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2009 number 3

introduction

It's that time of the year again, when the trees forsake green for red, orange and brown, and the leaves start to fall. And what a magnificent autumn we've seen in the Netherlands this year, where nature has seemed determined to rival even the ITC students in their colourful national dress as they attended the Opening of the Academic Year 2010 (page 2). Because, yes, it's that time of the year again too. Always a special occasion, but even more so in this time of change. There can't be many among our readers who are unaware of the significance of 1 January 2010 but, in case there are one or two, it's the date when ITC becomes the sixth faculty of the University of Twente. It also marks a change at the helm. After nine years as rector, Professor Martien Molenaar is passing on the baton to Professor Tom Veldkamp, who will become dean of the new university faculty. You can read their thoughts on this historic turning point on page 11.

So one interview in this issue of great interest to the ITC community, but there are others as well. Although the name of Dr Olajide Kufoniyi (page 26) may be familiar to only some of you, his experiences during and after his study at ITC will appeal to a far wider audience. Difficulties in communication … a mere 15 years ago?

No lack of communication media these days, that's for sure. But even so, there's still a lot to be said for the spoken word – whether between one or two people in private interviews, among participants in an interactive master class (page 19), or by way of a lecture to a large mixed audience in the Grote Kerk. ITC was honoured to welcome Professor Reiner Rummel of the Technical University Munich to deliver this year's Schermerhorn Lecture in Enschede. It has been said that, if words are the food, punctuation is the cutlery. In conversation, this "cutlery" often takes the form of gestures, pauses, intonation and the occasional fist on the table, but Professor Rummel made it perfectly clear what a difference a punctuation mark can make.

But now it's time to let the voices speak for themselves – even though channelled through the printed page. Good listening!

Virtually yours, *Janneke Kalf*, *Managing Editor* — *Jorien Terlouw*, *Editor*

colofon

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Opening Academic Year 2009-2010

ITC News itcnews@itc.nl

The Opening of the Academic Year is a significant annual event writ large on the Institute's calendar, but more than that it is a significant event in the life of its students, particularly the new students who have just arrived in Enschede to embark on a great personal and scientific adventure.

But this year's ceremony also constituted a unique and remarkable milestone in ITC history. With 1 January 2010 rapidly approaching – the date when integration of the Institute into the University of Twente will become a reality – this was the last opening ceremony under the old regime.

The import of the occasion had not escaped unnoticed. Far from it, in fact. As people streamed through the doors of the Grote Kerk in Enschede's old market square, increasingly the ushers were faced with the task of search and insert. Having procured a seat, members of the audience were at liberty to admire the church interior – a setting that never fails to inspire – and to enjoy the stirring music of Gijs van Schoonhoven on the magnificent organ. As the academic cortege filed by, a veritable forest of arms rose in the air, clutching digital cameras to record the moment for posterity.

Taking the floor, Rector Martien Molenaar welcomed the members of the ITC Board of Supervisors; Dr Anne Flierman, president of the University of Twente; the members of the Scientific Council; and the participants of the executive seminar Capacity Building in Disaster Geo-information Management in Developing Countries. An especially warm welcome went to Professor Reiner Rummel, who was to deliver the Schermerhorn Lecture that afternoon, to Professor Tom Veldkamp, the rector designate of ITC, and of course the 312 new students who had recently arrived from some 60 countries around the world. "They join the 115 PhD students who are presently here doing their research for a doctoral degree. And if I tell you that according our calculations ITC has issued some 19,750 degrees, diplomas and certificates in the almost 60 years of its existence, then we might safely expect to celebrate the number 20,000 this academic year."

In his opening speech, Professor Molenaar mapped out the world's route to globalisation over the six decades of ITC's existence, as well as how this had been reflected in changing educational needs. Next up on the podium was Mr Ganesh Prasad Bhatta, president of the Student Association Board, the student body that tries to ease the path of its members. "There is no doubt that this is a dream place for professionals such as you and me, and I congratulate you on being adopted into this proud global home." It then fell to Professor Molenaar to present the ITC MSc Award for best MSc thesis and the ITC Research Award for the best scientific paper by a PhD student – a duty that he performed without the slightest reluctance.

Now came the usual short musical interlude. Usual? In a complete departure from the past classical compositions, the audience were treated to the music of Nouvelle Formule, who, in traditional Dutch dress and to the accompaniment of an accordion, performed two ballads, *De Zuiderzee Ballade* and *Het Hutje aan de Zee*, which captured the Dutch love-hate relationship with the sea. The appreciation of the audience was demonstrated by enthusiastic applause.

The second part of the programme was devoted to the Schermerhorn Lecture, which this year was given by Professor Reiner Rummel of the Technical University of Munich. This first lecture of the academic year bears the name of ITC's founder, and as he opened his address, Professor Rummel said that he regarded Willem Schermerhorn as a fantastic personality and "if, along with

312 new students recently arrived from some 60 countries around the world

my lecture, I could give the students their first homework this day, I would ask them to read about Willem Schermerhorn – as a politician at a very difficult time in post-war Netherlands, as a university professor, and as the founder of this famous institution."

