lives of young people and their communities can now seek financing for their projects through the UN-HABITAT Urban Youth Fund. The Fund will provide grants for innovative projects that promote employment, good governance, shelter and secure tenure. Only applicants aged 15-32 from cities in developing countries can qualify for a grant. Support will be provided primarily for those working to improve slum conditions and to raise opportunities for young people growing up in poverty. Projects encouraging gender equality or involving partnerships with the government or the private sector are particularly welcome. Small development initiatives are eligible for grants of up to USD 5,000, and larger projects up to USD 25,000. Deadline: April 15, 2010.

Employment Opportunities

Associate Professor - Geovisual Analytics, ITC, Netherlands
The department of Geo-Information Processing (GIP) deals with the technological and methodological aspects of geo-information processing and infrastructure to develop technology oriented concepts for the new geo-information society to solve complex application problems. The faculty ITC invites qualified persons to apply for the position of Associate Professor - Geovisual Analytics.
The incumbent should possess:
- PhD in geoinformatics, information visualization or related disciplines and have experience with the geospatial data handling process (GIS applications or remote sensing, visualization).
- Demonstrate excellence in two of the following three fields: research, supported by publications, preferably in the field of geoinformatics; teaching, including lecturing and course development; consulting and advising in international cooperation.

The successful candidate will be employed for a period of four years. Additional information can be obtained from Prof. Dr. M.J. (Menno-Jan) Kraak, chairman of the department of Geo-Information Processing (phone: +31 53 4874 463). Submit your application letter and detailed CV before 12 April 2010 to the Faculty ITC, for the attention of Mr. J.P.M. (Jeroen) Jansen, Personnel Affairs, P.O. Box 6, 7500 AA Enschede, the Netherlands (E-mail: posecretariat@itc.nl).

GIS (Geological) Database Administrator,
A dedicated PGM exploration company based on the Gold Coast of Queensland is looking to appoint an experienced GIS & database administrator. Reporting to the exploration manager, the main tasks of the incumbent are:
- Managing the Company's database, validating, entering and interpreting geochemical/drilling data.
- Create monthly reports for each project detailing drill holes drilled/geochemical statistics
- Create geological maps/cross section/interpretation of geological data using MapInfo and Discover
- Updating the company's website

The successful candidate should:
- Demonstrate experience in GIS & Database Administration
- Experience with Maxwell DataShed, MapInfo and Encom Discover or similar
- At least 2 years experience in a similar role

Deadline for application: 9 May 2010.

Disaster risk reduction expert, Libreville, Gabon; Addis Ababa, Ethiopia; Abuja, Nigeria.
Under the direct supervision of the Head, UNISDR Africa Regional Office and under the guidance of the President/Executive Secretary of the ECCAS, the appropriate Commissioner/Director and the Head of the related disaster reduction unit of the ECCAS, the consultant shall provide overall support to the ECCAS in the implementation of the ECCAS DRR policy/strategy in line with the Hyogo Framework for Action 2005-2015. The incumbent should possess:
- Strong background, knowledge and understanding of the concepts, principles and approaches to disaster risk reduction; proven project management skills and ability to lead a project to completion.
- Ability to identify and analyze clients' needs and develop appropriate services to meet business requirements.

- Speaks and writes clearly and effectively; listens to others, correctly interprets messages from others and responds appropriately
- Develops clear goals that are consistent with agreed strategies; identifies priority activities and assignments; adjusts priorities as required
- Strong interpersonal skills and ability to establish and maintain effective partnerships and working relations with people in a multi-cultural and multi-ethnic environment.
- Advanced university degree (Master's degree or equivalent) in disaster risk management, development, public policy or a related field. A first- level university degree in combination with qualifying experience may be accepted in lieu of the advanced university degree.

Send an email to the ISDR secretariat at isdr.vacancies@un.org.
Deadline: 4 April 2010.

