
ALUMNI MAGAZINE
FACULTY OF GEO-INFORMATION SCIENCE
AND EARTH OBSERVATION
UNIVERSITY OF TWENTE

ITC NEWS

VISIT TO EAST AFRICA



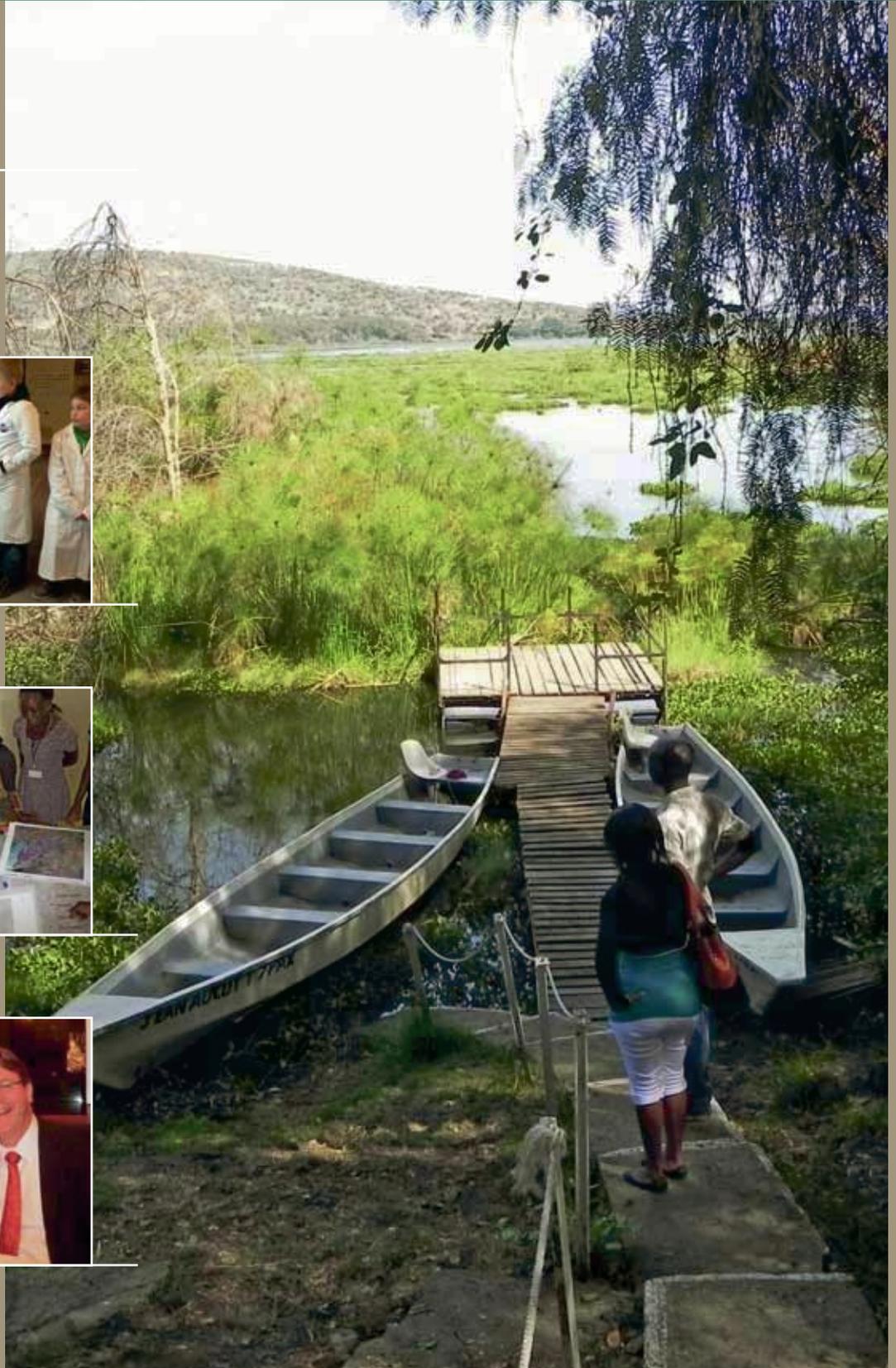
ZABUKI CHILDREN'S SCIENCE CAFÉ



PLANNING FOR CYCLING



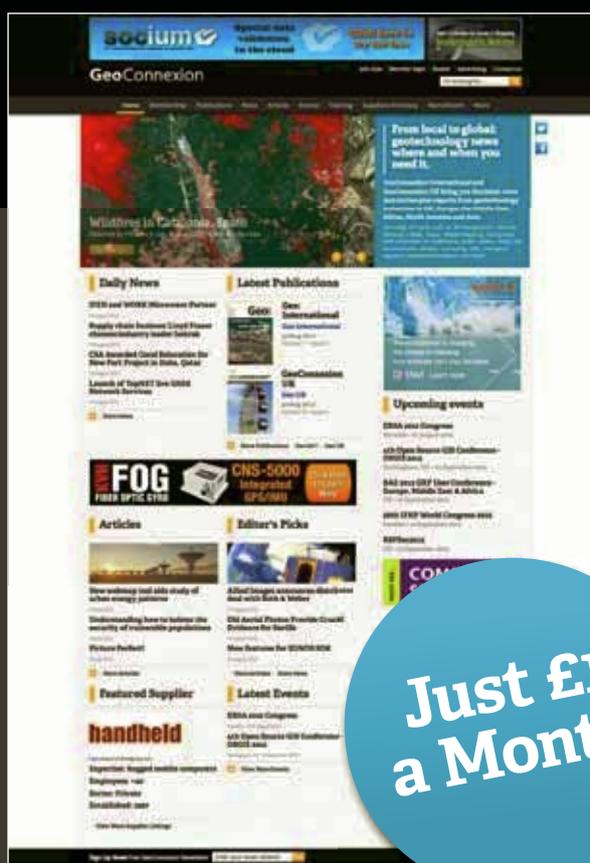
HOLLAND ALUMNI DINNER



New website, latest offers, start saving...

Subscribe and stay ahead of the game!

The content that you can trust



Print and Online Combined Pack

Never miss news as it happens

Join and enjoy access to:

- ✓ Your own printed copy of GeoConnexion International and GeoConnexion UK magazines – 10 issues a year
- ✓ Privileged access to online news, comment and features sections
- ✓ Unlimited access to archive of news, articles, latest recruitments and training
- ✓ Benefit from exclusive events and special offers on industry reports
- ✓ Monthly e-Newsletter, packed with latest news and what's on in the regions

Online Pack

News at your finger tips

Join and enjoy access to:

- ✓ Privileged access to online news, comment and features sections
- ✓ Unlimited access to archive of news, articles, latest recruitments and training
- ✓ Benefit from exclusive events and special offers on industry reports
- ✓ Monthly e-Newsletter, packed with latest news and what's on in the regions

info@geoconnexion.com

geoconnexion.com



3



6



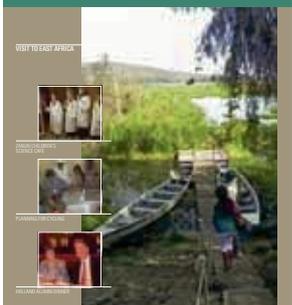
13



17



29



cover

Content

■ MAIN FEATURES

- 3 The Power of Rain
- 6 ITC Staff Teaching Geography to Youngsters at Zabuki
- 8 GOCE Solid Earth Workshop

■ EDUCATION NEWS

- 10 Monitoring Floods and Droughts in African River Basins: Refresher Course in Tanzania
- 12 Planning for Cycling in Sub-Saharan African Cities
- 13 Community-Based Hazard and Risk Assessment for Spatial Planning in Eastern Indonesia

■ ANNOUNCEMENTS

- 16 Refresher Courses 2013
- 17 Tienstra Research Award for Dr Chrit Lemmen
- 18 ISO Standard for Land Administration Approved
- 19 Award for Alumnus Yogendra Kumar Karna
- 20 NSFC Award for Rogier van der Velde

■ EVENTS

- 22 AARSE Holds Conference in El Jadida, Morocco

■ VISITS

- 24 Directorate Visit to East Africa

26 GREETINGS FROM...

■ LIFE AFTER ITC

- 28 Holland Alumni Dinner in São Paulo
- 29 Master of Science in Photogrammetric Engineering
- 30 Rabin Kaji Sharma from Nepal
- 31 Life After ITC

The research area of the project An Earth Observation and Integrated Assessment (EOIA) Approach to the Governance of Lake Naivasha Basin, Kenya.



INTRODUCTION

colofon

ITC NEWS is published quarterly by ITC,
Enschede, the Netherlands.

Managing Editor
Janneke Kalf

Editor
Jorien Terlouw

Editing
Janice Collins

Design&PrePress
Composer DTPservice
Henk Scharrenborg

Printing
Zalsman Zwolle B.V.

Correspondence to
Managing Editor
ITC News
PO Box 217
7500 AE Enschede
The Netherlands
Phone +31 (0)53 487 44 11
Fax +31 (0)53 487 45 54
E-mail itcnews@itc.nl

ISSN
1389 9368

The views expressed by the contributors
do not necessarily reflect those of ITC.

So with the fourth issue of ITC News we come to the end the year 2012. And it's been quite a year too, as these pages will reveal. Many activities have garnered awards, not only in the Netherlands but also in Nepal (page 19), China (page 20) and Morocco (page 22) – awards that pay tribute to a great deal of inspiration, enterprise and commitment. Dr Christiaan Lemmen was recently awarded the Tienstra Research Prize for his research towards a common standard for the land administration domain (page 17), and the Land Administration Domain Model now stands as an official ISO Standard (see also page 18). The positive effects of this development will be seen in the years to come, as the model will serve to accelerate the implementation of efficient land administration and make a significant contribution to sustainable development.

In this issue you can also read about the completion of several highly successful refresher courses – successful from the point of view of both participants and organizers (pages 10, 12 and 13). These reports on widely differing subjects may well arouse your interest, and even the temptation to enrol in such a course yourself. On page 16 you will find details of the refresher courses scheduled for 2013. Definitely worth thinking about!

Always enjoyable are the stories received from our alumni. What has happened to them – when, where and how – since their ITC student days? One thing is certain: from university teaching in Uganda (page 31) to internships with ESRI (pages 26 & 27) and a long and illustrious career in Nepal (page 30), hard work has certainly reaped its rewards.

After all this activity, it may be time to seek out our main features for quiet contemplation. At first glance a connection between the article on the power of rain (page 3) and the report on the GOCE Solid Earth Workshop (page 8) may not immediately spring to mind, but perhaps the key can be found in the contribution on page 6: science is simply fascinating... for all ages!