Opening Speech

Rector Martien Molenaar

Over the six decades spanning ITC's history, the world has changed, and the main characteristic of this change is termed "globalisation". In the early days, there were rich countries in the North and poor countries in the South (although for the sake of convenience Australia was assigned to the North in this world view). As Professor Molenaar explained, "It was on this understanding that programmes were formulated in which the northern countries should help the southern countries with their development, and so the concept of development cooperation was born. ITC operated within this context. Because southern countries were unable to invest in educational facilities comparable to those at ITC, mid-career professionals came for their training or education to ITC – a specialised institute (not a university) providing educational programmes dedicated to the needs of the home organisations of our students. At that particular time, the regular institutes for higher education, such as the universities, were not really prepared to receive students from abroad."

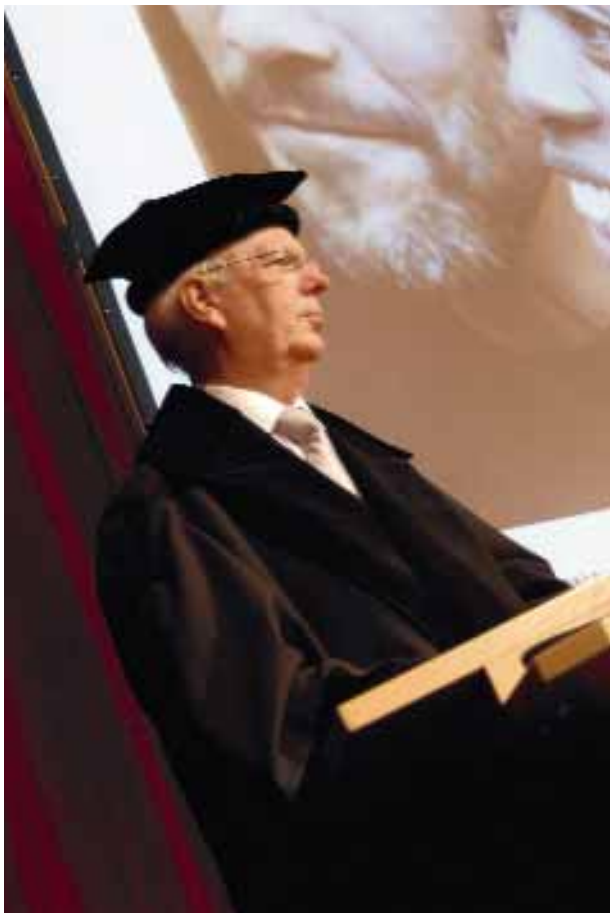
"But do you have any idea what globalisation actually looks like?" was the question Professor Molenaar posed his audience. A series of maps provided help in this respect. The first showed gross domestic product density, not per country but per square kilometre. This distinguished the regions of high economic activity from those of lower economic activity, and at the same revealed that there was no strict North-South divide. A map of the world by night supported these findings, with the light areas (where much energy is consumed) indicating significant human/economic activity. "However," continued Professor Molenaar, "globalisation is not only about strong economic regions, it is also about global interconnectivity, as illustrated by maps showing the density of airline connections and, more recently, the density of intercity internet connections. These maps show us two important things:

Opening Speech

Opening Academic Year 2009-2010

- Participation in the global economy has a global spread but not a global coverage. This means that spread over the globe there are strong regions that are connected; they shape the global economy. But there are also large regions that are not part of these networks. The connection lines jump over these areas.
- No longer can we state that North and South are synonymous with rich and poor, nor that whole countries are rich or poor. In many countries, there are large differences between the different regions."

But what does this mean for ITC? The main task of ITC is capacity development for organisations in lesser developed regions in the field of geo-information and earth observation. But the setting in which ITC operates has changed considerably over the decades. And this is true with respect to not only the globalisation of the economy but also capacity development as such.



Rector Martien Molenaar

"The traditional profession of surveying and mapping," went on Professor Molenaar, "has developed into the much wider professional and academic domain of geo-information management and earth observation. We can safely say that the development of information technology has been a major driver of the recent changes in our world. The magnitude of these developments has been eloquently summed up by Tom Forester: *If the automobile and airplane business had developed like the computer business, a Rolls Royce would cost $2.75 and would run for three million miles on one gallon of gas; and a Boeing 767 would cost just $500 and would circle the globe in 20 minutes on five gallons of gas."*

"It is the impacts mainly of computer science, and space and sensor technology, but also of other academic disciplines, that have raised the academic status of ITC's professional field. The needs for capacity development have therefore changed from training in professional skills to education to develop people's knowledge and competence at an academic level. The structure of our globalised world and the growing need for higher academic education within the context of capacity development imply two important things:

- No longer can the best institutes for higher education be found only in the traditional northern countries: the number of high-standard institutes is increasing in other economically strong regions as well.
- To my knowledge, ITC is still the institute with the highest concentration of knowledge and expertise in its academic domain. However, the growing number of specialisations in this domain means that ITC cannot cover all these interesting areas, and hence the increasing need for academic partnerships for research and education."