Enabling Activity Consultant, Nairobi, Kenya
Under the guidance of the Senior Task Manager, Climate Change and overall supervision of the senior programme Officer, Climate Change and working closely with the Executing Agencies, the consultant will be responsible for development of a number of GEF funded climate change enabling activities such as the preparation of national communications and technology needs assessment reports. Further, the consultant will work with project partners to finalize a couple of Project Identification Forms and their associated processes. The Consultant will be responsible for the following tasks:

1. Project identification and development: Liaises with internal and external partners to identify relevant and eligible project concepts, consults with UNEP Divisions and regional offices as necessary, advises project proponents on how to revise concepts to respond to issues raised by reviewers, presents and defends the concept internally and the GEF, advises proponents on preparing Project Preparation Grants.
2. DGEF knowledge management and data management: Identifies and codifies lessons emerging from project implementation, ensure accuracy and completeness of project data in the project information system for all projects, contributes to project data reconciliation exercises within DGEF and with the GEF Secretariat, Participates and contributes to events organized to disseminate information on project results and lessons.

The incumbent should posses:

- Advanced university degree (Master's degree or equivalent) in natural resources management, biological or physical sciences or environmental sciences/studies. A first level university degree in combination with qualifying experience may be accepted in lieu of the advanced university degree.
- At least six years of work experience of which a minimum of two years are at the international level.
- Knowledge in climate change issues in general and national communications and

Technology Needs Assessments, in particular familiarity with activities of UNFCCC and UNEP in the area of climate change. Preference will be given to equally qualified women candidates. All applications to be sent to: recruitment.dgef@unep.org. Deadline: 10 April 2010.

Senior Programme Officer, Biodiversity (Project), Nairobi, Kenya
Under the direct supervision of the Deputy Director, DEPI, the incumbent will: 1. Supervise and Coordinate UNEP's role in the follow up strategy to the Millennium Ecosystem Assessment (MA): Build and improve the knowledge base on the links between biodiversity, ecosystem functioning, services and human well being; Strengthen country capacities to operationalize methods and tools for integrating the MA approach and findings and recommendations; Disseminate the findings of the MA and its conceptual framework, tools and methodologies; Improve capacity of developing countries to undertake Sub-Global Assessment and to participate in policy forums to advance the MA; Raise awareness on the relationships between ecosystem services and human well-being; Establish and maintain external contacts; Enhance UNEP's leadership and coordinate efforts undertaken by other agencies and governments on the implementation of the MA follow up strategy. 2, Coordinate UNEP's efforts in improving the science policy interface on biodiversity and ecosystem services: Provide UNEP's focal point in support of the process on a Science-policy Platform on Biodiversity and Ecosystem Services (IPBES); Organize, lead and conduct regional workshops and coordinate discussions in support of the IPBES process; Oversee the development of documentation for negotiations; 3. Coordination of UNEP Life Web Initiative: Provide overall coordination and leadership of the UNEP Life-Web Initiative; Oversee the policy, strategic and project elements; Organize inter-divisional work

and ensure its relevance and delivery; Monitor project development in the terrestrial and marine protected areas; Monitor and report on project outputs and outcomes.

- Advanced university degree (Master's degree or equivalent) in natural resources or environmental sciences. A first level university degree in combination with qualifying experience may be accepted in lieu of the advanced university degree.
- A minimum of ten years of progressively responsible experience in natural resource management and/or related environmental field, five years of which should be at the international level and three years in a supervisory capacity

Deadline: 3 May 2010.

Programme Officer (Special Assistant to the Chief Scientist), Nairobi, Kenya
Within delegated authority, the Programme Officer (Special Assistant to the Chief Scientist) will be responsible for the following duties: 1. Identify emerging scientific issues and their inclusion in the UNEP programme and initiate new science-based activities; 2. Introduce scientific methods at UNEP such as scenario analysis; 3. Organize activities leading to improvement of quality of science at UNEP and initiate new strategic alliances of UNEP with scientific organizations. 4. The incumbent will support these tasks in various ways, including: monitor the scientific literature, prepare briefing papers, organize scientific meetings, represent the Chief Scientist at various meetings, and develop procedures for science-related activities at UNEP such as peer-review processes and scenario analysis. 5. Participate in the development, implementation and evaluation of assigned programmes/projects; monitor and analyze programme/project development and implementation; review relevant documents and reports; identify problems and issues to be addressed and propose corrective actions; liaise with relevant parties; identify and track follow-up actions. 6. Perform consulting assignments, research, analyze and present information gathered from diverse sources. 7. Assist in policy development, including the review and analysis of issues and trends, prepare evaluations or other research activities and studies. 8. Undertake survey initiatives; design data collection tools; review, analyze and interpret responses, identify problems/issues and prepare conclusions.