Virtually yours,

Janneke Kalf
Managing Editor

Jorien Terlouw
Editor

MAIN FEATURES

The Power of Rain

Juan Francisco Sanchez-Moreno

juan.f.sanchez@nokia.com

In this article I will try to describe in a non-scientific way what I did for my PhD research. The title of my thesis is *The Power of Rain*. I selected this title for two reasons: (i) rainfall is a powerful agent of erosivity (soil detachment), runoff (surface water) and erosion (soil losses); and (ii) in my thesis most of the equations to parameterize rainfall followed a power-law form. To make the thesis eye-catching, I decided to include a drawing related to each chapter and these are included in this article.

The first chapter of the research describes the study area, Cape Verde, on the west coast of Africa (Figure 1). Cape Verde is a semi-arid country located in the tropics and consists of a group of small islands. Rainfall is very scarce, with a single rainy season between August and September that has about 20 days with rainfall (300 mm to 600 mm of rain per year). Agriculture is the

main source of income. According to FAO, only 10 to 16% of the land is classified as suitable for agriculture, but more than 60% of the arable land is dedicated to crops (Figure 2). Pressure on land, poor agricultural practices and rainfall variability are causing erosion in Cape Verde and leading to desertification.

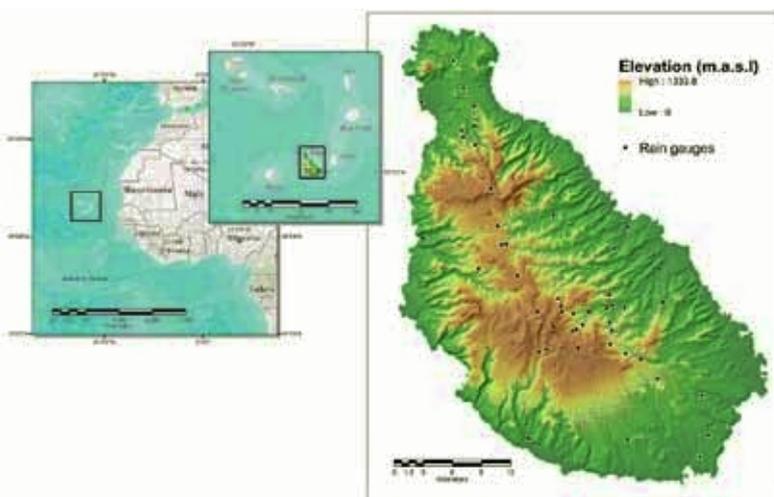


Figure 1



Figure 2

The main island of Cape Verde is Santiago, with a rugged relief and altitude higher than 1300 m.a.s.l. Strong topographic changes in a small area influence rainfall in Santiago. In the second chapter of the thesis I tried to parameterize rainfall as a function of several topographic variables, such as elevation, aspect and slope, together with the position of the rain gauge stations (Figure 3). The results showed that monthly and seasonal rainfall are influenced by elevation, whereas the other parameters affect daily rainfall, which was more difficult to characterize. Strong rainfall events are less influenced by topography and occurrences are few, whereas less strong events are more common and are more affected by elevation.

As the rain gauges in Cape Verde and especially on Santiago Island are not always operative and collect only daily rainfall, the rainfall estimates from the Tropical Rainfall Measuring Mission (TRMM) and the multi-precipitation estimate from MeteoSat Second Generation Multi-Sensor Precipitation Estimation (MSGMPE) were evaluated as candidates to compensate for lack of data, and as inputs for erosion modelling. The comparison with ground data showed that TRMM and MSGMPE underestimate the rainfall depths and are not reliable as inputs for erosion modelling of Cape Verde. A new estimate was obtained using the cloud temperature related to the rainfall measured on the ground with a high temporal resolution (3-minute intervals). The new estimate showed a better correlation with the rainfall measured on the ground by the rain gauges on the island, and can be used

as input for erosion models. Figure 4 shows a representation of Cape Verde with the clouds that could produce rainfall.

Erosivity, the ability of rainfall to detach soil particles, is an important parameter for erosion modelling. Erosivity is calculated using the rainfall kinetic energy, or the energy of the drops falling to the soil (Figure 5). Rainfall kinetic energy was estimated using a Parsivel disdrometer, which is an optical device that measures several parameters of rainfall distribution, such as raindrop sizes, velocity and kinetic energy. The disdrometer was installed on Santiago Island between 2008 and 2010. Rainfall kinetic energy was correlated with rainfall intensity, and power-law functions were obtained, valid for Cape Verde and for semi-arid areas with similar characteristics. These equations can be used to estimate erosivity without having to use equations developed for other areas, which may give unreliable results.

Erosivity (Figure 6) in the form of the R factor (used in a widely used statistical model called RUSLE) was calculated for Santiago Island, using the equations mentioned above and high temporal resolution rainfall (15-minute and 3-minute intervals), as well as readily available data such as monthly rainfall, in the form of the Modified Fournier Index (MFI), which is a simple index that relates monthly and seasonal rainfall. The erosivity R factor and the MFI were correlated in order to obtain the R factor from monthly rainfall and in this way compensate for lack of high temporal resolution rainfall in the estimation of erosivity.



Figure 3



Figure 4



Figure 5

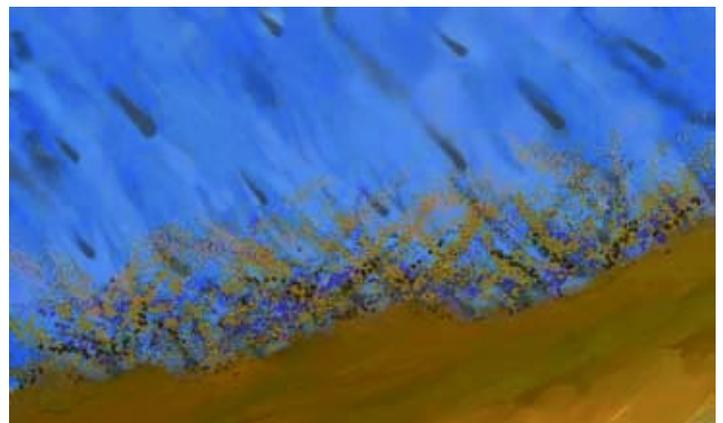


Figure 6

To determine areas prone to land degradation, a model was employed (Figure 7). Erosion was modelled using the physically based model OpenLisem, developed by A.P.J. de Roo and Victor Jetten. As a physical model, OpenLisem requires several inputs that were measured in the field. These inputs are related to land use and soil properties, and a decision has to be made about how to map these inputs to generate spatially distributed outputs or, in other words, to generate erosion and runoff maps for the whole area studied. The Ribeira Seca catchment was selected to run the model, as this is an area important for agriculture and is representative of the whole Santiago Island. Four types of input map were tested: with big units, with small units, and generated by geostatistics such as ordinary kriging (OK) and kriging with external drift (KED). The results showed that all the types of input could be calibrated to reach the measured runoff, but that the input maps generated by geostatistics were easy to calibrate and had realistic calibration values. Moreover, the spatial distribution of the outputs was different for all the types of input – being similar for OK and KED. The erosion and runoff outputs were apparently better simulated for OK and KED, as with big and small units there were problems of runoff connectivity that did not appear in the field (Figure 8).

The overall purpose of this research is to improve the data characterization of Cape Verde with the objective of erosion and runoff modelling, giving special attention to rainfall and rainfall-related parameters (Figure 9) ■

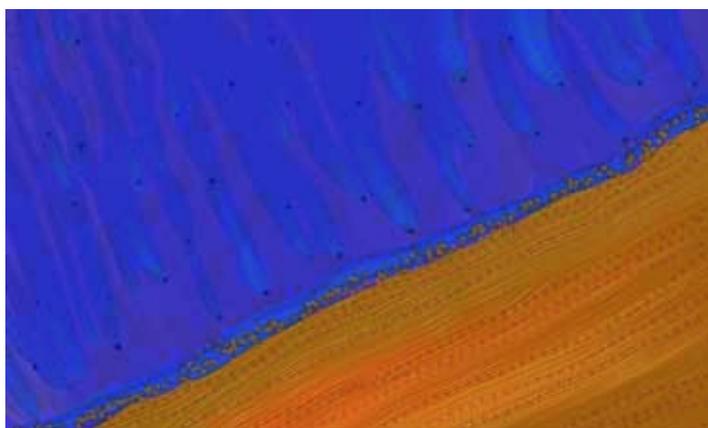


Figure 7



Figure 9

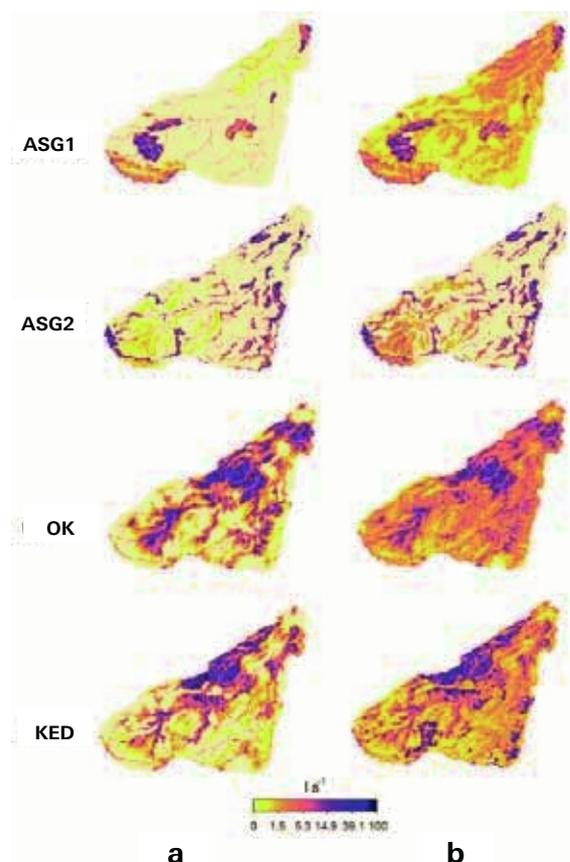


Figure 8

This research was supported by the European 6th Framework Research Programme (sub-priority 1.1.6.3) Research on Desertification – project DESIRE: Desertification Mitigation and Remediation of Land – A Global Approach for Local Solutions.