"The development of such partnerships in combination with the possibilities offered by modern ICT opens up new scenarios for providing international higher education services – certainly within the context of capacity development. Traditionally, students enrol in a university programme and are awarded degrees on completion. This is the institute-oriented approach and the fact that the pro-

gramme is offered by a particular university or institute determines the setting. We now see that universities are entering into partnerships and consortia and offering programmes based on their collective expertise. Students visit the different universities for different parts of the programme. This is a programme-oriented approach, with programme content and structure determining the setting rather than the institutional culture of a particular university. Even further, modern ICT provides facilities for e-delivery of educational services, and education is thus becoming more location-independent. Why travel far if you can access these services through your laptop? As regards the co-operation, complementary competences and expertise are much more relevant than the geographical spread of the partner universities – although that said, a wide geographical spread can even be advantageous in providing global coverage for regional support of the course participants."

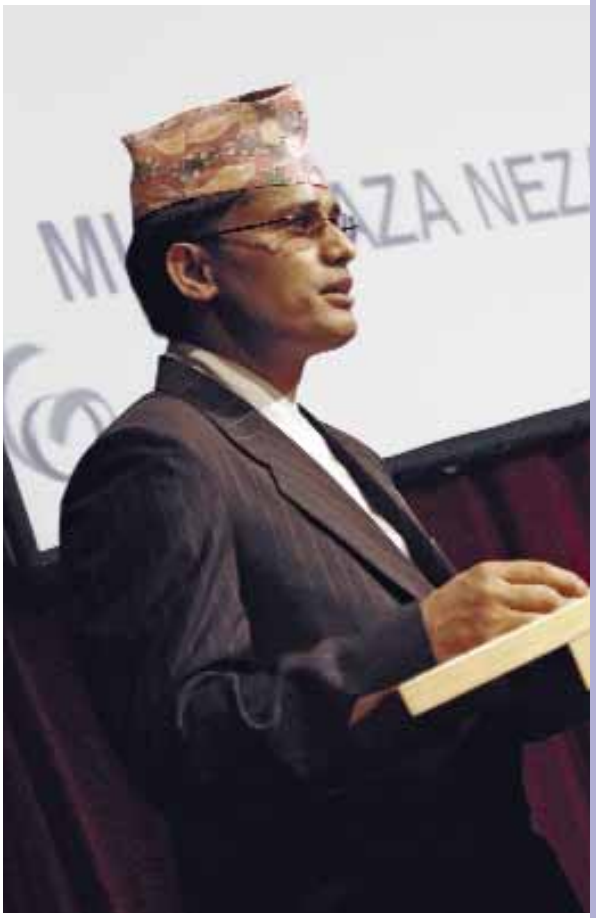
Professor Molenaar went on to say that it was possible to foresee a new stage in this development, particularly where mid-career professionals were concerned. Having a clear idea of what they needed, they might go (e-)shopping for special courses or educational modules and in fact design their own programmes. In time, they might collect credit points totalling the value of a degree. But this raised an important question within the context of lifelong learning: Who can issue such a degree?

Moving to the close of his speech, Professor Molenaar said that "ITC will celebrate its 60th anniversary next year. The Institute is one year younger than I am. For an individual that is an age to start thinking about the end of his career; for an institute such as ITC it is time to make a new start in a new setting." Given the developments already outlined, the Netherlands Ministry of Education, Culture and Science, the University of Twente and ITC had come to the conclusion that it was "time to integrate ITC's role in international education into the university system by integrating ITC into the University of Twente – the right moment for a new rector, Tom Veldkamp, to take over the responsibility in January next year to lead our ITC into a new stage."

With that, Professor Molenaar welcomed the newly arrived students, saying, "You join ITC at a very exciting stage of its existence. You come as students of ITC and, if you succeed, you will leave as graduates of the University of Twente. I wish you good luck and every success with your studies."

Student Association Board

Speaking on behalf of the Student Association Board, the president Mr Ganesh Prasad Bhatta said he was honoured and privileged to have the opportunity to extend a warm welcome to new colleagues. He felt this was also the right moment to pay tribute to the late Professor Schermerhorn, "who established this Institute almost six decades ago and made it possible for professionals from all over the developing world to have the opportunity to acquire knowledge in the field of geo-information science and earth observation – ultimately to serve their respective nations and the people".



Mr Ganesh Prasad Bhatta, president of the Student Association Board

ITC MSc Award
Opening Academic Year 2009-2010

Addressing the new students more directly, Mr Bhatta went on to say that they were here not only to study but also to experience diversities and a new environment. Excursions would acquaint them with the heritage of Europe; the International Evening would introduce them to a wide range of cultures; sporting events would allow them to display their talents; and social activities would enhance their life at ITC and facilitate integration with their new environment. "You will feel at home even though you are far from it. ITC is the best place for exploiting the opportunity of swimming in the ocean of knowledge to achieve the best for yourself and for your home organisation."

However, as Mr Bhatta knew from his own experience, there was another side to the coin. New students might face difficulties in adapting to a different system of education, but he assured them efficient time management was the antidote to sleepless nights. And while they might often miss their families and friends back home, he had some sound advice to offer as a coping strategy. "Share your knowledge and skills with your colleagues and don't keep them to yourself. Challenge yourself and your peers on a daily basis. Embrace one another's passions for culture, education, policy and practice. Share your problems with your colleagues. Absorb everything and above all have fun!"

