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2006 number 1/2

introduction

Has something been missing in your life over the past month or two? You can't quite put your finger on it but it's been niggling away. Now you have it! Where's the newsletter? What's been going on at ITC this year? This combined issue *ITC News 2006-1/2* will rectify matters. Not only that but as the last two issues of 2005 were special issues - with 2005-3 devoted to our alumni and 2005-4 to the lustrum conference - you'll find some "old" news lurking among the articles. So in one fell swoop we're updating our readers and clearing our doorstep of disgruntled authors.

As you can imagine, our offering this time round is mixed and various. You can make the acquaintenance of BRIDGE (page 16) and EAGLE (page 12), and read all about the ISPRS symposium held at ITC in May (page 2). And although English is the language of *ITC News,* French-speakers - in particular SDI enthusiasts - will find an item of interest on page 18. While we're on the subject, some ITC students recently managed to combine business with pleasure, investigating good practices in SDI development in Denmark and taking time out to explore the lively city of Copenhagen (page 10).

On 23 March 2006 ITC and the Netherlands Cadastre signed an agreement to cooperate in establishing a School for Land Administration Studies at ITC. This initiative is covered on page 7 and you can be sure that you will be kept up to date on its progress. Not in Enschede this time, not even in the Netherlands, but definitely a new venture: the NUM-ITC-UNESCO Laboratory for Remote Sensing/GIS was opened on 9 December 2005 at the National University of Mongolia. More on this topic on page 14.

So *ITC News 2006 1/2* brings you insights into the past, present and future: recent events, current courses, new undertakings, as well as experiences of those released from studies in Enschede and elsewhere into the wide world outside. We hope you approve of our "shot selection" - terminology that gives a clear indication that, in addition to the World Cup, there's been a great deal of tennis on television over the past few weeks - and we look forward to hearing from you with your reactions and contributions. Perhaps the resolution to submit an article to *ITC News 2006-3* has also been niggling away? May it niggle no longer!

Janneke Kalf
Managing Editor

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

International Scientific Symposium on Remote Sensing in the Netherlands:

"Not Just a Scientific Topic Anymore"

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Scientists met other scientists, listened to one another's presentations, and exchanged knowledge on remote sensing and satellite images. Setting: the International Institute for Geo-Information Science and Earth Observation (ITC) in sunny Enschede, the Netherlands, from 8 to 11 May.

The International Society for Photogrammetry and Remote Sensing (ISPRS, www.isprs.org) is a non-governmental organisation whose aim is to enhance international cooperation between worldwide organisations with interests in photogrammetry, remote sensing and spatial information sciences. It consists of nearly 100 national and 10 regional societies and organisations, and its scientific and technical programmes are organised by eight technical commissions. Each commission holds its own mid-term symposium within its country once every four years. Commission VII concentrates on thematic processing, modelling and analyses of remotely sensed data. This commission, led by President John van Genderen, is based in the Netherlands and from 8 to 11 May they organised their symposium "Remote Sensing: From Pixels to Processes" at ITC. All the commissions come together in the Olympic years, and the next such congress will be held in Beijing in 2008, one month before the start of the Games.

Pre-symposium Events

For some of the 500 attendees - mostly scientists from all over the world - the mid-term May symposium was a chance to meet old friends again and reminisce on their days as students at ITC. Although the meeting officially started on 8 May, pre-symposium events took place on the 6th, and a visit to the Keukenhof Gardens in Lisse was also on the programme another day.

Naturally the technical sessions on such topics as "Advanced classification techniques", "Information extraction from hyperspectral data" and "OpenDragon: free geoinformatics software for education in developing countries" dominated the four official symposium days. According to John van Genderen, the calibration and validation of data, as well as data fusion and data mining, are hot topics and he spoke about the project undertaken by one of the several TC VII working groups on data fusion. "One type of data is not sufficient to solve a problem. Besides doing optical observations, you can do radar or thermal measurements in order to observe the Earth. This means you have to fuse optical, radar, thermal but also hyperspectral, statistical or perhaps even historical data of high quality."

For some of the 500 attendees - mostly scientists from all over the world - the mid-term May symposium was a chance to meet old friends again and reminisce on their days as students at ITC

Technical sessions on such topics as "Advanced classification techniques", "Information extraction from hyperspectral data" and "OpenDragon: free geoinformatics software for education in developing countries" dominated the four official symposium days

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GeoInformatics, a magazine for surveying, mapping and GIS professionals, provides coverage, analysis and commentary with respect to the international surveying, mapping and GIS industry. Recognising the integrated nature of the geospatial information industry, *GeoInformatics* presents thought-provoking and useful information.

For more information: www.geoinformatics.nl

Precise Comparison

Turning to the topic of data mining, Van Genderen said: "It means being able to extract a specific type of information from data that are stored in some place and possibly 30 years old. Software is currently being developed that is capable of extracting certain values of certain areas over time. This enables a precise comparison of data from the past and the present."

Van Genderen was quite enthusiastic about one working group that deals with innovative methods for less developed countries. He explained why he liked this project so much: "These people often don't have all the fantastic devices we have but show a lot of creativity in solving problems in their country by using remote sensing data. The nice thing is that you see a transfer of technology and knowledge between the Western world and these less developed countries. We learn from them, which accelerates solutions."

Relation

Prices of satellite images are going down, but in particular high-resolution images can still be quite expensive. Van Genderen, however, thinks that cost is not a real issue. "It's all about the relation between overall costs and the costs of the images needed. If you can retrieve a lot of information from these data, like the localisation of new energy resources, costs are not really the issue anymore." He continued: "When looking at an infrastructural project the costs might be negligible; however, for a municipality that needs high-resolution images on a monthly basis, for example to detect changes in infrastructure or vegetation, it might still be too expensive. An IKONOS stereopair image of, let's say, 11 km square size will cost $12,000 to $15,000, and then there's additional costs for things like the software needed to work with these data. In Europe a satellite image will cost you about € 100. Now that ORBIMAGE (Quickbird) has taken over Space Imaging (IKONOS) to form GeoEye, thus covering the larger part of the market, there is not that much competition at the moment. But I guess new players will enter the market soon, and this might bring the price further down."

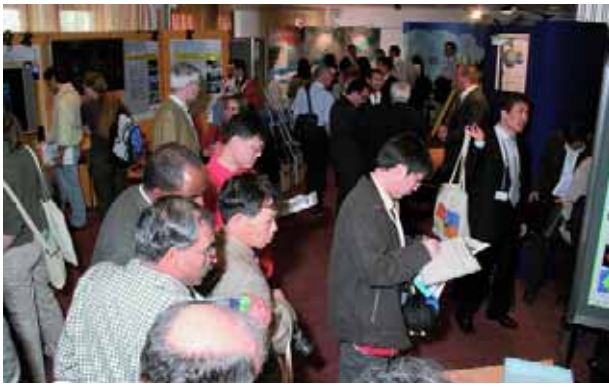
Symposia are excellent opportunities to meet and interact with fellow scientists (in the middle Professor John van Genderen)

Full-papers will be published at www.itc.nl/isprsc7/symposium

Technical Education

So if costs are not the bottleneck, what is? "Education" is Van Genderen's firm reply. "Though working here at ITC I have to admit that the focus has been too much on technical education. People studying at ITC going back to their own country usually become active on a technical level. Of course some of them end up in management or politics, and these people are aware of the possibilities of remote sensing. However, it is really essential that all decision makers are aware of these possibilities, because unfortunately this is not the case. But also municipality workers need to know how to work with things like GPS. They never learned how to do this at school. Information on these techniques should be brought into the open; it's not just a scientific topic anymore."