ITC Staff Teaching Geography to Youngsters at Zabuki

Thomas Groen

t.a.groen@utwente.nl

As an initiative by the Twente Academy to stimulate enthusiasm for science among young children, the Zabuki children's science café can be called a hands-on approach that is reaping success. Once a month children between eight and twelve years old can enjoy an afternoon filled with presentations and experiments in an industrial-looking factory hall. In December staff from ITC organized an afternoon on satellites and geography. The afternoon was well attended and children were filled with excitement to learn everything about GPS navigation, distance measurements with a game console, and more. The afternoon started with a presentation on what geography exactly is. A highlight was when the thermal camera was demonstrated, showing how it could detect a "thief" hiding behind a wall. All the kids wanted to see their own thermal image projected on the screen.

But the real fun began after the presentation, when the kids could start experimenting. In groups of 12, they were distributed over the diverse experiments that had been prepared by ITC staff. Some went on a treasure hunt outside the factory hall using a GPS – or actually they went outside without any information but with a smartphone in their pocket that transmitted their position and a walkie-talkie. They were guided by group members that stayed inside, and could follow their track on the screen through the Glympse application, which displays in real time the position of smartphones that have this app installed.

In another experiment the children could learn everything about the properties of light, how to mix different colours of light, and what you can see with a spectrometer that you can't see with your own eyes. They could experience several optical illusions from www.colorcube.com and create their own paper colour cube, something tangible to take back home.

Coming down to earth, there was also an experiment on erosion, where children could generate their own erosion on experimental slopes with watering cans. A remote-controlled helicopter with a camera recorded the induced erosion and how the miniature houses and cows were submerged in the created flash floods.

Despite the fun in the other experiments, there was one experiment that really caused turmoil among the children. It was an experiment with a Kinect, normally used to control a game console. But in this game the device was used to make a three-dimensional image of each kid and "detect" their ape index. The ape index is the arm span of a person divided by his or her height. A value of more than one makes you an ape. None of the kids turned out to go ape, but the ITC staff did!!!

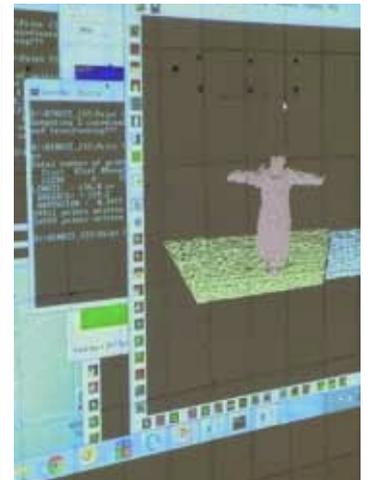
Overall the afternoon was highly appreciated, which was reflected in the school grades that the children noted down on the evaluation form. Some went as far as awarding a 3000 on a scale

of 1-10! It remains to be seen, though, whether this monkey business was really about entertaining the children, or whether the ITC staff themselves were the ones being entertained ■





The afternoon started with a presentation on what geography exactly is



GOCE Solid Earth Workshop

Mark van der Meijde

m.vandermeijde@utwente.nl

On 16 to 17 October 2012 ITC organized the first international GOCE Solid Earth Workshop. This two-day workshop provided training on the usage of GOCE data, as well as presenting the latest scientific results...

The Gravity field and steady-state Ocean Circulation Explorer (GOCE) satellite is one of the most scientifically advanced satellites in space. It is equipped with a three-component gradiometer. GOCE was launched on 17 March 2009. At an altitude of approximately 254 km, it is one of the lowest flying satellites. It was supposed to operate for a two-year period, but thanks to favourable conditions in space GOCE has been gathering gravity gradient data for almost four years now. During this period it has mapped the Earth's gravity field with unprecedented accuracy and spatial resolution. It is expected that GOCE will discontinue measuring sometime in 2013.

By measuring Earth's gravity in detail, the GOCE mission is relevant to many areas of earth science, including solid earth processes. Since the gravity measurements taken by GOCE reflect density variations in the Earth's interior, the resulting data will

lead to new insights into processes occurring in the lithosphere and upper mantle – down to a depth of about 200 km. This detailed mapping of subsurface density distributions, along with seismic data, is expected to shed new light on the geodynamical processes causing earthquakes and volcanic activity and can potentially lead to an improvement in the prediction of such events. But it is also of interest for understanding large-scale mineral-forming geological processes. GOCE will also further increase our knowledge of land uplift due to post-glacial rebound. This process describes how the Earth's crust is rising a few centimetres in Scandinavia and Canada because it has been relieved of the weight of thick ice sheets since the last Ice Age, when the heavy load caused the crust to depress. As a result, there is global redistribution of water in the oceans. Hence, a better understanding of these processes help in assessing the potential dangers of current sea-level change.



Artist's impression of the GOCE satellite. GOCE is the first Core Earth Explorer satellite as part of ESA's Living Planet Programme (source: ESA)

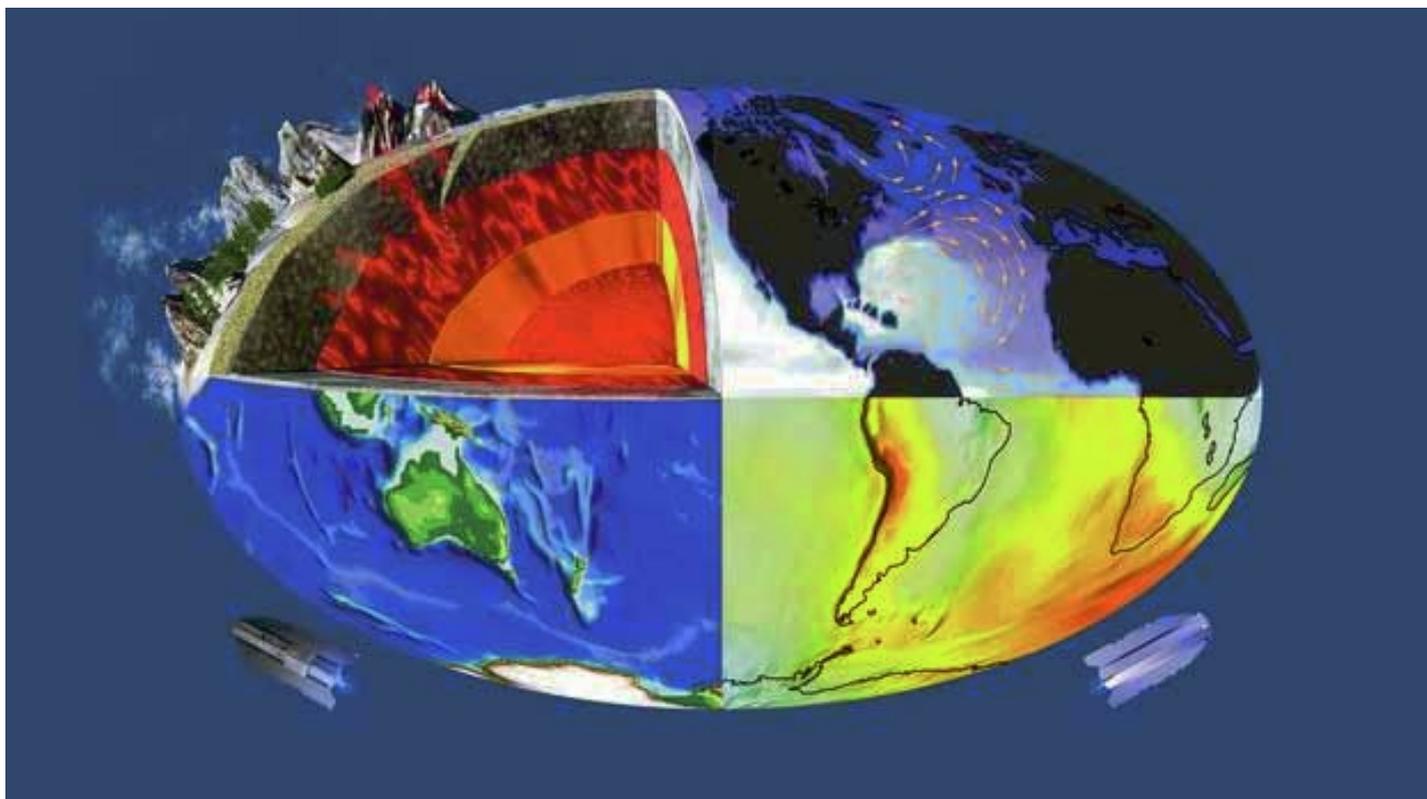
All the information regarding the programme, presentations and wrap-up summary is available online and can be found at the workshop homepage (www.itc.nl/gocesolidearth/) or the ESA GOCE website (<http://earth.esa.int/GOCE/>, see the link under "Key Resources" for all presentations).

High-quality gravity gradient data and models are now available to users, which open a new world of research. They provide a better understanding of the physics of the Earth's interior, enabling new insights to be gained into geodynamics associated with the lithosphere, mantle composition and rheology, uplift and subduction processes.

The goal of this two-day workshop was to provide information to the solid earth science community about the possibilities of this satellite for their work. The main scientific communities involved in GOCE have been geodesists and oceanographers – with little involvement of the solid earth community. For this reason the workshop was divided into two components. The first component, on day 1, covered the satellite itself and the data and models it is producing. The main focus was to provide new users with tips and tricks on which models and software to use, to

discuss the quality and reliability of gravity data and models, and to explain how to integrate GOCE data with their own (local gravity) data. Day 2 was dedicated to the science case studies. Oral and poster sessions covered different fields of solid earth studies, such as crustal modelling, the lithosphere, isostasy and time-variant gravity signals, and regional and local studies.

Over 80 participants came together for this workshop, which was financially supported by the European Space Agency (ESA) and ITC. There were lively discussions on the latest scientific results, the different models provided, the use of certain types of data, and the software that can be used for data processing, analysis and modelling. As the workshop came to an end, it was concluded that this had been an extremely useful event and one which should be repeated in the coming years ■



Mapping the gravity field to advance research in Earth-interior processes, oceanography and geodesy (source: ESA)

EDUCATION NEWS

Monitoring Floods and Droughts in African River Basins: Refresher Course in Tanzania

Zoltán Vekerdy

z.vekerdy@utwente.nl

Rogier van der Velde

r.vandervelde@utwente.nl

The University of Dar es Salaam (UDSM) hosted a refresher course in the second half of September 2012. In this joint effort, the organizers – UDSM, ITC and the Stockholm Environment Institute (SEI) – welcomed some 30 alumni of Dutch graduate courses from eight African countries, who had assembled to refresh their knowledge of using earth observation techniques to monitor floods and droughts.

As many of our readers know, Nuffic, the Dutch sponsoring agency, provides these refresher courses for the purpose of keeping alumni of Dutch postgraduate courses up to date with developments in their original fields of study. So who were the participants? Because background knowledge of earth observation was needed, most of them had studied earlier at ITC, but there were also alumni from UNESCO-IHE. Twenty of the participants were sponsored by Nuffic, but an additional ten were delegated by Tanzanian institutions and could participate free of charge.