Winner of the MSc Thesis Award; Aidin Niamir

Bringing his speech to a close, Mr Bhatta said he would like to "stress that you are here to bring knowledge, technology and capacity back to your organisation, your country and ultimately the people. I believe your will and determination will guide you through your mission. Be assured that one who survives at ITC can survive anywhere in the world, regardless of whatever challenges and circumstances he or she has to face. Having said that, I wish you all every success with your mission and a pleasant stay in Enschede."

ITC MSc Award for Best MSc Thesis 2009

It was now time for Professor Molenaar to take the stand again and perform the pleasant duty of announcing the winner of the MSc Thesis Award, an award made possible through the Schermerhorn Fund of ITC and consisting of a certificate and the sum of € 1,000. A jury composed of two ITC staff and two PhD students had nominated three candidates, and the winner was selected based on an evaluation by the external members of ITC's Scientific Council. Professor Molenaar then invited Mr Aidin Niamir of Iran to come forward to receive this year's award for his winning thesis *Distribution modelling of the short-toed eagle in relation to potential food availability*. Before performing the actual presentation, however, he described Mr Naimir's personal path to the podium in the Grote Kerk that day.

"One day Aidin Niamir discovered a room in ITC full of pictures of snakes and stuffed animals. In that room there was also a man – not stuffed but alive – Bert Toxopeus. They clicked immediately. Aidin's work in Iran concerned biodiversity within the context of environmental impact assessment. He is a herpetologist, an expert on lizards and snakes, and creepy animals are something Bert likes a lot too."

"Aidin enrolled in the Erasmus Mundus programme in September 2007 and, as Bert Toxopeus had infected him with his own enthusiasm for raptors, he decided to study the distribution and habitat selection of the short-toed eagle, often called the snake eagle. He wanted to predict and explain the distribution of this eagle in the province of

ITC Research Award
Opening Academic Year 2009-2010

Malaga and map the preferred hunting sites and potentially available prey (snakes). This meant exciting fieldwork in Spain, climbing up into trees or laying hidden behind bushes to observe the snake eagles. And he was also hunting snakes, to lure them. In this case, remote sensing did not mean observing at a distance but observing in distant regions."

"Aidin modelled the spatial distribution of the prey species by applying multivariate statistical techniques using GIS. He had to identify the environmental variables affecting the species distribution and locate the suitable habitats for the selected snake species. He therefore developed predictive distribution models, using logistic regression and the environmental favourability function, species observation data, and variables related to bioclimatic, topographic and anthropogenic conditions."

"One member of the Scientific Council observed: 'This paper has very comprehensive conclusions, which are convincing because the discussion chapter is excellent. It compares results with other studies, puts the methods in context and discusses the limitations. As such this was the most complete thesis this year.' As you can see, Aidin was a highly motivated student, full of energy and endowed with excellent scientific capabilities, and he has proved conclusively that a love of adventure, nature and science can produce an award-winning MSc thesis."

The ITC Research award 2009 goes to Sander Oude Elberink

With this, Professor Molenaar, also on behalf of the jury and the ITC Scientific Council, congratulated Mr Niamir on his achievement and presented him with the award. And the audience echoed these sentiments, the resounding applause showing that the tale of Mr Niamir's exploits in Spain had quite captured their imagination.

ITC Research Award 2009

The ITC Research Award, which consists of a certificate and the sum of € 1,000, is presented annually to the best ISI publication by a PhD candidate at ITC written within the context of his or her PhD studies. The main criteria that have to be satisfied are innovation, scientific level and practical significance. This year no less than 10 papers from seven different authors were submitted for consideration. A panel composed of Academic Board members (one from each department) was faced with the difficult task of whittling this number down to a shortlist of three papers. The three nominated papers were then submitted to a jury chaired by the rector for the final selection. Professor Molenaar explained that this year "one of the nominated papers was based on material directly from an MSc study, and was therefore deemed ineligible by the jury". However, it was with great pleasure that he could announce that the award for 2009 went to Mr Sander Oude Elberink for the paper entitled *3D information extraction from laser point clouds covering complex road junctions*. The paper had been co-authored by Professor George Vosselman and had been published in *The Photogrammetric Record*.

Professor Molenaar said that the jury had considered the paper to be well written, well illustrated, and a pleasure to read. "With the growing complexity of the urban region, traditional flat maps are longer sufficient. There is a growing need for 3D information on buildings and infrastructure. Laser data from the air or from street level are an important source of such information. As the urban environment is developing rapidly, efficient methods are required to update this infor-

mation frequently. Sander Oude Elbrink designed a method to do exactly that."

"His approach is based on updating a 3D model by using laser altimetry observations. It is innovative and gives promising results. It uses standard image processing techniques (such as region growing of objects) to generate a 3D model of a road flyover. This makes it possible to generate spatial representation of multilayered traffic nodes, such as the Prins Clausplein near The Hague."

One criticism of the jury was that the practical significance is not immediately obvious – particularly for less developed countries. However, as Professor Molenaar went on to say, "In many countries in Asia, Africa and Latin America, we can see that the rapid process of urbanisation implies the growth of cities with increasingly complex 3D developments. And one could very well envisage that the recent devastating flood in Istanbul and the frequent floods in cities such as Jakarta, caused by topographical barriers due to uncontrolled developments, could have been anticipated and managed much better if high-resolution laser altimetry data had been available."