Rector Martien Molenaar (left) and ISPRS President Ian Dowman (right)



Impression of the well-attended exhibition

European Odyssey

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It's often pleasant to report on a "first". However, when the focus is on a new academic programme, this immediately prompts the question: But is this the first of many?

The select group of six student pioneers that successfully completed the first course in Geo-information Science and Earth Observation for Environmental Modelling and Management (GEM) received their MSc degrees on 9 March 2006. It was a day when the wet weather outside failed spectacularly to dampen the spirits of the new graduates and their friends and family within ITC. And that niggling question? Well, with 28 participants currently studying in Sweden, an intake of 40 planned for 2006, and some 500 to 600 applications in the processing pipeline for a new cohort, the upward line has soared off the graph. In short, the future looks decidedly bright for the GEM course - no question about it!

This 18-month GEM course, which is supported by the prestigious EU Erasmus Mundus programme, is run by a consortium of four institutes: the University of Southampton (UK), Lund University (Sweden), the University of Warsaw (Poland) and ITC (Netherlands). Combining the best elements of these institutes, and supported by visiting scholars and guest speakers, the course is an attractive proposition to those who have recently graduated with a Bachelor's degree in such disciplines as rural and environmental planning, geography, natural resources, agriculture, forestry, geo-information science, geology and water resources. And on that graduation day in March, four of the primary movers and shak-

ers from the four institutes concerned, Professor Peter Atkinson (Southampton), Professor Petter Pilesjo (Lund), Professor Katarzyna Dabrowska-Zielinska (Warsaw) and Professor Andrew Skidmore (ITC), were all present and correct to congratulate their successful students. Not without some difficulty, it has to be said. At the opening of the proceedings, Professor Pilesjo was still somewhere betwixt Schiphol and Enschede. Nevertheless, there was no need to resort to a global positioning system, because, overcoming all obstacles, he arrived in time to give an entertaining account of the studies in Sweden.

And so to the graduates themselves, the pathfinders in this new initiative, six in number - two from Ethiopia, one from Argentina, one from Kenya, one from Thailand and one from Uganda. What had attracted them to this particular course? How had they coped with the inevitable hiccups that attend a new venture? How had they enjoyed being the "gypsies" among the student community? *ITC News* was fortunate enough to gain an interview with Ms Lilian Busingye from Uganda and to hear what it was like to make this trip through science and indeed Europe itself. Perhaps her five travelling companions can identify with some of her experiences.

Lilian Busingye after GEM MSc graduation ceremony with (from left to right) Professor Andrew Skidmore, Dr. Dick van der Zee, and Andre Kooiman, MSc

A quick scan of her cv reveals that Lilian gained her BA (Hons) in social sciences from Makerere University in 1998 but was working as a researcher at the Institute of Environment and Natural Resources at the same university in the period 2001-2004. Apparently her career had taken some twists and turns along the way! And in her own words, she can only "look back and wonder". During her initial steps in the world of work in social economics and administration, she discovered the magic of GIS maps and a fascination with overlaying techniques. "Although I had no background in GIS, I could still do some things, but it was UCLAS that filled in that missing background and introduced me to the scientific environment." She was awarded the Certificate in GIS and Remote Sensing (application in forestry) at the University of Dar es Salaam (UCLAS) in 2002. And this was followed in 2003 by the Certificate in Global Environment and Development from the Global Virtual University (Norway). Enter the Scandinavian connection? Well, only to a slight extent - but Lilian's pioneering streak had certainly begun to emerge, because this was a step into e-learning. "Trial programmes were being run, with supervisors from different countries providing support at a distance. I was lucky though; I was the only one whose supervisor visited me in my country. Naturally, combining work and study was a challenge, but the university had Internet facilities that I could use in the evenings. For people working in offices without such facilities or a spare computer, it would be a difficult proposition."

Then Europe beckoned. "People had often said: 'You should do your Master's degree', but I have to confess I was a little scared at the prospect. Still, then I met up with Tom Loran, who was involved in a train-the-trainers course in the geography department, and I heard all about ITC." And how did she find out about the GEM course? "Well, actually, the GEM course found me! I applied for the NRM course but the NUFFIC fellowship proved to be a stumbling block. So I was asked if it would be acceptable to submit my name for an Erasmus Mundus scholarship. Acceptable? I was delighted! And when the letter of acceptance arrived, I immediately rushed over to show it to my fam-

ily - which in the event proved to be a bit difficult because a power cut suddenly plunged us into pitch darkness!"

Lilian Busingye had no trouble in obtaining permission from her employer to attend the course as the university is keen to enhance staff capability. In the first instance, she will return to her old job, but with an MSc degree in her suitcase the prospects for promotion are definitely good. Still, problems did come from another quarter: the visa authorities. In fact, the bureaucratic procedures linked to a course conducted in four countries caused quite a few headaches all round - not just for the students but also for the organisers. Flexibility and improvisation skills were at a premium, and naturally the lessons learned will benefit those who tread this path in the future. Despite all this, she is very happy with the course, and grateful too. "It was tough because we were the first. The second group may well give a different answer. At times we did feel low, but ultimately decided to be strong and focus on the light at the end of the tunnel. We six students gained tremendous support from one another. And we needed it - what with changing cultures, changing teaching styles, and our hands and heads full of luggage." When the band of travellers arrived in Lund, the start of the new component coincided with the examination on the UK part - and with three months of snow to boot. So snowbound in the house of residence, quietly poring over their books? Think again. According to Lilian, "Swedish students are always partying and, if you don't go to the party, the party comes to you, right in your own room. There's no escape."

The GEM MSc graduates, six in number - two from Ethiopia, one from Argentina, one from Kenya, one from Thailand and one from Uganda

Life at ITC was somewhat quieter, and the new arrivals had a great deal of support from the student community, particularly PhD students from their own countries. Although English is her mother tongue, Lilian even had the opportunity to lapse into Rukiga in this international environment. Then panic set in. No research proposal, no title, and of course it seemed that everyone else had finished theirs. But panic, it seems, concentrates the mind wonderfully and five days later her proposal was ready. The title of her thesis is "Spatial planning and the balance between agriculture, nature and recreation areas in Haaksbergen, the Netherlands". It's a little difficult to see how this relates to fieldwork in Poland, but of course the answer is that it doesn't. Only one of the students, Ms Laura Zalazar from Argentina, was able to do her fieldwork in Poland. Visas were again the root of the problem, with different rules applying to different countries. And the links between Haaksbergen and Uganda? "Haaksbergen is a rural area and 80% of Uganda is devoted to rural agriculture. Farming, with its attendant pains, is the life-blood of both. Dutch planners have realised the need for an enlargement of planning scale to meet the problems of this densely populated country both now and in the future. Their advances in developing administrative structures, interregional planning frameworks, and both allocative and innovative forms of intraregional planning offer important lessons of relevance to other countries such as Uganda. The system of spatial planning in the Netherlands may therefore have appeal for planners elsewhere in the world because it has to a large extent been able to sufficiently balance the interests of various stakeholders. In Uganda, a situation where one person's cows eat another person's plants on communal land can all too often escalate into violent conflict. Election campaigns are currently highlighting the issue of boundaries, but it really is a tremendous problem."