- Advanced university degree (Master's degree or equivalent) in environmental science, environmental planning, environmental engineering, or related subject. A first-level university degree in combination with qualifying experience may be accepted in lieu of the advanced university degree.
- A minimum of five years of progressively responsible experience in environmental project or programme management or related area.

Deadline: 18 May 2010.

Principal Marine Investigator, Tanzania
Required is an experienced researcher with a proven ability to direct field research and write up results for the Tanzania marine research programme. The successful candidate will have a good postgraduate qualification in a relevant discipline, an interest in achieving publication, and a significant amount of biodiversity or conservation research experience, ideally in a tropical setting. The role will include developing and implementing the research programme, involving the daily supervision of volunteer Research Assistants, data collection and analysis, and report-writing. In addition to the immediate position available in Tanzania, there are positions available throughout the year on other projects: Cambodia Forest Research Project, Costa Rica Forest Research Project, Fiji Marine Research Project, Madagascar Marine Research Project, Madagascar Forest Research Project, and Tanzania Savannah Research Project. If you are interested send your CV, a cover letter and a copy of the Research Officer Application Form (downloadable from www.frontier.ac.uk) to staff@frontier.ac.uk. No deadline given.

Research assistant, elephant research and conservation, Tanzania
3 volunteer research assistants are needed beginning July 2010 to participate on a PhD research project on human-elephant conflict near Ruaha National Park, Tanzania. Responsibilities will vary according to the skills and interests of each applicant but will likely involve accompanying local villagers into the National Park and using various techniques, including surveys, to help measure the effects of these visits on local peoples' perceptions of wildlife, and of elephants in particular. Opportunities may also exist to participate in other facets of the project, including DNA analysis of elephant dung and/or GIS modeling. Additionally, opportunities to conduct independent research may be available; Ruaha National Park contains a vast array of flora and fauna, including the continent's third largest population of wild dogs (Lycaon pictus).

A particular type of personality is best suited for this type of work, therefore you must have the following qualities: flexible, resourceful, personable, intellectually curious, patient, able to work and problem solve independently but also work as part of a team, conscientious… and a sense of humor doesn't hurt either!. Send a resume and cover letter detailing how you meet the qualifications listed above, the reason you are interested in this position, and the time commitment you can make to: Sarah Maisonneuve, smais@nrel.colostate.edu. No deadline given.

Volunteer Kagwene Assistant Manager, South West Province of Cameroon
The project is located in the South West Province of Cameroon. Individuals will be required to undertake both office (~60% of time) and field (~40% of time) work to assist the WCS Project in all facets of daily conservation activities. Field work mainly concentrates on indirect study of the endangered Cross River gorillas and includes periods of up to one month at an isolated field site. Fieldwork consists of managing operations of the research camp and responsibility for collecting and entering data into databases following established protocols. Mentoring local staff is an important obligation of the position. Other responsibilities include administrative support to the office, and other projects in support of the Director and Research Coordinator.

- A minimum of an undergraduate degree in a biological related discipline or a minimum of 6 months previous field experience (preferably in Africa) of ecology and conservation of large mammals. Given field site locations and topography, physical fitness is a high priority and the ability to work with minimum support in isolated areas in different weather conditions. Good spoken and written English. French would be an additional advantage.
- Enthusiasm about working with wildlife and a Cameroonian national research team. Mature self-starter able to work within established program protocol. Practical experience with ArcGIS would be a bonus.

Send your application by e-mail to ikromanus@hotmail.com. Start date: 1 July 2010. Application deadline: 30 April 2010.

Volunteer GIS Specialist, Ethiopia
Movement for Ecological Learning and Community Action (MELCA) in Ethiopia currently is looking a volunteer GIS specialist to work for a period of 3 to 6 months to work on the data that we have. MELCA needs to process their data and print maps and hand it to local communities and government. They also are planning to use the maps to develop Participatory Management Plans for the areas in which they are working. MELCA will provide a working place and social support. Since they a small and local NGO, they cannot provide airfare, internal transport, accommodation, or food. However, they will do whatever is in their capacity to make the volunteer's stay in Ethiopia as comfortable and enjoyable as possible. See MELCA website melca-ethiopia.org for more information about the organization. Contact: Million Belay, Director, millionbelay@yahoo.com. Source: PPGIS List]

WCS Marine Technical Director, Antananarivo, Madagascar
Lead WCS's marine conservation efforts in Madagascar. The program goal is to promote marine conservation in Madagascar by developing and leading science-based, community-driven field conservation and capacity building programs in priority seascapes, which focus on priority species, sustainable fisheries management and adaptive management in the face of climate change. These site-based initiatives will serve as models for affective marine conservation to inform national marine conservation strategic development. No deadline given.