Professor Molenaar then called on Mr Sander Oude Elberink to step forward and receive his well-earned award. That he complied with this request was recorded by many on camera and accompanied by a warm round of applause.

Schermerhorn Lecture

Professor Reiner Rummel

"The Earth: in good shape?"

Opening his lecture, Professor Reiner Rummel said that he had chosen this title for several reasons. "First, we regard our Earth as Mother Earth. She provides us with conditions to live on this planet, to live very well. I think, among all the planets of the solar system, the Earth is the most beautiful – the blue planet. Against this background, the Earth is really in good shape. But we earthlings have managed to stress this planet to its utmost limits – with the explosion of the world population, with the growing shortage of natural resources to meet even the most fundamental needs, such as water and fertile land, and of course with the impact of man on our climate. In this respect, the Earth is in dangerously bad shape."
Professor Reiner then went on to elaborate on a third interpretation of the title, a more direct one, related to the mapping of the planet and the determination of its shape.

Since the 17th century, some of the greatest minds – Newton, Huygens and later LaPlace and Gauss – had puzzled over the shape of the Earth. Based on purely theoretical considerations, Newton had come up with a theory that, being a rotating planet, the Earth must be an oblate spheroid, but actual proof of this theory only arrived in the 18th century, with the famous arc measurements in Peru and Lapland. Continuing the story, Professor Rummel explained that around the middle of the 19th century, the idea came up to combine all the available arc measurements, in all the triangulations, to achieve a more detailed determination of the shape. This was done first in central Europe, extended to the whole of Europe, and then to North America, Australia, and finally the entire globe. "This step marked the beginning of geodesy as an independent scientific discipline and also of international scientific cooperation. But with the launch of the first artificial satellite on October 1957, all this fantastic diligent and laborious work of 150 years of geodesy became obsolete … in an instant."

It was immediately clear that satellites would be a fantastic opportunity for observing the universe and for observing the Earth. With radio tracking, "one can observe the procession of the orbit plane in space around the rotation axis of the Earth, which is directly proportional to the flattening of the Earth. If the Earth were a perfect sphere, there would be no procession and the orbital plane would simply stand still." The same principle is employed today, not with radio tracking but with passive satellites equipped with laser retro-reflectors, and the distance from Earth to these satellites can be measured with millimetre precision, such great precision that it is possible to determine not only the shape of the Earth but also its time variation. "And what we can see," continued Professor Rummel, "is that the Earth is becoming slowly more spherical again. The huge ice masses of the last Ice Age on the

Professor Reiner Rummel

tops of the hemispheres melted rather quickly and were distributed all over the ocean. Now the Earth is redistributing the mass towards the poles and becoming more spherical again."

But during the last 10 to 12 years or so, this trend has become somewhat confused. No one really knows why but this confusion tends to be associated with global change. "And satellites have fundamentally changed our ability to investigate global change," explained Professor Rummel. "Only with satellites is it possible to observe the Earth globally, uniformly (i.e. with one set of instruments), and with a rather high repetition rate so that we can establish times series and see how things change, delivering results almost in real time. But as importantly, we need a theoretical framework in terms of physics, mathematics and biology in order to be able to interpret, verify or falsify what we observe – we need earth systems science."

Professor Rummel went on to distinguish two earth systems: the interior one, which is solid, and the outer system with an atmosphere, ice, oceans and land covers. Both are highly dynamic and both require some driving force. For the interior system, the driving force is the enormous amount of heat that has been caught in the Earth's core and is trying to escape. The most efficient mechanism for heat exchange for this solid body is convection, but for convection to work you need a counterplayer and that is gravitation. The outer system is driven by the Sun, by solar radiation, by an enormous continuous energetic stream of photons towards the Earth. On their journey to the Earth, the photons interact with matter. They are reflected, they are scattered, they are absorbed in various layers of the atmosphere, or in the ocean, or on the surface, and then they are sent back as thermal radiation into space and the budget is zero. Again, to make this system work, with atmospheric circulation, with ocean circulation and with many more processes, you need a counterplayer, and again it is gravitation.

But how can satellites contribute to the study of these two fundamental systems? "One can either use active instruments and send out signals in the electromagnetic band and measure travel time, time delay, refraction or any other modification of this stream of electromagnetic radiation. Or one can use passive instruments that just measure the natural radiation of the atmosphere, oceans, ice or land covers or the natural radiation of the Sun when it goes horizontally through the layers of the atmosphere." Professor Rummel said that analysing these measurements might require a long and complicated chain of mathematical models to arrive at some relevant Earth system parameter. Moreover, he emphasised that no satellite was directly able to measure clouds, wind speed, ocean currents or colour, ice velocity, CO^2 or the ozone hole in the stratosphere.

Continuing, Professor Rummel said that satellites had some fundamental shortcomings. Orbiting the Earth from great height, "they take a macroscopic view of it. And the outer system is highly dynamic but you can only measure it according to the rules of orbit mechanics. Therefore terrestrial, airborne or balloon measures are as important – to build a bridge from global to regional to local and to the laboratory, as well as to get rid of certain distortions and separate out the various effects. Ultimately, we have to strive for a mathematical modelling of our Earth, with all its details. Only then will we be able to do forecasting, and that's what we want to do."