What new skills will Lilian carry home with her to Kampala? "I definitely found what I was looking for. I can put a scientific paper together and have really learned how to write. And although you can gain practical on-the-job experience with overlaying techniques, Lund taught us why you do what

For more information visit the GEM MSc website www.gem-msc.org

you do. We students came from different disciplines (biological genetics was certainly unexpected) and were equipped with different skills, so we also learned a lot from one another, particularly as we formed a stable element in our travels together. In addition, this wonderful course has given me immense self-confidence: I feel I can go anywhere and survive … anywhere!"

On the day of the defence for the first GEM group, the second group was also sitting an examination, so there was a feeling of solidarity flowing back and forth across cyberspace. Blackboard is proving an excellent means of communication, a forum for gathering information and investigating the advisability or otherwise of certain choices. Does Lilian have any suggestions for future courses? "If it were possible, three catch-up weeks would be a good idea. This would give you a chance to get your breath back and digest the topics. As it is, you're often tossing and turning in bed at night, dreaming about work."

At the close of the presentation ceremony, Mr Javier Carranza Torres of the Student Association Board, had compared the peregrinations of the first GEM contingent to the wanderings of Odysseus and had ended by wishing them a safe return to their particular "Ithaca". But the celebrations were not yet over, and Lilian left the interview to exchange her colourful tradition dress for a pair of jeans in readiness for her next engagement - lunch with her brother, who had flown in from Uganda to share in this special day.

School for Land Administration Studies Established

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On 23 March 2006 the International Institute for Geo-Information Science and Earth Observation (ITC) and the Netherlands Cadastre, Land Registry and Mapping Agency (Kadaster) signed an agreement to cooperate in establishing a School for Land Administration Studies at ITC.

The issue of land and land administration is increasingly claiming the attention of the international community. In a recent interview in *ITC News*, Professor Hans van Ginkel, rector of the United Nations University, of which ITC is an associated institution, said: "We have to start work and find solutions that are fair and humane to all parties involved. Zimbabwe has attracted the attention of the international media, but in many countries there is a problem as to who owns the land and how it is registered. Redistribution is a touchy subject. It is in the collective interest to reassign functions to land in both urban and rural areas but with adequate government compensation. And this is a major issue in Europe too. For example: once land is known to be eligible for urban expansion, the price rises. It should be possible to set a price on such plots early on and so reduce the element of speculation. This is a problem shared by developed and developing countries."

The school will deliver land administration education and research within ITC, and will manage and execute a joint land administration programme with the United Nations University. This programme consists of a se-

ries of seminars, short courses, and networking. ITC's rector, Professor Martien Molenaar, said: "ITC is dedicated to good governance issues, of which the administration of land is an important part. As ITC students are mid-career professionals, ITC is fully aware that they are interested not only in academic knowledge, but also in organisational and institutional issues." Therefore he welcomed the cooperation with the Netherlands Cadastre as a prerequisite for good education and research in land administration. Mr Godfried Barnasconi, member of the Executive Board, represented the Netherlands Cadastre at the signing ceremony. He said: "The Netherlands Cadastre's organisational strategy is to enhance its performance by the use of modern management approaches and by the application of advanced information technology. The organisation is aware that, in order to eradicate poverty and achieve sustainable development, knowledge of how to create a good working land registry and cadastre is necessary, and the organisation is prepared to share its knowledge and expertise with other countries." Mr Barnasconi is convinced that the School is a highly appropriate channel to the developing world.

For more information:
www.itc.nl/unu.la

Mr Godfried Barnasconi (right), member of the Executive Board, represented the Netherlands Cadastre at the signing ceremony. At his left ITC rector Martien Molenaar

Kadaster and ITC staff involved in the School for Land Administration Studies

education news

Joint Course on Digital Image Processing and Spatial Information Extraction at RECTAS

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The Regional Centre for Training in Aerospace Surveys (RECTAS) in Nigeria was established in 1972 with the support of ITC. As one of the many joint activities since then, in 2005 ITC and RECTAS organised the three-week course Digital Image Processing and Spatial Information Extraction for Geo-information Production. The course was supported by Leica Geosystems.

Course Overview

Nowadays decentralisation of education is one of ITC's prominent goals and it was in this spirit that ITC, RECTAS and Leica set up the three-week course. The course started on 24 October 2005 and was held at RECTAS in Ile-Ife, Nigeria.

The joint course was divided into two parts: the first covered digital image processing with ERDAS Imagine and the second dealt with using Leica Photogrammetric Suite for information extraction from aerial images. The course was attended by 15 participants, of which five were current RECTAS lecturers and 10 came from state offices or private companies in Nigeria. ITC was represented by two staff members, Wan Bakx and Stephan Heuel. It was their first mission abroad and it turned out to be a positive and interesting experience for both of them.

Course Details

The first two weeks were filled with lectures and exercises on digital image processing under the supervision of Wan Bakx. The topics ranged from geometric and radiometric calibration, image enhancement, mapping and visualisation, to classification. The exercises were carried out using the ERDAS Imagine software package. The participants regarded the hands-on experience with the software as very helpful, and enthusiastically explored the possibilities of image processing - even outside working hours!

The second part of the course dealt with information extraction from aerial images. This was done using Leica Photogrammetric Suite (LPS), which is compatible with ERDAS Imagine. In contrast to the first part, the lectures were now given by RECTAS and only the practicals and exercises with LPS were under the guidance of Stephan Heuel. The course covered main issues relating to photogrammetric topics such as stereo viewing, orientation, triangulation and orthophoto generation, and concentrated on communicating practical skills.

The cooperation with Leica was highly successful. Including a local Leica representative as a course participant proved to be an efficient and effective strategy for RECTAS, for Leica and for the participants, establishing a direct communication channel for better mutual understanding.

Closing Ceremony

At the closing ceremony on the last day of the course, Wan Bakx gave a presentation on ITC and its mission and Jide Kufoniyi, the director of RECTAS, described the objective and tasks of RECTAS. Course certificates were presented to the participants, together with a CD that included all the presentations and exercise data, as well as pictures taken throughout the course. In addition, the partici-

Not only aerial images can be used for stereo viewing: use your anaglyph glasses and gain an in-depth view of the classroom and the hard-working participants

pants received complimentary anaglyph glasses from RECTAS. The participants expressed their gratitude for being able to attend the course, spontaneously breaking into a "thank-you" song.

The friendliness of both staff and participants, as well as their enthusiasm, cannot be stressed highly enough. Participants were seen working on exercises late into the evening and at weekends. A course evaluation produced a highly positive response, and both the participants and the director expressed their wish that this course be repeated next year, possibly on a commercial basis.

The participants, lecturers and staff of RECTAS in front of the main administration building

GIM Students Examine Good Practices in SDI Development

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As intergal part of the Geo-Information Management (GIM) programme the GIM students visited Denmark from June 12th to June 16th 2006. Focus of attention was on development of spatial data infrastructure (SDI) at local, regional and national level.