Research positions: satellite remote sensing of evapotranspiration and soil moisture conditions, Copenhagen, Denmark
The Department of Geography and Geology, University of Copenhagen, is seeking two highly qualified scientists 1) a Post Doc researcher (2 years) and 2) a PhD-fellow (3 years) both starting June 1, 2010 or as soon as possible thereafter. These positions are part of a collaborative project, Earth Observation of long term changes in land surface moisture conditions (CaLM), with IRI, Columbia University focusing on land surface moisture and evapotranspiration mapping of continental Africa. Contact: Associate Professor Inge Sandholt, is@geo.ku.dk. Deadline: 15 April 2010.

Director, International Foundation for Science, Stockholm, Sweden and Kampala, Uganda

The current Director will retire in 2010 and IFS is searching for a new Director. The successful candidate will be expected to:

- Implement the recommendations of the external evaluation as decided by the Board of Trustees
- Steer the visioning process leading to the new Medium Term Programme, in close dialogue with IFS stakeholders including partners and donors
- Mobilise resources worldwide to implement the programme

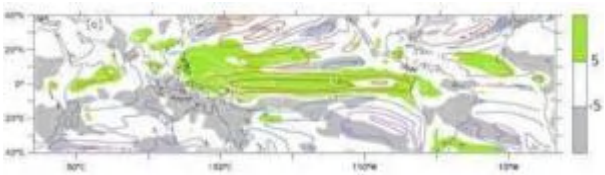
IFS is seeking candidates who:

- Have an advanced university degree in an academic field relevant to the IFS thematic mandate
- Are connected with the international scientific and development community, in particular with institutions in developing countries
- Have several years experience from senior positions in research and development
- Have leadership skills to lead IFS towards the future
- Have experience in fund-raising
- Possess full command of written and spoken English. Knowledge of French is an advantage

The position requires frequent international travel. The appointment will be for three years with possibility for renewal. Applications are invited from citizens of any country. Women are especially encouraged to apply. Please send your application by email with attachments to NewDirector@ifs.se. Deadline: 12 April 2010.

Other

Global warming likely to significantly affect rainfall patterns



Climate models project that the global average temperature will rise about 1°C by the middle of the century, if we continue with business as usual and emit greenhouse gases as we have been. Analyzing global model warming projections in models used by the Intergovernmental Panel on Climate Change, a team of scientists headed by meteorologist Shang-Ping Xie at the University of Hawaii at Mānoa's International Pacific Research Center, finds that ocean temperature patterns in the tropics and subtropics will change in ways that will lead to significant changes in rainfall patterns. The study will be published in the *Journal of Climate*, breaking ground on such regional climate forecasts.

Two patterns stand out. First, the maximum temperature rise in the Pacific is along a broad band at the equator. Already today the equatorial Pacific sets the rhythm of a global climate oscillation as shown by the world-wide impact of El Niño. This broad band of peak temperature on the equator changes the atmospheric heating in the models. By anchoring a rainband similar to that during an El Nino, it influences climate around the world through atmospheric teleconnections.

A second ocean warming pattern with major impact on rainfall noted by Xie and his colleagues occurs in the Indian Ocean and would affect the lives of billions of people. Overlayed on Indian Ocean warming for part of the year is what scientists call the Indian Ocean Dipole that occasionally occurs today once every decade or so. Thus, the models show that warming in the western Indian Ocean is amplified, reaching 1.5°C, while the eastern Indian Ocean it is dampened to around 0.5°C.

Tsunami prediction technology proves its worth

When a magnitude 9.1 temblor struck Sumatra, Indonesia, in 2004 and created a 100-foot tsunami that killed more than 200,000 people, researchers were largely in the dark and there was little warning that the wall of water was racing for the vulnerable shores. When the magnitude 8.8 quake struck Chile on this Feb. 27, on the other hand, Titov's team was providing detailed and accurate reports in hours about what potentially affected communities should expect.