Professor Reiner Rummel

Reiner Rummel was awarded a Diploma degree in geodesy at the Technical University Munich in 1970 and a Doctor's degree in geodesy at the Technical University Darmstadt in 1974.
He spent the next two years, 1974 to 1976, as a visiting research associate at the Department of Geodetic Science of Ohio State University, and subsequently became a research scientist at the German Geodetic Research Institute in Munich, where he stayed until 1980. He then accepted an appointment as professor of physical geodesy at Delft University of Technology in the Netherlands. In 1993, he returned to Munich as a professor and director of the Institute for Astronomical and Physical Geodesy at the Technical University Munich, where he works to this day. His areas of research include satellite gradiometry, spectral methods in physical geodesy, and the geodetic boundary value problem. Reiner Rummel has been active in many satellite gravity mission studies, such as SLALOM, GRADIO, ARISTOTELES, STEP and GOCE, and is chairman of the STEP geodesy co-experiment.
He was a member of the ESA Earth Science Advisory Committee, the ESA Fundamental Physics Advisory Group, and he is currently a member of the European Space Science Committee of European Science Foundation and of the ESA GOCE Mission Advisory Group. He is a fellow of the American Geophysical Union, and a member of the Royal Netherlands Academy of Sciences and Arts, the Bavarian Academy of Science, the Hungarian Academy of Science, and the German Academy of Sciences Leopoldina. He holds honorary doctorates from both the Technical University of Graz in Austria and the University of Bonn in Germany, and in 1998 he was awarded the prestigious Vening Meinesz Medal by the European Geophysical Society in recognition of his contributions to the study of the Earth's gravity field through his theoretical work and to the development of geopotential satellite missions and the analysis and interpretation of satellite altimetry data.

But what about the inner system? How can we investigate the solid Earth? In response to this, Professor Rummel said that "you always have to go indirectly. And there are two ways: either you interpret what you can see on the surface or you can infer about the dynamics of the Earth in theory by analysing the propagation of seismic waves or by observing its magnetic field.

Professor Rummel then turned to his own research field and charted the 25-year development of a space satellite experiment to determine the gravity field of the Earth – from the initial idea, to its selection by the European Space Agency as the first mission of the Living Planet Programme, to the launch of the GOCE satellite in March this year. The core instrument of GOCE (Gravity field and steady-state Ocean Circulation Explorer) is a gravity gradiometer. "What this experiment does is measure the small gravity signal that comes, let's say, from the Alps at six different positions inside the satellite, and the differences in these measurements gives a very sensitive signal of the gravity field. It is now possible to put the moving masses in our earth system on to a scale and determine their weight – the weight of the global water cycle, the weight of the melting ice masses of Greenland, the weight of the sea-level rise or fall. It is really amazing what can be done nowadays with satellites."

Coming to the end of his lecture, Professor Rummel said that in his opinion the study of the Earth's system (a very simple expression for a highly complex organism) was of tremendous importance for the future of our planet and for the future of our societies. "You the students come from many countries so you have the opportunity to combine your knowledge of your country and your surroundings with what you learn on technical advancements here at ITC. For each of you this is a huge adventure. You have left your family, your friends and your culture, and you have to survive. And my rule of thumb is that it takes roughly five to six months: sometimes lonely, sometimes worried, sometimes thinking how much nicer it would be at home. Then you wake up one day and feel much better. You have done it – you are a world person, an international person. I am sure you will be able to make an important contribution to the future of our planet, so that perhaps in 10, 20 or even 50 years from now, people will be able to say that the Earth is in good shape – without the question mark."

Conclusion

It had been an interesting afternoon, it had been a varied afternoon, and now it only remained for Professor Molenaar to invite those present to join him at the reception at the Muziekcentrum. It was an invitation well received! And no doubt many of those heading out of the Grote Kerk were already planning further research into the merits of GOCE, the pioneering work in Peru and Lapland, and several other topics that had come up that day. Internet is a wonderful thing!

Changing of the guard: Molenaar departs, Veldkamp arrives

"Integration ITC into UT will make an impact"

ITC News itcnews@itc.nl

Rector Martien Molenaar has mixed feelings. Relieved that after a rectorate of nine years he can pass on the baton, yet with a touch of regret that not all the plans and intentions have come to fruition.

Tom Veldkamp, incoming rector – or rather dean of the faculty of Geo-Information Science and Earth Observation (ITC) – is rearing to go. "The research quality must rise even further and I'd like to see that happen within my first five-year term." A double interview on the eve of the changing of the guard at the ITC helm and the integration with the University of Twente (UT).

Molenaar looks back: "When I became rector in 2001, we underwent a process of reorientation – that was during my first term. We have progressed from courses of a rather practical nature, based on capacity building, to a more academic level. Naturally, our education has always been highly international but, because of developments such as globalisation, we had to strengthen our quality profile if we wanted to remain an important world player. We have become increasingly aware that the central theme of our education and research consists of complex processes, both physical and social. Having started out as an institute for aerial mapping – the establishing of situations – we came to realise that little is established, everything flows. So an abrupt hairpin bend: from static to dynamic. This reorientation has been successful, judging by the reactions that we receive – the feedback from the field, for example. But of course we can see this for ourselves. Our PhD programme has grown from 10 to 100 participants."