During their excursion to Denmark, the GIM students experienced the challenges in developing and implementing SDI. In addition to technical requirements it was recognised that issues as willingness to cooperate, institutional aspects, legal aspects (e.g. copyrights), data quality, and responsibilities relating to data maintenance are highly relevant success factors.

It was confirmed that, in the case of sharing data from different sources in one product, building SDI means building comprehensive data models to be implemented as base registers in a distributed environment. Here interoperability and standardisation are the related issues. International standards need to be fully adapted to complex, local "dialects". It was also learned that, to improve performance and government, spatial data have to be integrated in a more comprehensive environment that includes people, companies, addresses and land rights.

The GIM students received a warm, relaxed and highly informal welcome at Aalborg University, the Danish Cadastre, the municipality of Copenhagen, the International Federation of Surveyors, and the private company Blom Info.

Aalburg's virtual reality laboratory provided them with a completely new experience, and the discussion comparing an open-source object-oriented standard for SDI with the Google Earth approach was particularly interesting.

The presentation and discussions at the Danish Cadastre were excellent. The focus was on data accuracy in relation to data acquisition and mapping over many years (relevance of history in datasets), and the maintenance of very large spatial datasets in close cooperation with private surveyors.

The visit to the municipality of Copenhagen clarified the efficiency of centralised responsibilities in the maintenance of spatial data. A local SDI was available for all city employees. The intensive use of oblique aerial photographs rather than available orthophotos was remarkable, and the 3D city model was quite fascinating.

At FIG, the focus was on the rules of surveying in relation to sustainable development, while the visit to Blom Info demonstrated the need for private companies to be ahead in applying the most sophisticated

technologies if they wished to survive the fierce competition. Innovations are important, but so too is cooperation with companies in developing countries, e.g. for purposes of analogue-to-digital conversions and photogrammetric measurements

Naturally there was time left to explore the city of Copenhagen, and the whole trip was a most refreshing experience.

GIM students visiting the virtual reality laboratory at Aalborg University, Denmark

With its comprehensive system, Denmark leads the field in windmill-produced electricity

MSc Course in Geographic Information for Natural Resource and Environmental Management, China

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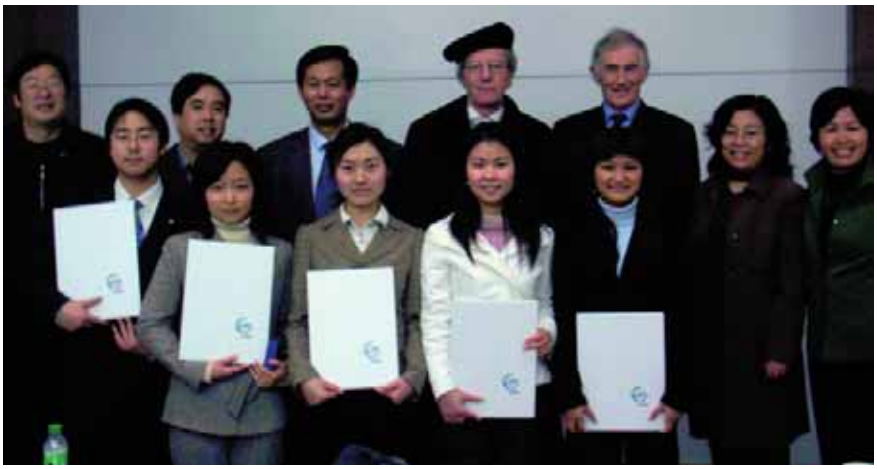
The six participants in the first MSc course in Geographic Information for Natural Resource and Environmental Management (GINREM) graduated on 17 March 2006, having all successfully completed their studies. GINREM is an MSc degree course run jointly by ITC and the School of Resources and Environmental Sciences of Wuhan University, China.

The participants followed the first five modules in Wuhan. In January 2005, they travelled to the Netherlands to follow the remaining taught modules of the course together with participants in ITC's regular Natural Resources Management course.

In August 2005 the students returned to China to carry out their MSc research, supervised jointly by staff of Wuhan University and ITC. Four students executed their research in Poyang Hu Nature Reserve, applying remote sensing techniques to study sediments and light penetration in



All six participants in the first MSc course in Geographic Information for Natural Resource and Environmental Management successfully completed their studies and graduated on 17 March 2006

the lake waters, as well as mapping and monitoring the grasslands fringing the lake. The first two studies were related to the PhD of Wu Guofeng, who studies the food habitat of the Siberian crane. Two other students modelled the distribution of amphibians and of bamboo. The latter study was undertaken as part of the PhD study of Wang Tiejun, who studies panda habitat.

Professor Alfred de Gier, chairman of the NRM Programme Board, chaired the final thesis examination in Wuhan. The external examiner was Dr Liu Xuehua from Tsinghua University, Beijing. At the graduation ceremony, the graduates received their degrees from Professor Congxin Huang, the vice-president of the university. The ceremony was attended by about 40 staff and graduate students and some family members. The proceedings were filmed for a short broadcast on the Wuhan campus TV.

The participants in the second GIN-REM course are presently in Enschede to complete the taught part of the course and to prepare their research proposals.

research news

Uncontrolled Changes to the Earth Have Disastrous Consequences

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From 8 June to 2 July the environs of Cabauw, Garderen and Kootwijk were the setting for an investigation into the effects of global change. More than 80 European scientists and students collected data on the ground and from aerospace for the purpose of testing and further developing existing models that chart the effects of global change. These scientists had the most advanced measuring equipment - on the ground, in measuring masts, onboard satellites and aircraft - at their disposal.

"Global change" is the collective term for the worldwide changes in nature and our living environment that are caused by climate change, the greenhouse effect, CO_2 emissions and the like. "Uncontrolled changes to the Earth bring many risks in their wake," says ITC's Professor Bob Su. "Even before the most obvious consequences hit us personally, climate change, for example, has had a devastating effect on our water stocks."

There are various models that chart the effects of global change, but the question is whether these models are adequate. ITC is working together with Dutch and European partners on EAGLE2006, an ambitious project to investigate the effects of CO_2 emissions and climate change on the water cycle of agricultural and forest areas. The effects on arable and forest land in central Netherlands were investigated in June by a large international group of scientists under ITC leadership.

The location was eminently suitable for conducting research on arable and forest land. The area around Cabauw consists of grassland, and is dominated by the tower (213 m high) of the Royal Dutch Meteorological Institute, from where various climatological measurements could be made. Tall masts (23 m and 46 m respectively) of Wageningen University and Research Centre and the National Institute of Public Health and the Environment, with equipment for measuring heat, water vapour, and CO_2 and H_2O in the air, are located in the Loo and Speulder woods at Kootwijk and Garderen.

The measuring activities were concentrated around 14 and 15 June, when ENVISAT and the CHRIS/PROBA satellite of the European Space Agency

Determination of surface roughness using small scale photography

The INTA aircraft -carrying the AHS and CASI instruments- and its crew

Hyperspectral field measurement (using an ASD) of the Kootwijk sand area used for the calibration of the hyperspectral air- and space borne images

(ESA) - one of ITC's project partners - was taking photographs of the area. Weighing only 15 kg, the CHRIS/PROBA satellite is capable of taking photographs from different angles at a height of 600 km, enabling vegetation to be examined from a number of perspectives. At the moment when the satellites passed over, three aeroplanes with sophisticated equipment such as radar, lidar (a sensor that measures gas concentrations), and cameras that measure several wavelengths (e.g. visible light and infrared) were deployed to take aerial photographs and make various measurements of the same areas. In addition, soil humidity and temperature, evaporation, and water quality were measured on the ground.