Today, the entire tsunami-detection network - including devices provided by other countries – includes 50 buoys around the world is in mostly good working order. During the Indian Ocean tsunami, Titov said, "it was mostly frustration." His group had to manually plug in data primarily derived from tide gauges, which are "confusing and so difficult to interpret," he said. The team was unable to deliver a report until eight hours after the disaster had already happened. Tide gauges can be affected by underwater geography near the shore and don't give an accurate picture of the strength and direction of tsunamis. DART buoys, on the other

hand, are placed in deep water. A sensor is dropped from the buoy to the ocean floor and by measuring water pressure it can detect movement of a tsunami wave only a centimeter in height.
As it happened, when the earthquake struck Chile, the closest buoy - one managed by Chile was out of commission. So Titov's team had to wait for the wave to reach the first buoy in the U.S. array, which took approximately three hours. Once it did, the team was able to make forecasts almost instantly. "The forecast played out pretty well, in fact for all locations, including Hawaii," he said. Related: 2004 tsunami spurred development of NOAA warning system.

Wetland ecosystem services

A new set of fact sheets on Wetland Ecosystem Services now is available online. Many years ago, the Ramsar Secretariat produced fact sheets on the Functions and Values of wetlands. These proved to be very popular so the Secretariat has now re-produced them with updated information and using the currently recognised term 'ecosystem services' – the benefits people obtain from wetland ecosystems.

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

Conferences, Events

Date	Location	Event
April 2010		
5-9 April 2010	Hammamet, Tunisia	**19th Session of the Near East Forestry Commission** Contact: Moujahed Achouri, moujahed.achouri@fao.org.
9-16 April 2010	Sydney, Australia	**International Federation of Surveyors (FIG) 2010**
6-24 April 2010 *NEW*	Miramare, Trieste, Italy	**Second Workshop on Satellite Navigation Science and Technology for Africa** The deadline for application was 1st December 2009 but you may check on smr2135@ictp.it and http://www.ictp.it/ by the end of the year for the third workshop.
11-15 April 2010	Cape Town, South Africa	**INORMS 2010 - Organisation for Research Management Societies**
11-16 April 2010	Sydney, Australia	**XXIV FIG International Congress 2010**
12-16 April 2010	Nairobi, Kenya	**African Ministerial Conference on Weather, Climate and Water Information**
11-17 April 2010 *NEW*	Grand Bassam, Ivory Coast	**5th Conference of African Association of Women Geoscientists**
11-17 April 2010 *NEW*	Grand Bassam, Ivory Coast	**5th Conference of African Association of Women Geoscientists**
14-16 April 2010	Addis Ababa, Ethiopia	**UN-SPIDER Regional Workshop "Building Upon Regional Space-based Solutions for Disaster Management and Emergency Response for Africa"**
14-16 April 2010	Zahedan, Iran	**4th International Congress of Islamic World Geographers (ICIWG2010)** Contact: M_A_Daraei@yahoo.com. Abstract deadline: 22 October 2009.
14-16 April 2010	London, UK	**GISRUK Conference 2010** Theme: Global Challenges
25-29 April 2010	Phoenix, AZ, USA	**2010 Geospatial Infrastructure Solutions Conference (GISC2010)** Contact: info@gita.org
25 April 2010 - 1 May 2010 *NEW*	Antananarivo, Madagascar	**19th AETFAT Congress** Theme: Diversity of African plants, systematics and sustainable development
26-29 April 2010 *NEW*	Montpellier, France	**International Association of Agricultural Information Specialists (IAALD) XIIIth World Congress** Theme: Scientific and Technical Information and Rural Development: Highlights of Innovative Practices. Abstract deadline: 1 December 2009.
May 2010		