In the opening session, which was chaired by Professor Felix Mtalo (UDSM), Professor Maboko (UDSM deputy vice-chancellor), Mr Arjen Kool (First Secretary of the Netherlands Embassy), Dr Victor Kongo (SEI) and Professor Tesha (UDSM director of research) had some words of welcome for the participants. In the opening keynote lecture Dr Zoltán Vekerdy (ITC) traced the history of earth observation in the mirror of the development of image analysis techniques.

The afternoon was devoted to African programmes that use earth observation techniques, and featured presentations on the Nile Basin Initiative (Professor Mtalo); the TIGER Initiative (Dr Vekerdy); GEO, GEOSS and GMS (Dr Rogier van der Velde,

ITC); and WaterNet (Dr Nobert, UDSM). The picture outlined demonstrated that earth observation is used in different aspects of water management and illustrated how capacity building for African organizations supports these applications.



Some 30 alumni of Dutch graduate courses from eight African countries gathered to refresh their knowledge of using earth observation techniques to monitor floods and droughts

The following two weeks brought lectures and several practical exercises conducted by Dr Van der Velde, Dr Kongo and Dr Vekerdy. As this was a refresher course, some re-polishing of the remote sensing skills first helped the participants to recall what they had studied in the Netherlands. This was followed by three days that focused on the monitoring of evapotranspiration, using surface energy balance techniques.

During a two-day study tour at the weekend, participants gained field experience concerning the irrigation fields in the surface energy balance exercises and regions prone to flooding. But the participants did not only study during these two days. The trip also offered ample opportunity for social contacts and for recalling memories of the good old days of studying in the Netherlands. We are convinced that, besides the scientific and technical results of refresher courses, network building is also a very important component of such events.

In the second week we focused on the use of radar technology for flood mapping and soil moisture monitoring. All the up-to-date techniques discussed are based on open-source software and easy-to-access data, enabling the participants to implement what they have learned directly in daily practice. We know that this is not that simple: a course like this may work as an eye-opener, and in many cases more effort and support are needed for the routine application of the techniques learned. Thus the organizers offer follow-up support to the participants via email correspondence.

The facilities provided by UDSM were very good. With the picturesque background of the campus, the ideally equipped computer cluster at the College of Engineering and Technology served the course very well.

Was the course successful? We as organizers feel that it was... definitely! We received very encouraging feedback from the participants in personal discussions, and also in several emails that arrived even weeks after saying goodbye on the last evening. At the request of one of the participants, Dr Kofie Nyarko, the next such course is to be held in Ghana. Positive results were not limited to the participants;

the organizers also benefited from this event, and several ideas have been raised for further cooperation in capacity building.

But all this might be biased, so we would love to know what feedback reached Nuffic through the questionnaires filled in by the participants. We are convinced that this will not be so very different from the feedback we personally experienced ■



An enthusiastic discussion between Professor Mtalo and Dr Van der Velde during the opening symposium



The course participants concentrating on the lecturer



Ms Edista receiving the Certificate of Attendance at the closing ceremony

Planning for Cycling in Sub-Saharan African Cities

Mark Zuidgeest

m.h.p.zuidgeest@utwente.nl

Mark Brussel

m.j.g.brussel@utwente.nl

Martin van Maarseveen

m.f.a.m.vanmaarseveen@utwente.nl

Inclusion of cycling in transport and urban development planning is essential to the creation of sustainable and liveable communities. In the Kenyan city of Kisumu – known for its many bicycle taxis – PGM staff organized a Nuffic-sponsored refresher course on planning for cycling in African cities, in close collaboration with Maseno University (MSU), the Kenyan/Dutch NGO CooP (Cycling out of Poverty) Afrika and the Netherlands Alumni Association of Kenya (NAAK). The course was held from 24 September to 5 October.

The refresher course explored the core concepts of cycling-inclusive urban planning and discussed strategies related to creating effective and comprehensive bicycle master plans and the use of geo-information therein. In a series of interactive lectures and exercises the course participants discussed the legitimacy of the bicycle in urban transport; learned to understand how policies, planning and the built environment can be improved to create a more balanced transport system; became familiar with best practices, methods, techniques, and design principles that can be used to create cycling-inclusive transport systems; and discussed the relation between gender, cycling and economic development, as well as the importance of creating access to bicycles for sustainable development.



Participants at work developing a bicycle master plan for Kisumu



Group picture of the opening ceremony on 24 September

The course was attended by 19 alumni of ITC and UNESCO-IHE Delft, who came from six African countries and two Asian countries. Their wide range of backgrounds and experiences created a lively classroom atmosphere, with lots of discussion and debate. The course was given by six lecturers from ITC, MSU and CooP Afrika. In addition, with guest lecturers from the University of Nairobi, MSU and Maseno local government, seminars on urban mobility in Kenya were organized to share local problems and practice with the participants.



Participants and faculty in the Kisumu children's traffic park: getting used to the back-pedal brake of the white bikes from De Hoge Veluwe National Park in the Netherlands

To prepare for the group work assignment, CooP Afrika organized a one-day bike tour of the city, visiting several organizations en route and finally reaching Lake Victoria for a relaxing sunset boat cruise. In the group work that followed, an outline of a bicycle

master plan for Kisumu, which included details of a public bicycle scheme, was developed and presented to the local organizing faculty. It is anticipated that the master plan will be developed further and will be used in the local planning process.

A well-attended ITC alumni meeting was organized in Kiboko Bay Resort. More than 40 NFP alumni, a good band and several local dignities showed up. We can look back on a very successful refresher course. Thank you MSU, CooP Afrika and NAAK! ■

Community-Based Hazard and Risk Assessment for Spatial Planning in Eastern Indonesia

Joan Looijen

j.m.looijen@utwente.nl

Bart Krol

b.g.c.m.krol@utwente.nl

Disaster risk reduction is increasingly integrated with regular development programmes and spatial planning at the central and local level. This strategy is expected to help in realizing risk-sensitive developments and more resilient local communities.

In the first half of November 2012 a Nuffic-sponsored refresher course was organized at the Sam Ratulangi University in Manado, Indonesia. The course focused on the integration of community-based hazard and disaster risk assessment into strategic planning processes, using up-to-date geospatial tools and techniques. The ultimate aim is to provide timely and objective information as a basis for sustainable planning and policy decisions.

This refresher course was organized by ITC and the Agency for the Assessment and Application of Technology (BPPT) in Jakarta, together with the Sam Ratulangi University (UNSRAT) and the North Sulawesi Disaster Management Office (BPBD) in Manado.

A group of 20 participants from different organizations and regions in Indonesia (14 from Eastern Indonesia) dealing with disaster risk and/or spatial planning took part in the course. Given the venue in Manado on North Sulawesi – close to the ocean, the Tondano and Tikala rivers and the active Lokon volcano - the course devoted special attention to flood hazard and volcanic risk assessment within the context of local and regional spatial planning. Coursework consisted of introductory lectures alternating with hands-on computer exercises, group discussions and preparations for a field visit. Topics included the use of spatial data for assessing and mapping natural hazards; the identification of elements at risk; the evaluation of vulnerability, using spatial



A group of 20 participants from different organizations and regions in Indonesia (14 from Eastern Indonesia) dealing with disaster risk and/or spatial planning took part in the course.

multicriteria evaluation; the formulation of risk-reducing measures, including risk zoning; and risk communication and visualization. Guest lectures on community involvement and community-based risk management in Indonesia were given by staff from BPBD, UNSRAT and BPPT.

At the end of several days, time was allocated for the participants to give a presentation on either their work or a particular issue they wanted to discuss. This resulted in six interesting presentations and discussions about hazards and strategic environmental assessment concerning issues related to spatial planning in Indonesia.

BPPT and UNSRAT organized an impressive one-day field trip at the end of the first week. In the morning we visited the active Lokon volcano and the regional volcano monitoring office in Tomohon town. After a splendid lunch at Lake Tondano we visited the Flood and Waterfront City in Manado, which is a great example of a community-based emergency warning system. This field trip also provided cases for four group projects to be carried out by the course participants: on volcanic hazard assessment, volcanic vulnerability evaluation, flood hazard assessment and flood vulnerability evaluation. The results of the group work were presented in a very professional way on the last day of the course.

During the closing ceremony all participants received a UT-ITC Certificate of Attendance, presented by Professor Jantje Pelealo, dean of the Faculty of Agriculture at UNSRAT, Dr Isman Justanto of BPPT and Ir Hoyke Makarawung of BPBD. Each participant also received a pen drive with all the digital material and software tools used during the course.

The course was very well hosted by UNSRAT, and special thanks go to Dr Joice Supit and her staff and Dr Ridwan of BPPT and his staff for all the logistic arrangements. All participants considered the course a success. Given the relevance of the training to their daily work, both participants and local teaching staff have expressed their interest in further strengthening capacity building in the East Indonesian region. Regional universities in Eastern Indonesia (such as UNSRAT) want to increase their research capacity. As reported by course participants, these universities should also strengthen their role as mentor, providing methodological support to local government agencies dealing with natural hazards, risk and spatial planning issues ■



BPPT and UNSRAT organized an impressive one-day field trip at the end of the first week



All participants received a UT-ITC Certificate of Attendance, presented by Professor Jantje Pelealo, dean of the Faculty of Agriculture at UNSRAT, Dr Isman Justanto of BPPT and Ir Hoyke Makarawung of BPBD

Considering the success of this course, we intend to offer it as a tailor-made short course targeted at disaster and risk practitioners, spatial planners and environmental managers. Please contact us if you are interested in organizing this type of course in your organization.

Mapping the world

Stay informed with GIM International – anytime, anywhere

GIM International, the independent and high-quality information source for the geomatics industry, focuses on worldwide issues to bring you the latest insights and developments in both technology and management.

- Topical overviews
- News and developments
- Expert opinions
- Technology

Sign up for your free subscription to the online magazine and weekly newsletter today!

www.gim-international.com

GIM
INTERNATIONAL

Supporting geoprofessionals in mapping the world



geomares
PUBLISHING

ANNOUNCEMENT

Refresher Courses 2013

Communication Department

itcnews@itc.nl

In 2013 ITC, together with its counterparts and financially supported by the Dutch government, is organizing seven refresher courses in various countries around the world. These courses are open to alumni in these and neighbouring countries who completed any NFP-funded training or education programme at least two years before the scheduled starting date of the course concerned.