Back at ITC in Enschede, this scientifically unique collection of ground and aerospace data will be used in developing a validation model that will make a contribution to the new generation of earth observation systems being used to make predictions regarding the consequences of climate change, CO_2 emissions, and the water cycle of our planet.

EAGLE2006 is part of the project "Exploitation of Angular Effects in Land Surface Observations from Satellites (EAGLE)", which is financed by the European Union within the context of the Sixth Framework Programme; the project "Modelling Radiation, Heat and Mass (Water Vapour and Carbon) Exchanges at the Land-Atmosphere Interface Using Multi-angular Optical and Thermal Measurements (EcoRTM)", which is financed by NWO-SRON; and other ESA and national projects.

For more information: www.uv.es/eagle

project news

NUM-ITC-UNESCO Laboratory for Remote Sensing/GIS

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The NUM-ITC-UNESCO Laboratory for Remote Sensing/GIS was opened on 9 December 2005 at the National University of Mongolia.

ITC and the National University of Mongolia (NUM)
ITC and the NUM have had a close relationship in education and research for many years. Since the first ITC staff members went to Mongolia in the early 1990s after the withdrawal of the former Soviet Union and the collapse of COMECON, there have been close ties between the two organisations.

Several NUM staff members have done their postgraduate studies in geo-information science, at levels ranging from MSc to post-doctoral research, at ITC. Furthermore, three deans of NUM faculties have visited the Institute, and seven ITC staff members have given courses in remote sensing/GIS at the NUM. In addition, Professor van Genderen of ITC has been an honorary professor at the NUM since 2000.

ITC and UNESCO
The cooperative relationship between ITC and UNESCO dates back even further. In the period spanning the 1960s to the 1980s, ITC and UNESCO jointly set up the ITC-UNESCO Centre for Integrated Surveys.

In 1988, the then director-general of UNESCO, Dr Frederico Mayor, and the Dutch minister of education and science entered into a renewed cooperation agreement. Under this four-year multimillion dollar project, ITC developed and designed geographical information systems within UNESCO's sustainable development framework, in particular preparing education training packages for developing countries.
ITC has also hosted the UNESCO-BILKO secretariat for five years, with the aim of developing distance learning remote sensing software training materials for coastal zone applications in developing countries.

Hence, ITC took the initiative to request UNESCO's support in establishing the ITC-UNESCO Laboratory for Geo-Information Processing to serve as a central facility for all faculties, schools and research institutes of the NUM.

Opening of the Laboratory
At the opening ceremony, NUM had the honour of welcoming several distinguished guests, including the minister of education, and representatives from ITC (Netherlands), Clark Labs (USA), UNESCO, and various other government ministries, universities and organisations.
The NUM-ITC-UNESCO laboratory has been equipped with computers and peripherals from the various small departments, laboratories and research centres around the NUM in order to centralise the university resources in one modern efficient laboratory. In this way, the laboratory will encourage interdisciplinary cooperation between NUM schools and departments in various fields.

The laboratory has been provided with new professional RS/GIS soft-

Dr James Toledano, executive director of ClarkLabs, USA, making a speech during the opening ceremony of the new NUM-ITC-UNESCO Laboratory for Remote Sensing/GIS

Professor Gantsog, president of the National University of Mongolia, together with the minister of science, education and culture of Mongolia, cutting the ribbon to mark the official opening of the laboratory

ware packages, and ITC has provided a site licence for unlimited use of, and access to, the ILWIS RS/GIS software package. Clark University, via its Clark Labs, has also provided a multi-seat site licence for university-wide use of the famous IDRISI RS/GIS software.

Prior to the opening, Dr James Toledano, executive director of Clark Labs, gave a one-week training course on RS/GIS data processing to NUM professors and government officials. The aim of this training course was to develop the NUM human resources facilities. The long-term training programme will be developed to ensure continuous upgrading of the ITC-UNESCO lab users.

This new NUM-ITC-UNESCO Laboratory for Remote Sensing/GIS will contribute greatly to the human resources development of Mongolian scientists and professionals. The laboratory will provide regular short courses on topics of relevance to Mongolian development, such as pasture and rangeland management, agricultural monitoring, and environmental input assessment of mining activities. These short courses will be geared to the needs of various government ministries, of private industry, as well as of research institutes. Professor R. Tsolmon of NUM has been appointed as the first director of the new laboratory.

For more details on the laboratory and use of its facilities, please contact:
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Advanced Training Course in Geoinformatics for HLJBSM

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From 19 September to 9 October 2005, staff of the Heilongjiang Bureau of Surveying and Mapping (HLJBSM), Harbin, China, attended the tailor-made Advanced Training Course in Geoinformatics at ITC. The course has been established within the framework of the Memorandum of Understanding signed on 20 February 2001 (see *ITC News* 2005-2, p.18).

This is the second time in succession that this advanced training course has been organised by ITC's Geo-Information Processing (GIP) department, and the aim was to offer the participants (who all hold senior positions in mapping organisations) relevant information on the latest developments within the world of geoinformatics. Many lectures from staff from EOS, GIP and PGM contributed to this course, and the topics covered ranged from mobile/web GIS, 3D cadastre, advanced visualisation methods, SAR inferometry, advanced remote sensing monitoring/analysis, and marketing geo-information services, to dataflow management issues. The chosen topics were well appreciated by the participants. The eagerness to acquire information was well demonstrated by the sharp and concrete questions posed by the participants during the various sessions.

A special word of thanks should be addressed to ITC alumna Mrs Tang Yanli (MSc EREG.2). She was the counterpart organiser and was excellent when it came to translating the high-level scientific lectures from English into Chinese.

Both technical and social visits were organised during the training course

In addition to the theoretical part of the course, the programme included technical and social visits, for example, to organisations that demonstrated Dutch efforts to protect our country from the sea and to a wooden shoe factory.

BRIDGE, an EU-Funded Asia-Link Project

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On 14 and 15 November 2005 the kick-off workshop of the BRIDGE project was held at the premises of the Asian Institute of Technology in Bangkok, Thailand. BRIDGE is the acronym for the three-year project entitled "Building Human Resources in the Development of Academic Programmes in Sustainable Geosystem Engineering and Exploration", which falls under the EU Asia-Link Programme. Partners in the project are the Asian Institute of Technology (AIT), the Vietnam National University (VNU), the National University of Laos (NUOL) and Stockholm University (SU).

BRIDGE Objectives

The general objective of the Asia-Link Programme is to promote regional and multilateral networking between higher education institutions in Europe, South and Southeast Asia, and China from the perspective of mutual interest. BRIDGE aims to build a sustainable academic network between ITC and SU in Europe and AIT, VNU and NUOL in the Mekong region in order to increase human resources in the Mekong region in the field of geosystem engineering and exploration. On one hand, universities in the Mekong region need to meet the increasing demand for multidisciplinary experts that are specialised in geoscience and sustainable geosystem exploration for mineral resources. On the other hand, in order to increase their attractiveness to students from Asia, AIT and ITC need to expand and update their knowledge of specific geo-engineering problems of

Twenty-two participants attended the train-the-trainers workshop in Laos

Fifty-five participants attended the train-the-trainers workshop in Vietnam

the Mekong region, and to strengthen their research collaboration with those universities in the region that are in the process of developing their own international postgraduate programmes.