2-8 May 2010 *NEW*	Cape Town, South Africa	**32nd ACM/IEEE International Conference on Software Engineering** Paper deadline: September 6, 2009.
2-8 May 2010 *NEW*	Cape Town, South Africa	**3rd Workshop on Software Development Governance (SDG 2010)** In conjunction with ACM/IEEE 32nd International Conference on Software Engineering Paper deadline: 25 January 2010.
3 May 2010 *NEW*	Cape Town, South Africa	**SESENA - Workshop on Software Engineering for Sensor Network Applications** In conjunction with ACM/IEEE 32nd International Conference on Software Engineering
3-7 May 2010	Paris, France	**5th Global Conference on Oceans, Coasts, and Islands** Contact: Miriam C. Balgos, mbalgos@udel.edu.
4 May 2010 *NEW*	Nairobi, Kenya	**Challenge Program for Climate Change, Agriculture and Food Security (CCAFS) Launch Conference** Securing food security in the face of climate change
10-13 May 2010 *NEW*	Johannesburg, South Africa	**Strengthening Africa's Road Network Links - Africa Roads 2010**
10-13 May 2010 *NEW*	Edinburgh, UK	**Earth System Science: Climate, Global Change and People Open Science Conference**
10-21 May 2010	Nairobi, Kenya	**4th Meeting of the CBD Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA 14)**
11-14 May 2010	Guimarães, Portugal	**13th AGILE Conference on Geographic Information Science**
17-21 May 2010 *NEW*	Accra, Ghana	**4th African International Conference on Open Source and the Digital Commons**
19-21 May 2010	Nairobi, Kenya	**Ecological Society for Eastern Africa (ESEA) Climate Change Conference** Abstract deadline: March 15, 2010.
23 May 2010 *NEW*	Cape Town, South Africa	**IEEE 1st International Workshop on Social Networks**
24-26 May 2010	Rome, Italy	**4th Global Workshop on Digital Soil Mapping** Theme: From Digital Soil Mapping to Digital Soil Assessment: identifying key gaps from fields to continents.
24-26 May 2010 *NEW*	Libreville, Gabon	**2nd International Conference of Eau-Afrique (Africa-Water): Water and Sustainable development in Africa - Water and Rural Modernization: Case of Bateva in Gabon**
26-28 May 2010	Lusaka, Zambia	**5th International Conference on ICT for Development, Education and Training (eLearning Africa 2010)** Deadline: December 14, 2009.
June 2010		
2 June 2010	Enschede, The Netherlands	**International Society for Photogrammetry and Remote Sensing Symposium on Education & Outreach 2010**
8-12 June 2010 *NEW*	Nairobi, Kenya	**Africa Agriculture GIS Week (AAGW) 2010** Call for presentation is closing on April 12, 2010.
12 June 2010 *NEW*	Nairobi, Kenya	**WhereCamp Africa 2010**
12-14 June 2010	Nessebar, Bulgaria	**ISDE 2010 Digital Earth Summit** Theme: Digital Earth in the Service of Society: Sharing Information, Building Knowledge. Contact: Temenoujka Bandrova, cartography@abv.bg.
21-22 June 2010	Nottingham, UK	**2nd Open Source GIS UK Conference - OSGIS 2010**
21-24 June 2010	Yogyakarta, Indonesia	**9th GISDECO Conference** Theme: Applying Remote Sensing and GIS in Disaster Management. Contact: sliuzas@itc.nl.
27-30 June 2010	Vancouver, Canada	**GeoWeb 2010**
28 June-2 July 2010	Bergen, Norway	**Living Planet Symposium** Abstract deadline: 1 December 2009.