Nuffic refresher courses are aimed:

- primarily at Nuffic alumni who graduated more than two years before the course starting date (by Nuffic alumni we mean those who have attended a course in the Netherlands on an NFP fellowship)
- at those alumni who are living in the geographical region where the course is being held
- at those alumni who have not attended a Nuffic-sponsored refresher course in the last two years
- at those alumni who have a proven background in the topic being presented.

More details will follow on www.itc.nl/study. As soon as all course details are online, we will inform you through the electronic newsletter ITC Update. Make sure you are signed up for a free subscription (visit www.itc.nl/alumni)! ■



Refresher courses 2013

Title	Location
Flood Risk Preparedness: What Theory and Practice Can Teach Us When the Floods Come Again and Again	Thailand
Community-Based Planning and Monitoring towards a Better Quality of Life for All	Colombia
Community-Based Risk Assessment and Strategy Development	Uganda
One Stop E-Government for Sustainable Land Administration	Vietnam
Modernization of Land Administration Systems in Sub-Saharan Africa (MODALS): Methods and Approaches to Promote Gender Equality and Incorporated	Ethiopia
Sensors, Empowerment and Accountability	Tanzania
The Use of Social Media, Crowdsourcing and Web Mapping to Enable Spatial Web Presence for the Private Sector in Southern Africa	Namibia

Tienstra Research Award for Dr Chrit Lemmen

Communication Department

itcnews@itc.nl

At the GIN Congress on 15 November 2012 in Apeldoorn, the Netherlands, Dr Chrit Lemmen received the 2012 Tienstra Research Award for his research towards a common standard for the land administration domain.

The Professor J.M. Tienstra Research Prize was set up by the Netherlands Geodetic Commission (NCG) in 1998 to promote and make geodetic research visible in the Netherlands. The prize is awarded to those who have carried out highly useful geodetic research in the Netherlands or to Dutch nationals who have done so abroad. The research may refer to the whole geodetic field and to related fields as represented within the NCG.

Some 75% of people-to-land relationships worldwide (about 4.5 billion cases) are not documented. With a growing population, this situation results in land disputes, land grabbing and neglect of the rights of local people.

Land administration provides documentation on people-to-land relationships. It is an instrument for implementing land policies and contributes to governmental policy on environmental sustainability, economic development and disaster management, as well as to social justice and equity and political stability. Land administration supports legal security (protection of land rights), access to credit (collateral for mortgage or micro-credit), spatial planning, land tax and resource management (mining, forestry and nature). Many countries have an incomplete land administration system, which is not up to date and is therefore unreliable.

Land administration standards are needed for purposes of both initial data acquisition and data maintenance. Experience shows that it is no easy task to design and set up a land administration system, and the necessary modelling expertise is lacking in many countries. It should also be noted that such systems contain high volumes of data. In Lemmen's thesis, a common standard for the land administration domain is designed and proposed for implementation. Such a standard stimulates the development of software applications and will accelerate the development and implementation of proper land administration in support of sustainable development.

The Land Administration Domain Model (LADM) was approved as an official International ISO Standard on 1 November 2012 and is a milestone in the development of land administration systems (see page 18) ■



Dr Chrit Lemmen

Standard for Land Administration Approved by ISO

Christiaan Lemmen

c.h.j.lemmen@utwente.nl

Harry Uitermark

harry.uitermark@gmail.com

Peter van Oosterom

p.j.m.vanoosterom@tudelft.nl

The Land Administration Domain Model (LADM) was approved as an official ISO Standard on 1 November 2012. The proposal for this standard was submitted by the International Federation of Surveyors (FIG) to the International Organization for Standardization (ISO) almost five years ago

This is a milestone in the development of land administration systems. Some 75% of the people-to-land relationships worldwide (about 4.5 billion cases) are not documented. With a growing population, this situation results in land disputes, land grabbing and neglect of the rights of local people. There is an urgent need worldwide for proper land administration systems and standards in land information.

Land administration standards are needed for purposes of initial data acquisition, data maintenance and information exchange. Experience shows that it is no easy task to design and set up a land administration system, and the necessary modelling expertise is lacking in many countries. It should also be noted that such systems contain high volumes of data. The LADM is a common standard for the land administration domain. It will stimulate the development of software applications and will accelerate the implementation of proper land administration, which will support sustainable development.

The LADM covers the basic information-related components of land administration (including those over water and land, and elements above and below the Earth's surface). The standard provides an abstract conceptual model, with four packages relating to:

- parties: people and organizations
- basic administrative units, (ownership and use) rights, responsibilities and restrictions
- spatial units: parcels, and the legal space of buildings and utility networks
- spatial sources (surveying) and spatial representations (geometry and topology).

The LADM defines a terminology for land administration, based on various national and international systems, and this is kept as simple as possible in order to be useful in practice. This terminology allows a shared description of different formal or informal practices and procedures in various jurisdictions. The standard further provides a basis for national and regional profiles, and enables land administration information from different sources to be combined in a coherent manner.

The LADM can integrate different forms of tenure, this can be formal and customary types of tenure, as well as informal tenure



Editorial Committee of the ISO19152 (photo: Bjørnhild Sæteløy)

or overlapping land claims. It is already recognized and supported by FAO, UN-HABITAT and several countries. LADM-based software developments have already been initiated in several places. In principle, there is no interference with (national) land administration laws, that could have legal implications.

FIG, ITC, TU Delft and the Dutch Cadastre took the initiative for LADM.

The LADM was developed by experts from more than ten countries worldwide, including representatives from the European Union and UN-HABITAT.

The LADM was accepted unanimously by the participating ISO members, who were responsible for the preparation of the standard.

A workshops on cadastral modeling have been held at ITC in March 2003, in Bamberg, Germany, December 2004 and in Rotterdam, The Netherlands in July 2012. The next LADM workshop will be organised in September 2013. More details will follow ■

The standard can now be purchased at the ISO website: www.iso.org/iso/home/search.htm?qt=19152&sort=rel&type=simple&published=on

Award for Alumnus Yogendra Kumar Karna

Communication Department

itcnews@itc.nl

The main aim of Yogendra Kumar Karna's award-winning thesis was to develop an approach for the accurate estimation of carbon stock and its relationship with tree diversity of tropical forests, using a WorldView-2 satellite image and airborne LiDAR data.

"Receiving the most prestigious Nepal Bidyabhusan Kha (Nepal Academic Award Medal B) from the Right Honourable President of Nepal is like a dream come true!" says Yogendra. "This would not have been possible without the ITC learning environment. I feel this is an honour not only for me, but also for the whole academic environment at the University."

The Right Honourable President of Nepal, Dr Ram Baran Yadav, awarded the medal to Yogendra on 8 September 2012 on the occasion of National Education Day and International Literacy Day.

Yogendra earned his MSc degree in Geo-information Science and Earth Observation for Natural Resources Management in March 2012 for his thesis entitled "Mapping above-ground carbon using Worldview satellite image and Lidar data in relationship with tree diversity of forests". He is currently working for the REDD Forestry and Climate Change Cell of the Nepalese Ministry of Forests and Soil Conservation ■

Yogendra's fellow alumni, Ganesh Prasad Bhatta and Uma Shankar Panday, received the award in 2010 and 2011, respectively.

To read the full text of Yogendra Kumar Karna's MSc thesis, visit: www.itc.nl/library/papers_2012/msc/nrm/karna.pdf

"Receiving the most prestigious Nepal Bidyabhusan Kha (Nepal Academic Award Medal B) from the Right Honourable President of Nepal is like a dream come true!" says Yogendra.



NSFC Award for Rogier van der Velde

Communication Department

itcnews@itc.nl

Rogier van der Velde of ITC's Department of Water Resources has been awarded the Research Fund for International Young Scientists by the National Natural Science Foundation of China (NSFC).

The Research Fund for International Young Scientists is oriented towards encouraging excellent young foreign scientists to conduct basic research in mainland China, in order to promote research collaboration and academic exchanges among Chinese and foreign scientists.

Rogier received the award in recognition of his work on soil moisture remote sensing over the Tibetan Plateau. ITC maintains a number of earth observation sites to support education and research. These sites are part of a global network: the Global Earth Observation System of Systems (GEOSS). The Tibetan Plateau sites are operated in collaboration with the Chinese Academy of Sciences (CAS). They are maintained by the Cold and Arid Regions Environmental and Engineering Research Institute (CAREERI) and the Institute for Tibetan Plateau Research (ITP) of the CAS, who have implemented their so-called Tibetan Observation and Research Platform.

The award of 250,000 CNY (approximately €31,000) will be invested in the *in situ* soil moisture networks on the plateau operated by ITC-WRS in collaboration with the CAREERI and ITP institutes ■



Dr Rogier van der Velde (left) receiving his degree certificate from Prof Bob Su in 2010



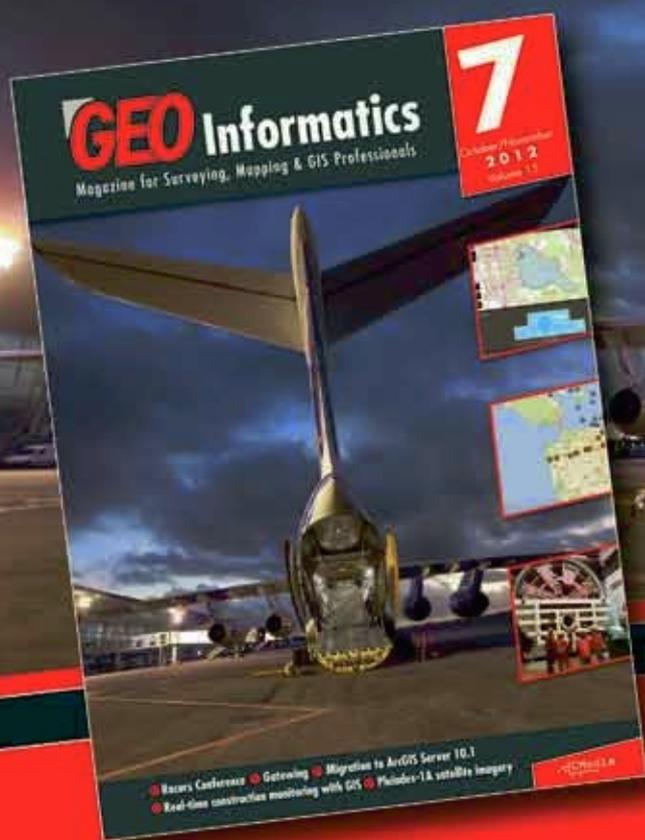
Fieldwork at one of the sites at the Tibetan Plateau

GEO Informatics

Magazine for Surveying, Mapping & GIS Professionals



The independent and high-quality information source
for Geospatial articles and news.