"The second period of my rectorate," continues Molenaar, "was marked chiefly by the coming integration of ITC as the sixth faculty into the University of Twente. Actually, some speak mistakenly in terms of a takeover instead of an integration, so characterising the UT as an acquisitive rather than an enterprising university."

That ITC is becoming part of the UT stems in the first instance from the desire of the Ministry of Education to channel its subsidies through the universities. So the UT became first the facilitating agency (pen holder) for ITC in communications with the ministry and later the budget holder. Then the wish arose on both sides for true integration: the UT wants to grow to achieve greater visibility within the national and international context, while ITC wants to operate within the academic establishment.

Veldkamp: "The integration into the UT will certainly make an impact. Our degree-awarding Master and MSc programmes, as well as the PhD programme, will be adjusted. As a university faculty, we will receive the *ius promovendi*, with the relating rights and obligations. The quality control of our research, in particular, must be tightened up – we'll be receiving visitation committees and the like. Lower limits will apply in this respect, and staff who may not as yet satisfy these will have to undergo a development process. Remarks that you occasionally hear such as 'ITC is going to play university' are totally inappropriate. We're going to pull out all the stops and I'd like that process to be wrapped up within my first term of five years."

Professor Tom Veldkamp hails from 'Wageningen'. He will become the top man at ITC on 1 January 2010. But why him? Molenaar: "We had listed quite a few demands and wishes in the job profile so, as we have only a very limited number of professors at our own Institute, internally we were fishing in a shallow pool. Tom Veldkamp is no stranger to ITC and our field of operations, and he has the qualities and the ambition. So no contest really."

Veldkamp adds: "I've known ITC and its staff for quite a while, from my Wageningen days. I used to bump into them – almost literally – in various developing countries. I also came to ITC on a regular basis in connection with evaluations and joint assessments. Internationally ITC has an excellent name, and I would like to build on this further. Personally I rolled into administrative work years ago. You're occupied with post-doctoral education, with AIOs (research assistants) and then you have to facilitate it all. So one thing leads to another. I found it very satisfying work – and still do. But content alone is insufficiently challenging. That's why I'm looking forward to the combination of research content and creating the right administrative conditions – enabling the smooth running of affairs so that the discipline can make headway. I've been combining these components for years and will continue to do so in my new position. Whether that may be reaching too high? I don't think so – after all, there are the evening hours too."

The UT, traditionally a technical university, has already had courses in both the exact and the social sciences for quite some time. There has been a certain natural tension between them, although the aim is to underline the unique quality of the UT precisely through mutual cross-fertilisation. "High tech with a human touch" is therefore the motto. Or indeed, helping to solve social problems with the aid of technology.

Veldkamp: "I recognise this tension from Wageningen too. Again and again exact scientists and social scientists have to learn to speak each other's language. In our discipline you also have two approaches: for example, you can look at land use from a highly technically angle, but you can also opt for the perspective of the people, the users. Of course, you must actually do both – build bridges. Perhaps ITC, as the sixth faculty of the UT, can also play a role as bridge builder between the sister faculties. I can see all kinds of interesting possibilities. So it's important that the knowledge that we as ITC generate finds its way appropriately into the political decision making. What's more, we can cooperate with the faculty of Management and Governance extremely well.

On the other hand, the development of information technology or of sensitive sensors, which have already been drafted in to monitor the quality of the Australian Great Barrier Reef, is of great importance to us. And then again you're dealing with colleagues from the exact sciences."

Starting out as an aerial mapping institute for countries that had just obtained independence, ITC has developed into a great deal more over the course of the years. With issues such as global warming, the depletion of mineral resources and soil fertility, the tensions concerning territorial boundaries, the fight for access to water, and climate change, ITC's sphere of activity is becoming increasingly critical and politically sensitive. Yet ITC has never refused to mobilise its knowledge in, for example, countries with controversial regimes.

Molenaar: "Now and again there have been requests that I've had to think long and hard about but I cannot remember that we have ever refused them. Last year I was in Teheran, within the context of cooperation with the Iranian Space Agency, the Iranian organisation involved in satellite observation. I saw no reason to break off this cooperation. And as far as I'm concerned, the same applies, for example, to North Korea. You mustn't forget that below the political leadership there is a layer of professionals, highly educated professionals. This is where we have, and will continue to have, our contacts. As I often say, water shortages affect parts of the normal population, not members of a regime. Moreover, regimes don't live forever." Veldkamp: "And you mustn't forget that before you receive concrete requests they have passed through reliable filters. For example, people who want to study here must first obtain a visa from the Dutch authorities." Neither Molenaar nor Veldkamp can imagine ITC embroiled in any kind of Urenco affair, where a Pakistani scientist managed to get hold of essential information for making an atom bomb.

What in the eyes of the departing and the incoming top executive are the most urgent problems in the area of land use that should be tackled using the knowledge of ITC?