Group photo of participants in the opening session of the BRIDGE project (front row: Bountanh Bounvillay (NUOL), Sabine Maresch (ITC), Pham Huy Giao (AIT), Mads Korn (EC), Freek van der Meer (ITC), Goran Beckius (SU), Phien-Wej Noppadol (AIT), Dang Van Luyen (VNU))

Kick-off Workshop

The opening session of the kick-off workshop was attended by EC delegate Mr Mads Korn; Professor Vilas, the AIT vice-rector; Dr Noppadol, the representative of the dean of AIT's School of Civil Engineering; Dr Manop of the NMR; the BRIDGE core team members (Van der Meer/Maresch of ITC, Beckius of SU, Dang Van Luyen/ Mai Trong Nhuan of VNU, Bounvillay of NUOL, and Giao of AIT); and other distinguished guests.

After the ceremonial start to the project, the core team embarked on their deliberations. The aim was to prepare detailed project planning and implementation, based on a SWOT analysis of the relevant ongoing Master courses of each of the partners (ITC, AIT), in relation to the international education programmes proposed by NUOL and VNU in the field of geosystem exploration and engineering. Competences and opportunities, as well as threats to the success of the programme, were discussed, carving out the details of the BRIDGE activities. During 2006 an assessment of training needs and market opportunities will be carried out by AIT, while ITC will take the lead in setting up a Blackboard environment for the project, as well as a website. In addition an e-newsletter and flyers will be prepared, and BRIDGE A-L offices will be set up at both VNU and NUOL.

Train-the-Managers Workshops

Two train-the-managers workshops were organised to run simultaneously at the Hanoi University of Science (HUS/VNU) and NUOL from 8 to 13 May 2006. The trainers were Dr Quang of AIT and Professor Sikander Khan (in Vietnam) and Dr Goran Beckius (in Laos) of SU. The workshops were organised for university administrative and managerial staff and focused on the skills needed to administratively set up, manage and market an internationally programme. The topics discussed included curriculum development, scheduling, and market surveys to establish key competences and content.

Train-the-Trainers Workshops

During the period 26 to 30 June two workshops were conducted simultaneously in Vientiane (Laos) and Hanoi. These train-the-trainers workshops for NUOL and HUS staff focused on discussion issues related to the use of geo-information science and earth observation in geosystem engineering and petroleum geosciences. The workshops were conducted jointly by staff members from ITC's Earth Systems Analysis department (Chris Hecker lectured in Hanoi, Mark van der Meijde in Vientiane) and staff members from AIT (Dr Giao and Dr Noppadol). ITC's Professor Freek van der Meer visited both workshops and was, as BRIDGE project leader, responsible for the overall

Group photo of the BRIDGE core team members in front of the School of Engineering at AIT (from left to right: Dang Van Luyen (VNU), Goran Beckius (SU), Freek van der Meer (ITC), Sabine Maresch (ITC), Mai Trong Nhuan (VNU), Bountanh Bounvillay (NUOL), Pham Huy Giao (AIT))

coordination. In Laos a total of 22 participants attended the workshop, while in Vietnam 55 participants attended. In Laos the course was conducted at the Center for Engineering and Development Studies headed by Dr Bounhtanh Bounvilay. Workshop participants came from CEDS and other NUOL faculties, as well as from the School of Polytechnic, the Ministry of Energy and Mining, and the National Geographic Department. In Vietnam the workshop was hosted by HUS and organised by Dr Dang Van Luyen of the Geology department. Participants came from various faculties of the university, as well as from the Institute of Geography, the Vietnam Academy of Science and Technology, and the Vietnam Petroleum Institute. The *Laos Times* newspaper published an article on the workshop and Laotian national television covered the workshop in its evening news bulletin.

Future Activities

In August 2006 four staff members (two from NUOL and two from VNU) will enrol in a special version of AIT's Geosystem Exploration and Petroleum Geo-engineering (GEPG) programme. These participants will follow courses at AIT during the first semester and then move to ITC to attend the specialisation modules in the Applied Earth Sciences programme during the period January to March 2007. On completion of these course modules, they will return to their home countries for MSc research co-supervised by AIT and ITC. After completing their thesis work and defending it successfully, they will receive an AIT MSc degree.

This programme serves as a prototype for a possible joint education programme between AIT and ITC that will lead to an ITC or AIT MSc degree in earth sciences. In subsequent years, course materials will be developed to support international programmes in geosystem exploration and engineering in Laos and Vietnam, seminars will be organised to reach professional organisations in the region, and a quality assurance plan will be developed. More on BRIDGE will be communicated through the various websites (see www.itc.nl/bridge) and through *ITC News.*

announcements

SDI Implementation Guide Translated into French

SDI Africa: An Implementation Guide, originally published in English in 2003, was made available in French in 2005 (see http://geoinfo.uneca.org/sdiafrica).
The French translation of the main chapters and key reference material was made possible through a fund from the Economic Commission for Africa (ECA). The translation is a work-in-progress and comments and corrections are most welcome. Mail them to ecageoinfo@uneca.org. The handbook has been compiled as a cooperative effort of the ECA, the Global Spatial Data infrastructure Association (GSDI) and EIS-Africa, with the collaboration of the International Institute for Geo-Information Science and Earth Observation (ITC). The objective of compiling this handbook is to assist African countries to improve the management of their geospatial data resources in a way that effectively supports decision making by governments and ensures the participation of the entire society in the process.

Source: GSDI Newsletter April 2006, www.gsdi.org

Expert Group Meeting Bangkok

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On 8 and 9 December 2005 Kadaster International, ITC and FIG, in close cooperation with UN-Habitat, UN-ESCAP and the World Bank, organised an expert group meeting on secure land tenure, new legal frameworks and tools.

The meeting was strongly supported by the United Nations University as it contributed to the university's mission of enhancing the exchange of knowledge between local and international experts. The meeting was by invitation only, and the aim was to discuss the innovative approaches and tools that are needed to meet the requirements for land administration in the Asian region. About 50 experts came

together and outlined their views in a series of presentations. The outcomes were summarised by the chairman Paul van der Molen and dealt with such innovations as community-driven land adjudication in Aceh, a stop shop in the Philippines, simple procedures in Vietnam, unlocking Waqf land for squatting in Afghanistan, the Bhoomi approach in India, non-judicial conflict resolution in Cambodia, and the role in general of high technology in providing low-cost solutions. The papers are published on www.oicrf.org.

More than 50 experts from over 20 countries were invited to join the meeting held in the UN Conference Centre in Bangkok

International Conference in New Delhi

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An international conference on enhancing land registration and cadastre for economic growth in India took place in New Delhi on 31 January and 1 February.