28 June - 2 July 2010	Edinburgh, Scotland	**18th Commonwealth Forestry Conference** Theme: Restoring the Commonwealth's Forests: Tackling Climate Change. Contact: cfcc@in-conference.org.uk.
July 2010		
5-7 July 2010	Vienna, Austria	**ISPRS TC VII Symposium, "100 Years ISPRS - Advancing Remote Sensing Science"**
6-9 July 2010	Salzburg, Austria	**Applied Geoinformatics Forum Symposium and Exhibition Salzburg (GI Forum 2009)- Advancing the GI Dialogue** Deadline for papers and extended abstracts: February 1, 2010.
10-13 July 2010	San Diego, CA, USA	**ESRI Survey & Engineering GIS Summit**
12-16 July 2010	San Diego, CA, USA	**2010 ESRI International User Conference**
20-23 July 2010	Leicester, U.K.	**Accuracy 2010**
25-30 July 2010	Honolulu, HI, USA	**IEEE International Geoscience & Remote Sensing Symposium "IGARSS 2010"** Contact: publicity@igarss2010.org.
August 2010		
30 August 30 - 3 September 2010	Bilbao, Spain	**International Conference on Electronic Government and the Information Systems Perspective (EGOVIS 2010)** In conjunction with 21st International Conference on Database and Expert, Systems Applications (DEXA 2010), Paper deadline: March 7, 2010.
September 2010		
6-8 September 2010	Gaborone, Botswana	**3rd IASTED African Conference on Water Resource Management (AfricaWRM 2010)** Theme: Science and Technology Applications for Health and Sustainable Development, Paper deadline: March 15, 2010.
13-15 September 2010	Ghent, Belgium	**8th International Conference on Geostatistics for Environmental Applications (GeoENV 2010)**
14-17 September 2010	Zurich, Switzerland	**GIScience 2010** Full paper deadline: January 29, 2010.
15-17 September 2010	Skopje, Republic of Macedonia	**International Conference on Spatial Data Infrastructures 2010**
22 September – 2 October 2010	Rotterdam, The Netherlands	**International Conference on ˜Deltas in Times of Climate Change** Abstract deadline: 15 March 2010. Contact: o.van.steenis@programmabureauklimaat.nl.
27-29 September 2010	Johannesburg, South Africa	**Africa FOSSGIS 2010**
27 September – 1 October 2010	Ouagadougou, Burkina Faso	**9th EUMETSAT User Forum in Africa**
October 2010		
12-14 October 2010	Cape Town, South Africa	**International Conference on Information and Communiction Technology for Development (ICT4D 2010)** Paper deadline: 5 March 2010.
19-22 October 2010	Singapore	**GSDI-12 World Conference**, Theme: Realizing Spatially Enabled Societies. In conjunction with the 16th PCGIAP Annual Meeting.
24-27 October 2010	Cape Town, South Africa	**22nd International CODATA Conference** Theme: Scientific Information for Society: Scientific Data and Sustainable Development. Abstract deadline: 30 April 2010.
25-29 October 2010	Fez, Morocco	**6th World FRIEND Conference (Flow Regimes from International Experimental and Network Data)** Theme: Global Change: Facing Risks and Threats to Water Resources. Contact: friend2010@msem.univ-montp2.fr.

25-29 October 2010 *NEW*	Addis Ababa, Ethiopia	**8th International Conference of the African Association of Remote Sensing of the Environment (AARSE2010)** Abstract deadline: 30 April 2010. Contact: dozie@ezigbalike.com, info@aarse-africa.org.
November 2010		
1-7 November 2010	Hamburg University	**3rd worldwide online climate conference CLIMATE 2010/KLIMA 2010** Abstract deadline: 31 March 2010 Contact: info@klima2010.net.
8-11 November 2010	Sede Boqer Campus, Israel	**3rd International Conference on Drylands, Deserts and Desertification** Contact: Dorit Korine, desertification@bgu.ac.il.
23-25 November 2010 *NEW*	Cape Town, South Africa	**Map Africa 2010**
29 November - 3 December 2010	Tunis, Tunisia	**5th Session of the International Conference Geotunis 2010** Theme: The use of GIS and remote sensing for sustainable development. Contact: atigeo_num@yahoo.fr.
December 2010		
2011		
1 January - 31 December 2011	Worldwide	**International Year of Forests 2011**
18-21 January 2011	Hyderabad, India	**Map World Forum 2011**
21-25 February 2011	Nairobi, Kenya	**26th Session of the UNEP Governing Council/Global Ministerial Environment Forum**
10-15 April 2011	Sydney, Australia	**34th International Symposium on Remote Sensing of Environment (ISRSE2011)** Contact: Ian Dowman, idowman@cege.ucl.ac.uk.
9-13 May 2011 *NEW*	Sun City, South Africa	**5th International Wildland Fire Conference (WildFire 2011)** Contact: info@wildfire2011.org.
18-22 May 2011	Marrakech, Morocco	**FIG Working Week & XXXIV General Assembly** Contact: FIG Office, fig@fig.net.
28 November - 9 December 2011	South Africa	**17th Conference of the Parties to the UNFCCC and 7th Meeting of the Parties to the Kyoto Protocol** Contact: UNFCCC Secretariat, secretariat@unfccc.int.
8-12 July 2012	San Diego, California USA	**ESRI User Conference**
8-12 July 2013	San Diego, CA, USA	**ESRI International User Conference**

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