Sign up for your free subscription at

www.geoinformatics.com

Tel.: +31 (0)527-619000

E EVENTS

AARSE Holds Conference in El Jadida, Morocco

Tsehaie Woldai

t.woldai@utwente.nl

Under the high patronage of His Majesty King Mohammed VI, the African Association of Remote Sensing of the Environment (AARSE) held its 9th International Conference in El Jadida, Morocco, from 29 October to 2 November 2012. The conference was attended by 540 registered participants from over 45 countries.

After words of welcome from Professor Oladjide Kufoniyi, president of AARSE, and Dr Kamal Lebassi, chairman of the Local Organizing Committee, congratulatory messages followed from presidents and representatives of the partner organizations: ISPRS, IEEE-GRSS, GEO, EARSel, EIS-Africa and the UN-ECA. Professor Boumedian Tannouti, president of Chouaib Doukkali University, then welcomed all participants and introduced the mayor of El Jadida, who delivered his goodwill message to the participants. The opening speech was given by His Excellency the Honourable Minister of Higher Education and Scientific Research of Morocco. He highlighted the benefits of geo-information for good governance and ongoing developments in this field in Morocco. Accompanied by other government officials, the honoured guest then went to open the scientific exhibitions.



The Governor of El Jadida opening the exhibition

The conference featured the following:

- over 300 presentations and 110 posters; ten keynote addresses in four plenary sessions; 31 technical sessions, representing eight sub-themes on various aspects of geo-information science and earth observation; two poster sessions; various workshops; four special sessions, including the AARSE Executive

Council and the AARSE General Assembly; three round tables; and many business meetings

- a total of 19 sponsors (Gold sponsors: GEO & South African GEO and ESRI; Silver sponsors: OCP, European Space Agency, Trimble, the Nigerian National Space Research and Development Agency (NASRDA) and Astrium;

Bronze sponsors: Surrey, the Surveyors Council of Nigeria (SURCON), European Space Imaging and the French Embassy in Morocco; Moroccan sponsors: Ministry of Foreign Affairs, Province of El Jadida, Conseil Régionale Abda-Doukkala, Conseil Provinciale El Jadida, Conseil Municipal El Jadida, Centre National de la Recherche Scientifique et

Technique (CNRS) and Ministère de l'Enseignement Supérieur de la Recherche Scientifique et de la Formation des Cadres)

- a total of 20 exhibitors (ESRI; RCMRD, Kenya; Astrium, France; SA-GEO, Switzerland; Solution Mapping, UK; Trimble, USA; GeoSystem, France; Vito, Belgium; CRTS, Morocco; Surrey, UK; AARSE, SA; SFPT, France; SACANEX, Russia; IEEE-GRSS, Australia; Satpalda, India; Southern Mapping, SA; EIS-Africa, SA; RapidEye, Germany; and GEO-Eye, USA)
- ten keynote speakers: T. Woldai (AARSE EC member), Ms Aida Opoku Mensah (director ISTD, UNECA), Dr Barbara J. Ryan (GEO director), Professor Tony Milne (past president IEEE-GRSS), Dr Seidu Mohammed (director-general NASRDA), Dr Mecheline Tabache (administrator ESA), Professor Laurent Polidori (president SEPT), Dr Johan Stessens (manager Vito remote sensing department), Professor Massimo Mementi (Delft University of Technology) and Dr Driss El Hadani (director CNRS).

The conference included three pre-/post-workshops, three side events associated with the EU-GMES, GEO and ESRI programmes, an ice-breaker and a gala dinner offered by AARSE. Several awards were also presented: one AARSE Highest Achievement Award, five Presidential Citation Awards, seven AARSE-IEEE/GRSS Travel Fellowship Awards, three AARSE-European Space Agency Awards for best papers and posters, and one AARSE Certificate to the LOC ■

TWO MAJOR AWARDS FOR DR TSEHAIE WOLDAI

At the opening ceremony, AARSE president Professor Kufonyi presented the AARSE Achievement Award to Dr Woldai. It is the highest award given by AARSE and has been presented to only three distinguished scientists and one institution during its 20-year history. In presenting this award, Professor Kufonyi recognized the dedication and importance played by Dr Woldai in nurturing and shaping the association to become one of the most dynamic and respected institutions in Africa. Dr Woldai founded the now defunct African Remote Sensing Society (ARSS) in 1982 and served as its most vocal representative internationally until 1988. With its abolition in 1990, he founded AARSE in August 1992 in Colorado, USA, and served the Association as its secretary-general, president (2004-2010) and immediate past-president (2010-current).

Furthermore, after the opening keynote speech, Dr Woldai was decorated with the ESRI Making a Difference in Africa Award. This is presented once a year by the president of ESRI to honour a personality from around the world who has impacted others and advanced and promoted geo-information technology through their work. In presenting the award on behalf of ESRI president Dr Jack Dangermond, Dr Salim Sawaya emphasized the commitment and dedication shown by Dr Woldai in promoting geo-information technology in Africa and making a difference to many through his teaching. The nomination of Dr Woldai for the ESRI Award came from 79 distinguished scientists and practitioners from 56 African and European institutions.



Professor Kufonyi presenting the AARSE Achievement Award to Dr Woldai at the opening ceremony



VISITS



Directorate Visit to East Africa

Tom Loran

t.m.loran@utwente.nl

Professor Veldkamp and Ms Leurink, respectively rector and managing director of ITC, paid a visit to East Africa in December 2012. The purpose of the visit was to become acquainted with ITC's long-standing partners, as well as to develop ideas for future strategies for ITC's activities in the East African region.

During a two-day trip to Nairobi, a visit was paid to the research area of the project An Earth Observation and Integrated Assessment (EOIA) Approach to the Governance of Lake Naivasha Basin, Kenya. ITC staff and students have been actively involved in research in the area around Lake Naivasha, studying issues related to soil and water, land cover and land use, and social and economic issues. Since the very early days of the activities in the Naivasha area, coordination has been in the hands of Drs Robert Becht. The EOIA Project, now led by Drs Becht and Professor Van der Veen, is building on this long-term experience,

tion around the lake and the physical and socio-economic issues that play a role in its management and governance. An extension of these activities has recently been approved by the Netherlands embassy in Nairobi, and inception discussions are ongoing at the moment (further news is expected soon).

A visit was paid to the UN-Habitat headquarters in Nairobi. The main reason for visiting UN Habitat was to sign an agreement with the Research and Capacity Building Unit, a long-standing partner of ITC. The cooperation was renewed by signing an Expression of Interest to become an active member of the Habitat Partner University Initiative. There is a good deal of ground for cooperation, in terms of developing course elements that universities can use in their own programmes, a training development tool that is currently being tested, and opportunities for blended learning between UN-Habitat and ITC that fit very closely with ITC's plans for the future.

FOR MORE INFORMATION about the Lake Naivasha project: www.itc.nl/Pub/services/Major-projects/EOIA_Lake_Naivasha.html.

The visit, which was coordinated and organized by Jane Ndungu and Vincent Odongo, two of the PhD candidates on the EOIA project who were in the area for their research at the time, provided a very interesting and concise overview of both the situa-





Further visits were made to the Climate Change Planning Unit, the Land and Tenure Section and the Regional Office for Africa and the Arab States. The Climate Change Planning Unit is linked with ITC's project activities in Kampala on land use regulation in flood-prone areas, and information was exchanged on the development of ITC's educational model and the possibilities that this gives for future cooperation in capacity building. A short meeting was arranged with the Land and Tenure Section, where a briefing was given on the status of the Global Land Tool Network and ongoing work on the integration of water use and land rights. The discussion with the Regional Office for Africa and the Arab States dealt with regional planning issues and related needs for planning support and capacity building. ITC can play a significant role here and this will be further discussed during an upcoming visit to ITC.

The International Centre for Research in Agroforestry (ICRAF) (also known as the World Agroforestry Centre since 2002) was visited to discuss opportunities to develop joint capacity building and joint research activities. This could include approaches to blended learning, coupling ICRAF-based capacity building with ITC degree courses

The Regional Centre for Mapping of Resources for Environment (RCMRD), a UN institution that was established under the aegis of the UN Commission for Eastern Africa, was visited to sign a new agreement on the continuation of the joint course Earth Observation and Spatial Modelling for Integrated Water Resources Management (IWRM). The IWRM course is currently being jointly implemented by RCMRD, Egerton University and ITC and has just started its sixth intake. The course provides professionals in water and environmental management with practical methods and tools for data acquisition and modelling, and analysis techniques for the development of realistic integrated water management plans.

FOR MORE INFORMATION on the course programme can be found at: www.itc.nl/Pub/study/Courses/C13-WREM-SC-01.

In Dar es Salaam an additional two days were spent visiting Ardh University (ARU) and the University of Dar es Salaam (UDSM). ARU is a long-term partner of ITC in institutional cooperation programmes, and is an established partner in offering the joint Diploma Course in Geo-Informatics (GFM-4). The GFM-4 course in Tanzania is still going strong and is currently in its eighth edition. Discussions are ongoing with ARU to broaden the cooperation into a joint course on land administration as well.

UDSM is a partner in the Sensors-Empowerment-Accountability (SEMA) project. The SEMA project in Tanzania focuses on how citizens can directly exact accountability from water and public health providers through the human sensor web. The project includes collaboration with stakeholders from government, community-based organizations, and non-governmental organizations. The project is jointly implemented with UDSM, and the Faculty of Management and Governance of the University of Twente.

FOR MORE INFORMATION on the SEMA project can be found at www.itc.nl/Pub/services/Major-projects/SEMA-sensors-empowerment-accountability.html

A second visit to the East African region will be made in the first quarter of 2013, this time to Uganda and Rwanda. As a follow-up to these two visits, a regional strategy will be developed for more coordinated activities in the region. East Africa will remain an important focal area for ITC's activities in the years to come ■



Greetings from...

NAME:

Christoforus Katsaounis

JOB DESCRIPTION:

International Intern at ESRI under
the Government Team

PRODUCTS

So far I have had the opportunity to
work on the following ESRI products:

ArcGIS Online, ArcGIS for Server,

ArcGIS for Desktop 10.1, ArcGIS

Viewer for Flex, ArcGIS API for Flex.



Project Work

My project work to date has mainly involved supporting NGOs specialized in restoration ecology in their goal to create a national GIS for all their member organizations so that they can achieve consistency and accuracy in reporting estuary habitat restoration plans and achievements. On the basis on these data, I have further deployed web maps and web applications in ArcGIS Online.