This conference was organised by ITC, Kadaster International, GIS Development, the Centre for Science, Development and Media Studies (CSDM), and FIG Commission 7 under the flag of the United Nations University. The conference, part of the bigger event Map India 2006, brought together some 40 local and international experts, who exchanged views on how to remove distortions in the real estate and land market in order to boost the economic growth of India. Major improvements considered necessary were the better registration of property rights and a better cadastre. Various proposals for their development were discussed. The outcomes will be published on Internet and on a CD-ROM in order to provide many people with easy access to the presented papers.

Talat Munshi Receives Best Technical Paper Award

Each year Map India presents a best paper award, sponsored by ESRI, in order to maintain its efforts to promote and develop the enterprising mapping community in India.

Mr Talat G. Munshi, MSc, lecturer in ITC's Department of Urban and Regional Planning and Geo-information Management, received this year's award for his paper entitled "Urban planning and use of GIS: the case of Ahmedabad City, India". Mr Munshi presented his paper during the Map India 2006 conference in New Delhi, in the session held on urban planning and rural development.

ITC alumna Padmavathy Anuvapura Seetharamaiah from India during her presentation

Ravi Gupta, GIS Development, India

Major-General M. Gopal Rao, surveyor-general of India, giving a welcome address

life after itc

The ITC Alumni India Meet

Professor Mahavir

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The ITC Alumni India Meet was held on Wednesday, 1 February 2006 at New Delhi. About 30 ITC Alumni attended the Meet and exchanged pleasantries. The Alumni discussed the activities over the previous year and the preparations for the forthcoming ISPRS Working Group Conference due to be held in Goa, in September 2006. The Meet was graced by the presence of Mr. J. Hans Schütte, Head – Press, Cultural and Information Section; and Ms. Désirée Bonis, Minister Plenipotentiary and Deputy Head of Mission at the Royal Netherlands Embassy, New Delhi. ITC staff Mr. John Horn and Dr. Arbind Tuladhar interacted with the Alumni.

Expanding Operations

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Song Aihong came to ITC from Wuhan University with degrees in economics and law and graduated with an MSc in urban applications in February 2000.
After her graduation she returned to Wuhan, and in October 2000 joined the staff of the State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing (LIESMARS) at Wuhan University as an associate professor. She was appointed jointly by LIESMARS and Geostar. Geostar is a spin-off company set up by the university in 1999 to promote commercial applications of the research carried out by LIESMARS.

At the time of her appointment, Geostar employed 60 staff. In the last few years it has substantially expanded its activities and now employs 180 people, three times the number working for the company in 2000. In 2003 it moved from a site close to the university campus in central Wuchang to rented premises in a technology incubator building about 13 km from the city centre. Its premises are now too small for its present staff and the company is moving to its own newer and larger premises at the end of October 2005. These are about three times the size of its present premises (6,000 m^2).

Geostar's operations can be divided into three main categories. First and foremost is the GIS software that is developed by the company. This provides vector, raster, DEM, 3D and web-based capabilities for its growing number of users. Second comes its expanding portfolio of GIS applications projects. These include 3D visualisation in the Virtual Shengzhang project in Guandong province (10m. yuan or 1.25m. US dollars) and Virtual Nanchang in Jiangxi province (3.5m. yuan), as well as urban planning applications in Nanjing in Jiangsu province (four projects worth a total of 4m. yuan), Shenyang in Laoning province (1.6m. yuan) and Dongguan in Guandong province (3m. yuan). Lastly, Geostar also carries out a variety of data processing functions. To facilitate its operations in the field, it recently purchased a digital mapping camera (price 1.4m. US dollars) to use for its aerial photography.

Professor Ian Masser and Song Aihong

The company recently hired a full-time professional manager to handle its operations. As its deputy manager, Aihong devotes 80% of her time to Geostar and 20% to teaching and research activities at LIESMARS. Over the next five years she anticipates that the company will further expand its present activities and also begin to move into international markets through joint ventures with European and Japanese companies. She recalls her time at ITC with great affection and is glad that she had the opportunity to learn the GIS skills there that are essential for her present job.

Closing Ceremony
Refresher Course on Geoinformatics for Hydrological Modelling

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The refresher course Geoinformatics for Hydrological Modelling came to a close on Friday, 14 October 2005. This date marked the end of a two-week training course that brought together participants from various countries in Africa - participants who are experts in the fields of geographical information systems and remote sensing applied to water resources. They came from various countries: Ethiopia, Nigeria, Uganda, Kenya, Tanzania, Zambia, Chad, Rwanda, with representatives from MINITERE, the Nile Basin Initiative, KIST and NUR.

This was the first time that Rwanda had hosted the refresher course in geo-information, a course that is organised every year in different countries all over the world. The course is funded mainly by the Netherlands Fellowship Programme (NFP). It was with great honour that the CGIS, in collaboration with the National University of Rwanda (CGIS-NUR), hosted this prestigious event. The focus was on geoinformatics for hydrological modelling and the objective was to train participants in the efficient use of water resources and provide the necessary information for managing these resources. Among the topics covered over the two weeks was geo-information for natural disaster management in Eastern Africa, novel approaches in earth observation, and geo-information science for earth systems analysis.

Dr Ben Maathuis

Guests of honour

Refresher course participants with guest of honour

Participants' representative

Present during the closing ceremony were the guests of honour Professor Munyaganizi Bikoro, minister of state for land, resettlement and planning, Professor Chrisologue Karangwa, rector of the National University of Rwanda, Dr Michelle Schilling, director of the Centre for Geographical Information Systems (CGIS), and many others.

In his remarks, Professor Munyaganizi Bikoro said that Rwanda was a small country with big problems with regard to planning and environment resource management. He emphasised that CGIS was expected to play a significant role in addressing the issues of water resource management and environmental conservation. He also stressed the importance of access to information regarding the problems faced by Rwanda in terms of water and land use. Consequently, CGIS is opening the doors to knowledge concerning these issues and how to deal with them.

The rector of UNR said that hydrological modelling was a key element in the efficient use of water resources in any country, but particularly in Rwanda. Therefore, UNR was happy to facilitate the opportunity to conduct such a refresher course in Butare province, as the course objectives were highly relevant.

Source: Geographic Information Systems and Remote Sensing Regional Outreach Center (CGIS) website http://www.cgisnur.org/

NUFFIC Refresher Course: Soil Spectroscopy and GIS Dynamic Modelling for Environmental Modelling and Nature Conservation

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The NUFFIC-funded refresher course Soil Spectroscopy and GIS Dynamic Modelling for Environmental Modelling and Nature Conservation held from 12 to 23 September 2005 was offered by ITC staff members Professor Freek van der Meer and Dr John Carranza, together with Professor Steven de Jong and Drs Raymond Sluiter of Utrecht University, Dr Patrick Kariuki of the International Livestock Research Institute (ILRI), and Dr Keith Shepherd of the International Centre for Agroforestry (ICRAF). The venue was the ILRI campus in Nairobi. Twenty-two participants from Kenya, Ethiopia, Uganda and Tanzania, representing various mapping agencies and universities in the region, attended the course.

The course centred on the state of the art in geological remote sensing in combination with soil engineering and physics directed towards the sustainable use of environment and natural resources. It combined specialist knowledge in the earth science fields with the latest insights in the fields of geo-information management and earth observation methods. The objectives of the course were to:

- create an expert body of earth scientists capable of independently finding and using earth observation methodologies to address issues of managing and monitoring earth processes
- communicate the current state of the art in earth observation, soil engineering, degradation studies and GIS dynamic modelling
- develop a conceptual framework for understanding the potential new sources of information from earth observation techniques and their applicability in earth sciences
- assist in developing strategies for data acquisition directed towards the specific needs of earth scientists
- provide insight into where data can be retrieved and how data (field-based and earth observation) can be integrated.

The course focused on combining spectroscopy and GIS dynamic modelling to understand the dynamic earth system. Insight is needed into the interactions of chemical, physical, biological and dynamic processes that extend over spatial scales ranging from microns to the size of planetary orbits, and over time scales ranging from milliseconds to billions of years. In the field of remote sensing, earth observation strategies are increasingly deploying a systems approach. Earth observation in the past was highly monosensor-based; present and future earth observation space missions have a multisensor character. We focused on the many societal issues in East African countries that relate to soil properties and thus play a part in soil engineering for construction purposes, agriculture and nature conservation, and in soil erosion and land degradation.

In the first week we covered some basics of remote sensing and developments in sensor systems and information theory, progressing to the area of spectroscopy (both field/laboratory and imaging). To most of the participants, this type of remote sensing was new so we gave them ample time to digest the material. De Jong and Van der Meer dealt with the theory, and Kariuki and Shepherd illustrated this with examples from civil engineering and soil degradation studies. Several datasets derived from our joint research projects were used, culminating in a case study using ASTER and DEM data of the Lake Nakuru area in Kenya and focusing on mapping degraded areas in volcanic terrains. In the second week the results of image processing and thematic mapping were taken further by De Jong and Sluiter, who handled dynamic process-based GIS models, and by Carranza, who handled data integration and predictive GIS models. A concluding workshop was held to discuss how the theoretical results could be implemented in the day-to-day work of the course participants.

Professor Freek van der Meer addressing the participants

The course focused on combining spectroscopy and GIS dynamic modelling to understand the dynamic earth system

The weekend was used to organise an excursion that coupled remote sensing and GIS to field data and experiments, while during the first week site visits were organised to the International Centre for Agroforestry (ICRAF) and the Regional Center for Mapping Resources for Development (RCMRD), both based in Nairobi. These visits allowed participants to see how remote sensing, GIS and soil spectroscopy are implemented in project work.

Participants (22) from Kenya, Ethiopia, Uganda and Tanzania, representing various mapping agencies and universities in the region, attended the course

From an Islet to the Rest of the World

Elena Vilches Quezon (GIM.2/u, 2002) quezon03798@alumni.itc.nl

At the onset of autumn in 2000, great possibilities unfolded in the life of a woman on her passing the rigid examinations and interviews to be admitted as a student to a higher form of learning in a foreign land. She was confronted with mixed emotions. On one side, she was scared of the intensive study modules she would have to pass, considering she had little background in information technology (more so in GIS operations). On the flip side, she was full of anticipation and excitement at the prospect of being able to see the windmills and tulips and visit the key cities of Europe.

In September 2000, realities were haunting her - away from home for 18 months and struggling to adapt to the temperate and windy seasons. She took life in her stride as she moved forward, making friends and weaving herself into the complex fabric of the different cultures of 96 nationalities represented by the students, professors and staff at ITC in the period 2000 to 2002. She also had to learn the norms of her host country, the Netherlands.

However, looking back, all she can say is that ITC has been very influential in shaping who she is at the moment and who she can become through being linked to the bigger world through the ITC alumni network. The Institute indeed became her training ground in spatial information management, and her exposure to the mixed culture in ITC prepared her well for dealing with different nationalities in the course of her work as a junior management information technology consultant on a project funded by the World Bank.

Understanding the Concept of Space
Before she was exposed to the intricacies of remote sensing and GIS at ITC, she could only appreciate spatial information as input data for her physical planning exercises on towns and provinces, which she used in her work as a part-time consultant. She recalls that she and her team had to pay half the contract price to the GIS specialist for map generation. After her intensive training in data analysis and thesis writing and almost six months of sleepless nights, her hard work and perseverance paid off. The knowledge acquired from specialisation modules and special training in urban development honed her skills in land use and environmental planning. Now she is more confident in evaluating the accuracy of maps produced for the project in terms of area and international cartographic standards.

Professional Growth
Before she followed further studies at ITC, she used to work as a technical staff member in one of the national government agencies in the Philippines that is responsible for land distribution. However, two years after completing her degree programme at ITC, she had the opportunity to work as one of the consultants on a rural development project funded by the World Bank. She is currently a junior MIS specialist in the monitoring and evaluation unit of the project.

Her working ties with other World Bank consultants always refresh her memories of ITC days. Whenever she comes into contact with foreign nationals, she is excited by the hope that she will meet an ITC alumnus.

Enjoying the summer breeze at the end of a module

GIM.2 (2000-2002) before the graduation ceremony

Conducting training on database management (Philippines)

Continuing Professional Education in the Field of Spatial Planning

Three years have passed since she left ITC, yet she always keeps herself abreast of the activities of her alma mater. She attends symposia or consultations initiated by ITC in her home country. Last year she welcomed the thought of attending a refresher course offered to alumni in the Asian region. In November 2004 she participated in the refresher course in Hanoi, Vietnam. Renewed friendship ties, as well as refreshing memories of the time in Holland, were more rewarding than the technical expertise she gained during the course. Seeing old friends and ITC professors was an ecstatic moment for her.

Social Responsibilities

Before ITC, she only thought of her relatives and friends abroad. These days she worries and immediately sends e-mails to her co-alumni whenever she reads or hears of calamities or adversities where her ITC classmates reside. One classic example was the tsunami in South Asia. She immediately sent e-mails enquiring about her friends in Indonesia, Sri Lanka and Thailand. And when there was chaos in Bolivia and Guatemala, she immediately wrote e-mails to enquire whether her friends were affected. Thus, she has really become a citizen of the world.

Presenting a paper at a refresher course in Hanoi, Vietnam

With her Asian co-alumni while in Hanoi, Vietnam

ITC Alumni Meet Dutch Parliamentarians

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Monday, 20 March 2006, was a rather great day for the ITC Indian alumni. Quite a few of them, together with alumni from other Dutch institutes, had the opportunity to meet Dutch parliamentarians, including the Speaker of the Dutch House of Representatives and leaders of the main political parties. We met this elite group at the residence of the Dutch ambassador in New Delhi.

In addition to the Dutch ambassador, the Deputy Head of Mission and Minister Plenipotentiary, and the Head of the Press, Information and Culture, other notable dignitaries included:

- Mr Frans Weisglas, Speaker of the Dutch House of Representatives
- Mr Wouter Bos, chairperson of the Labour Party (PvdA)
- Mr Maxime Verhagen, chairperson of the Christian Democratic Party (CDA)
- Mr Willibrord van Beek, chairperson of the Liberal Party (VVD)
- Ms Lousewies van der Laan, chairperson of the Social Liberal Party (D66)
- Ms Femke Halsema, chairperson of the Green party (GroenLinks)
- Mr André Rouvoet, chairperson of the Christian Union (ChristenUnie).

The alumni interacted with the parliamentarians and shared their happy memories of living and studying in the Netherlands. Mr Frans Weisglas in particular made some pleasing remarks about Indian democracy, governance and the presence of a large number of alumni from Enschede.