ESRI Courses and Conferences

The ESRI instructor-led courses have provided me with a great opportunity to dive into new areas of the GIS spectrum, such as ArcGIS for Server and the building of web applications with ArcGIS API for Flex. Another great learning experience was participating in the holistic testing of mobile devices, a two-day event organized by ESRI Software Developers. I have also participated in two conferences: the Oceans GIS Summit in Redlands, California, and Restore America's Estuaries National Conference in Tampa, Florida.

Travel

Life in Redlands has been great so far. There are places to explore to suit everyone's taste: great cities such as Los Angeles and San Diego, the Pacific Ocean, the San Bernardino Mountains, and if you enjoy the desert landscape, well, it doesn't get much better than the Joshua Tree National Park, just an hour away from Redlands! But of all the trips, the highlight was the road trip during Thanksgiving through the great national parks of Utah and Arizona: the Grand Canyon, Zion, Monument Valley ... amazing places!



Overall, the first three months of this internship have been a very valuable experience, and I can't wait for the three months to come!

Greetings from...

NAME:

Yang Chen

JOB DESCRIPTION:

International Intern at ESRI under the Government Team

PRODUCTS

I've worked on the following: ESRI products for planners and economic development, including Community Analyst, Business Analyst (online and desktop), CityEngine and ArcGIS online. I have been learning about these products and now I am making demos for planners and decision makers that show how GIS can help them to make informed decisions and improve their efficiency.



Courses

For the first stage of my internship, from September to December, ESRI provided me with many courses. Some helped me to revisit the skills that I had obtained at ITC, such as spatial analysis and building geodatabases; some were totally new to me, such as ArcGIS for Server, 3D data creation, visualization and analysis. These courses are of essential importance in enabling me to further my skills and knowledge in GIS and related areas.

Project Work

Since coming to ESRI, I have mastered products such as Community Analyst and Business Analyst. These are changing the daily practice of planners and decision makers because now with just a few clicks visualization and spatial analysis can be performed and decisions can be made. ESRI has been making great efforts to make GIS easier for practitioners and even for the general public.

In the next stage of my internship, I will focus on "ArcGIS for planning". This includes several toolkits based on the ArcGIS platform, especially with 3D planning and the design function from CityEngine. The great idea behind this is Geodesign, which aims to make the design and planning process more scientific and transparent. I will attend the Geodesign Summit here in Redlands from 24 to 25 January 2013.



Travel

Life here in Redlands is also interesting. I have visited San Diego and Big Bear Lake with other interns and have spent several weekends in Los Angeles and San Francisco with my former classmates and friends from China. I made the road trip along the coastline from Los Angeles to San Francisco this Thanksgiving. The view was amazing. San Francisco is a cool place with great diversity and better public transport. The old streetcars running in the city are from Europe, which reminds me of my days in the Netherlands.



In closing, ESRI has provided very good accommodation, and with the help of the international internship programme coordinator, Annie L'Heureux, life is amazing!

LIFE AFTER ITC

Holland Alumni Dinner in São Paulo

Communication Department

itcnews@itc.nl

On the occasion of the Nuffic Dutch Higher Education mission to Brazil, HAN Brazil organized a Holland alumni dinner on 20 November 2012 at the Grand Hyatt Hotel in São Paulo, Brazil.

The event was honoured by the presence of the Dutch Secretary of State of Culture, Education and Science, Mr Sander Dekker, and numbered representatives of the Dutch higher education institutions and Brazilian alumni among the participants.

Among the Brazilian alumni was ITC alumna Carmen Lucia Midaglia, who had followed the Rural and Land Ecology Survey course in 1987. Carmen Lucia shared a table with Rector Magnificus Ed Brinksma of the University of Twente and Mr Wim Boomkamp, president of the Saxion Universities of Applied Sciences ■

HOLLAND ALUMNI NETWORK BRAZIL (HAN)

For more information about the Holland Alumni Network Brazil visit www.hanbrazil.org



Carmen together with Mr Wim Boomkamp, president of the Saxion Universities of Applied Science



Carmen Lucia shared a table with Rector Magnificus Ed Brinksma

Master of Science in Photogrammetric Engineering

Antonio Balce

tony.balce@gov.ab.ca

“How did your study at ITC contribute to your career? Share your story with us and prospective students.”

Many alumni have already responded to our request to help us recruit new students. For many years alumni have been by far our best recruiters. Many of our students tell us that it was a former student who inspired them to pursue a career in the field of geo-information science and earth observation and apply for a study at ITC.

Through testimonials from ITC alumni we would like to inform prospective students about the career opportunities after their graduation. Antonio Balce shared his story with us and we would like to share it with you all.

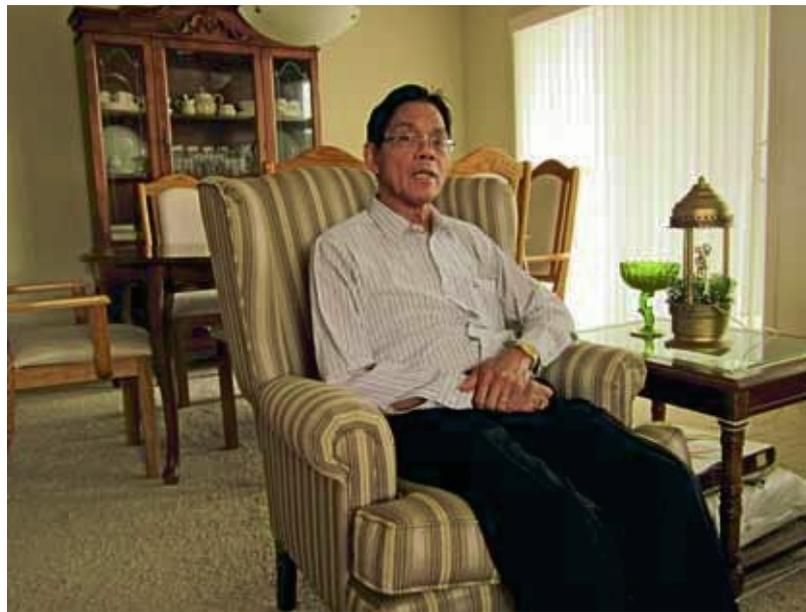
By sharing your story you help us to accomplish our mission and educate more professionals in the field of geo-information science and earth observation. To share your story with us, please visit www.itc.nl/Pub/alumni/Tell-us-your-story or send it directly to alumni@itc.nl.

What initially drew you into the field of geo-information science and earth observation?

On graduating from high school in 1963, I was determined to go to university, even though my parents could not afford it. I spent the next two years sitting six scholarship examinations. I failed the first five attempts but passed the sixth examination with a full scholarship to the University of the Philippines, Quezon City. I had no other choice but to take the five-year Geodetic Engineering programme. In 1970 I graduated with a BSc degree in Geodetic Engineering. I was immediately admitted to the Faculty of Engineering of St Louis University, Baguio City, where I taught undergraduate geodetic engineering courses. When the ITC fellowship was announced in the faculty lounge, I immediately applied for it. I was accepted for the P1 programme and was awarded the ITC Postgraduate Diploma in Photogrammetric Engineering in February 1972. On completion I was accepted for the P2 programme, which led to my MSc degree in Photogrammetric Engineering in November 1974.

What can you tell us about your experience with ITC?

What I liked most about studying at ITC was the scholarship I enjoyed while studying. My trip to the Netherlands was my first trip abroad in the middle of winter. I felt homesick during the first six months until I met someone who changed my life completely. She became my inspiration while I was studying hard at ITC. She was a nurse from the Philippines working in Amsterdam. My best memory of the Netherlands was the time when I dated her at the tulip festival in the Keukenhof. When her contract expired, she emigrated to Canada. Although I had a contract to go back to the Philippines and teach for at least two years at St Louis University, I decided to follow suit. I joined her in Toronto, where we got married and started to raise a family. This was the most important change in my life after graduating from ITC.



Antonio Balce has worked for the Alberta Government for 35 years and was eligible for full retirement in February 2004

Was it easy for you to find a job after your graduation?

Emigrating to Canada was easy, but getting my credentials recognized was not so easy, particularly in Ontario, Canada. I immediately found a job within my first month of arrival. I started as a technologist doing survey fieldwork and later on was reassigned to the office doing survey computations. During the first three years, I was not happy with my job and I made a considerable effort to find a better job. In 1977, I was hired as a senior technologist by the Alberta government. My major accomplishment in that position was the computerization of the process called slotted-template triangulation for producing bases for forest inventory mapping. Instead of the analogue way of doing it, which required huge floor space for the laydown, I managed to use a digitizer, a mainframe computer, a drum plotter and a suite of software for analytical computations of stereo models. I even used the programme I had developed at ITC for my MSc thesis.

How do you use GIS in your job?

After six months I moved to a position in survey engineering and became registered as a professional engineer in Alberta without sitting any examinations. Since then I have accomplished more

projects, including the transition from analogue to analytical and then to digital mapping systems. I was involved in the implementation of the 1:20,000 provincial digital base mapping programme for the province of Alberta.

What do you do at the moment?

I've been with the Alberta government for 35 years and I was eligible for full retirement in February 2004. However, I still enjoy my job and might continue working for a few more years. Currently I provide training to staff in the use of softcopy photogrammetry for checking the quality of acquired digital images and mapping for interpreters. I am also involved in the development of file geodatabases for indexing our acquired images. I create the metadata myself for the images. GIS is already integrated with the softcopy photogrammetry systems, facilitating analysis of images.

What gives you the most satisfaction in your job?

What gives me satisfaction in my job is the sense of accomplishment and helping others do their job better.

Do you have any advice that you would like to share with our current students?

My advice to current students: Study hard but take time to enjoy your life at ITC. Visit as many countries in Europe as you can. When you go home, it will be more expensive to go to Europe again.

What would you say to prospective students thinking about studying at ITC?

To prospective students I would say that studying and living in the Netherlands will be the best life experience you will have. If you are single, you might meet someone who will change your life drastically ■

Rabin Kaji Sharma from Nepal

Rabin Kajij Sharma

sharma434@alumni.itc.nl

Mr Rabin Kaji Sharma from Nepal is currently the president of the Nepal Remote Sensing and Photogrammetric Society (NRSPS). He twice had the opportunity of studying at ITC and succeeded in being awarded the Postgraduate Diploma in Photogrammetry in 1979 and an MSc degree in Photogrammetry in 1985.

Mr Sharma is one of the reputed surveying and mapping professionals in Nepal. In 1974 he embarked on his professional career in the surveying and mapping domain as a survey officer at the Survey Department, the national mapping organization of Nepal. He served the Nepalese government for 36 years in different capacities under the Ministry of Land Reform and Management. He retired from the post of director-general of the Survey Department in 2009.

Mr Sharma's active involvement has greatly contributed to the professional development of the geo-information domain in Nepal. Apart from his affiliation with different professional organizations, he has published various articles useful to the surveying and mapping professionals of the country. His book *Cartography for Mapping* (in *Devnagari* script) published in 1983 has been used as a reference book in the surveying and mapping schools of the

country. His new publication in 2012, *Mapping My Professional Journey* (a collection of his 60 articles), has been very well received by the professional community. From time to time Mr Sharma has been presented with awards for his contribution in the sector of professional development, and in 2008 the ITC Alumni Association of Nepal presented him with a Letter of Appreciation. He is one of the retired officials congratulated this year by the Government of Nepal for their contributions. The Right Honourable Dr Babu Ram Bhattarai, prime minister of Nepal, presented him with a Letter of Appreciation at a special programme organized by the Ministry of General Administration on 13 September 2012 on the occasion of Civil Service Day.

His contributions have also gained international recognition. At the plenary session of the 30th Asian Conference on Remote Sensing held from 19 to 23 October 2009



Rabin K. Sharma

in Beijing, China, he was awarded the Outstanding Contribution Prize by the Asian Association on Remote Sensing (AARS) for his work in advancing the development of remote sensing technology. Similarly, at the opening ceremony of the 33rd Asian Conference on Remote Sensing, which was held in Pattaya, Thailand, from 26 to 30 November 2012,

Mr Sharma was presented with the Chen Shupeng Award by AARS for his long and outstanding contributions to the development of remote sensing in Asia.

Mr Sharma continues to devote his best efforts to the promotion of remote sensing and space science technology for the betterment of society ■



Rabin K. Sharma (fourth from right) holding the Outstanding Contribution shie Qingxi (chairman of the Chen Shupeng Award Foundation)



Rabin K. Sharma (left) receiving the Chen Shupeng Award from Professor Tong

Life after ITC

Florence Barbara Awino

florencebarbara@gmail.com

PERSONAL DETAILS

Florence Barbara AWINO
 Email: florencebarbara@gmail.com
 Country: Uganda
 Course: WREM 3
 Exam year: 2003

CURRENT EMPLOYMENT

Field of employment:
 Environmental Management
 Employer: Kyambogo University
 Organization type: Research Institution

Tell Your Story, Inspire New Students

Most people say that in developing their career it was a dream come true. In my case, however, I did not have any dream initially, but after sometime at ITC all that changed.

At high school I studied physics, chemistry and biology, and qualified for a BSc in Geology and Chemistry in 1999 – instead of the anticipated Bachelor of Medicine.

At university (as is the case in most developing countries), we had more theory than practical activities, and along the way we would even wonder why we were studying some course units, because we did not know where we would actually apply the knowledge. It was about passing examinations and nothing else. It was only towards

degree completion that the students – particularly those sponsored by the government – started to see the world unfold and imagine what would come next; to think about where to get jobs; and more especially to look at students who had graduated earlier.

So after completion and graduation in October 1999, I ended up getting a job as a hydrogeologist trainee in November 1999 with the Ministry of Water and Environment. In the workplace, I started to see myself as an adult, but still with no goal in mind. Even applying to ITC was due to group influence (i.e. some of my colleagues were doing so). Nor did we have any alumni in the workplace to act as role models. Still, I for one felt it would be an adventure to board a plane for the first time



Florence Barbara Awino

in my life. And there was also the pride of being the first person in my family to travel beyond Ugandan borders.

I went to the embassy, studied the brochures, and then applied for the Master's course in WREM. The preparations went

on and education finally came later. After months of torture with exercises and exams in GIS and remote sensing, I realized I was at school and had to work harder. GIS and remote sensing were very new fields. I had never practised or studied them back home, and hence I had to work hard to keep pace with my colleagues from other countries who were actually using the tools and software. I faced a lot of challenges in practising, applying, and doing tests and examinations at the same time. It was only after a great deal of torture that I decided to concentrate and tackle the great pile of work (leaving very early in the morning and returning very late in the evening to the Dish Hotel). This coupled with the cold, homesickness ... Oh, it was terrible! But all in all Enschede is a very nice city, and I could pursue my hobby of shopping to the fullest extent – always a consolation.

Having completed my thesis on groundwater chemistry and quality assessment in Portugal and also my studies at ITC (where I had gained a lot of knowledge, skills and exposure), I excitedly graduated and returned to my country in 2003. Because of the numerous recreational activities in Enschede and the excessive workload, I had forgotten to check the status of my job back home. I reported back to work after a time span of one week, only to be told that my contract had expired while I was abroad and it was not being renewed.

Not wanting to finish up my remaining euros without a job, I decided to start looking through newspaper adverts. It was then that I used my first degree to get a job as a chemist with the Ministry of Works and Transport within the public service. But feeling cheated and still not content, I continued to look for other jobs where I could apply the knowledge gained through my Master's degree. Finally, in 2006, I was appointed as a part-time lecturer within the Environmental Engineering programme at the Department of Civil and Building Engineering at Kyam-

bogo University. I lecture, teach, research and supervise undergraduate research projects. I am also one of the few female lecturers in that department. I have taken part in structuring the programme, where I have introduced new course units such as hydrogeology, environmental systems analysis and modelling, GIS and remote sensing.

However, this is an old fully-grown public university and it is very hard to push and make decisions, especially at my Master's degree level. In addition I have not used a lot of my GIS and remote sensing knowledge effectively. Nevertheless, I have the satisfaction that I have managed to introduce some course units, including GIS and remote sensing. My students have understood and are implementing what I have taught them. I meet some of my previous students in big organizations such as GTZ and UNICEF. Most importantly, in 2012 I joined a private university – the International University of East Africa (IUEA) – and here I feel I will be able to benefit more from my ITC training. I hope to continue building my career, as I have already been given the opportunity to head the Bachelor of Environmental Science and Management programme. Furthermore, at IUEA I have managed to implement some of the issues I failed to implement at Kyambogo. For example, I am working towards the university goal of being the technological university of choice in East and Central Africa by providing the students with more practical activities and exercises, rather than just theoretical work (as in my case at university), and consequently preparing



"Current students should work hard to grasp all aspects of GIS and remote sensing and be able to implement them back in their respective institutions and countries"

them to become independent researchers. Because of exposure to research, consultancy and teaching, I am seeking to pursue a PhD study so that I can be of greater benefit to both universities and the country at large. I have already prepared my PhD proposal and would be very grateful of any assistance from ITC in enabling me to access funding. Moreover, I am also applying to various funding organizations and institutions for financial assistance.

Currently, even though IUEA is running GIS and remote sensing courses, I do believe there is a need to liaise with ITC to help this young institution in the application and implementation of GIS and remote sensing. I need your help and I do hope one day that we shall receive assistance towards establishing a GIS and remote sensing laboratory at IUEA, in order to enable the students to put their theoretical knowledge into practice.

Current Students

Current students should work hard to grasp all aspects of GIS and remote sensing and be able to implement them back in their respective institutions and countries. They should always aim higher and get points that can enable those interested in PhD study to get funding. They should create ways of putting what they are learning now into practice when they get home.

Prospective Students

There might be many out there who as yet do not have a sense of career direction. They should apply to ITC. This is because by the time they have been through the torture process they will be streamlined and focused. Additionally they will be highly independent and have a sense of direction careerwise. The research will prepare them to be researchers too, or consultants and lecturers if they are interested in the field of academia. Finally, they will become confident, determined and open-minded – but most importantly they will germinate wherever they plant themselves ■



MONETISING GEOSPATIAL VALUE AND PRACTICES

BRINGING TOGETHER GEOSPATIAL COMMUNITY

Agency9 | ARCADIS | Association of Geographic Information Laboratories for Europe (AGILE) | Astrium | Bentley | Brabant Water | Brazilian Institute of Geography and Statistics (IBGE) | BRGM, France | Cadastre, Land Registry and Mapping Agency | Caggemini | 4C-Grid | Delft University of Technology | Department of Rural Development and Land Reform, South Africa | DigitalGlobe | e-Leaf | Environment Agency Abu Dhabi | Esri | EuroGeographics | European Association of Remote Sensing Companies | European Commission | European Environmental Agency | Exelis | GeoBusiness Nederland | Geo-Information Nederland | Geonovum | Google | Group on Earth Observations | Heathrow Airport | Hexagon | ICEO/IEEE | Instituto Pereira Passos (IPP) Brazil | International Cartographic Association | ISPRS | King County Municipality | Leibniz Universität Hannover | Leica Geosystems | MDA Geospatial Services | Microsoft Bing Maps | Ministry of Lands and Natural Resources, Ghana | Ministry of Municipal and Rural Affairs, Kingdom of Saudi Arabia | Munich Airport | NASA | Open Geospatial Consortium | Oracle | Ordnance Survey of Great Britain | OSGeo | Pitney Bowes Software | Progis | Riegl | Scanex | Spectra Energy | Swisstopo | Terrago Technologies | The Joint Research Centre | Topcon | Trimble | UNIGIS, University of Salzburg | University of Wageningen | VALE | World Bank...

TO EXPLORE THE VALUE AND BENEFITS OF GEOSPATIAL TECHNOLOGIES

Monetising Geospatial Value and Practices for Business Enterprises | Monetising Geospatial Value and Practices for National Developmental Goals | Round Table on Geospatial Research and Innovation

FOR POLICY, TECHNOLOGY, AND USER DOMAINS

Land Administration > Public Safety > City Management > Agriculture > Construction & Infrastructure > Mining & Exploration > Capacity Building > Electricity & Gas Water Utility > Cloud Computing > Earth Observation Systems > LiDAR > Open Source > Photogrammetry > Cartography Environment > Asset Management > Gaming and Virtual Reality > Financial Services > 3D > Sensor Web > Big Data > Enterprise GIS > Geospatial Innovations > Airborne Sensors > GI Policy > Spatial Data Infrastructure > Crowd Sourcing Vs Field Sourcing > Standards and Interoperability > Spatial Thinking > European Location Framework

FROM ACROSS THE WORLD

Australia | Austria | Bahrain | Belgium | Brazil | Canada | China | Czech Republic | Denmark | Estonia | Ethiopia | Finland | France | Germany | Ghana | Greece | Hungary | Iceland | India | Indonesia | Iran | Italy | Japan | Kenya | Korea | Malaysia | Mexico | Nepal | Norway | Poland | Russia | Saudi Arabia | Singapore | South Africa | Sweden | Switzerland | Taiwan | Thailand | The Netherlands | Turkey | UAE | United Kingdom | United States of America | Vietnam | Zimbabwe...

www.geospatialworldforum.org