Martien Molenaar

Tom Veldkamp

Molenaar: "Water shortages, and that means the aridification of areas and the lack of access to water for all. Then food provision, which in various districts is being put at risk by soil depletion. And third, an excess of water owing to the changing weather systems."

Veldkamp: "The underlying problem, of course, is the growth in the world population, which is also becoming more affluent and consequently consuming more of what the world has to offer. This problem is much more important than that of the current change in climate. Because of the population growth, people are going to live in places previously avoided for good reason, and this increases their vulnerability to landslides and hurricanes."

"The population growth is leading to urbanisation, particularly in fertile districts, and this drives agriculture into the marginal areas," adds Molenaar. "This same population growth is leading, for example in China, to massive environmental pollution, which in turn is currently provoking uprisings in certain provinces again."

Veldkamp: "People often make irrational choices. It's not only the rise in sea level that is threatening the Dutch Randstad, much more serious is the sinking ground level. You can't go on increasing the height of dykes and the width of dunes. So it would be rational to move the Randstad to the east, to Twente perhaps. But neither the population nor the government is remotely ready for this. It's a time of great spatial issues – or, as already said, very complex processes of land and people."

As the end of his rectorate approaches, all in all Molenaar is very satisfied with what ITC has achieved. Nevertheless, he can see one or two minus points: "Traditionally, ITC has focused on capacity building at academic as well as higher and intermediate professional levels. Through our development in the academic direction, you can see a dilution of the other levels. This is inevitable but also a pity. Fortunately, courses at these levels are now being offered in developing countries. However, we must promote this initiative from the Netherlands, because it cannot simply be taken for granted that this will continue to flourish. And even in the case of governments in Africa, universities appeal more to the imagination and are considered more prestigious. Another issue that hasn't completely lived up its promise is e-learning in a global network. We've had too little time and too little investment capacity in this respect."

Molenaar is preparing for the time after his rectorate. In the coming two years, he is going to fill a vacant professorship on a part-time basis and also devote himself to the ITC circuit. After these two years, the amount of free time will increase, but he has no qualms about any black hole: "I would like to speak of a 'graceful decline', with a sabbatical and a sizeable number of free days. As you develop as a scientist, as an executive and as a person, your interests broaden. There are so many interesting fields. I'm now quite an omnivore as far as reading is concerned: foreign literature but also Thomas Rosenboom. And Elsschot is always wonderful. And there's also history, globalisation, philosophy – I must confess to being a voracious reader. That's why I haven't taken up golf yet. And because of the grandchildren of course."

Veldkamp too is looking ahead. "I am very curious about the integration within the UT. It will take a lot of energy but I have every confidence in this respect. In addition, I'd like to see ITC knowledge also being used more in the Netherlands. Many solutions to problems in developing countries could be applied here as well. Take the land use model developed in Latin America; this has now become the standard in Europe. Furthermore, we have a cast-iron network of alumni with strong ties to ITC. They even keep their e-mail address. It would be nice if this developed into an ambassador network – for ITC, for the UT, and ultimately for the internationalisation of Twente too."

education news

GEONETCast and the Monitoring of African Land and Marine Ecosystems

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From 7 to 11 July 2009, the FP7-funded DevCoCast Project (GEONETCast application for and by developing countries) undertook the training course SC1 GEONETCast and the Monitoring of African Marine Ecosystems in association with the IEEE International Geoscience and Remote Sensing Symposium's (IGARSS) short courses on remote sensing and earth observation at the University of Cape Town.
The course had several joint sessions with the SC10 GEONETCast and Water Security short course that was being held concurrently. The course, which was attended by scientists and students from participating African countries, was presented by DevCoCast project members from the University of Cape Town, the National Oceanography Centre Southampton, the EU's Joint Research Centre (JRC), the Brazilian National Institute for Space Research (INEP) and ITC. The training was carried out as a component of DevCoCast's user support and capacity building exercises.

The course was run over five days and included both lectures and practical computer sessions. Dr Chris Mannaerts (ITC) gave the opening lecture, with an overview of the Group on Earth Observations Global Earth Observation System of Systems, highlighting the societal benefits of earth observation for water resources management and the advantages of the GEONETCast near real-time system for data dissemination.

In the following session, Dr Ben Maathuis (ITC) introduced the GEONETCast data processing and archiving software. This was followed by a demonstration tour led by Christo Whittle of the GEONETCast Data Reception Station set up at the Marine Remote Sensing Unit (MRSU) in the Oceanography Department of the University of Cape Town. The next day, sessions conducted by Dr Maathuis and Dr Stewart Bernard (MRSU) provided an overview of the GEONETCast land, marine, meteorological and disaster products. In addition, Dr Maathuis and Dr Valborg Byfield gave practical demonstrations of the software tools used for data processing and visualisation. This gave the course participants a good overview of the required ground reception infrastructure, and the images and products available through GEONETCast, as well as the tools required for utilising the products.

The next day saw the Water Security group and the Marine group go their separate ways. Within the Marine Group, Dr Bernard provided an overview of ocean colour remote sensing, which outlined the theoretical basis of the ocean colour products that will be made available through GEONETCast. Dr Byfield gave an overview of the quality control of ocean colour products that is specifically associated with atmospheric corrections and the MERIS quality flags. This was followed by practical sessions with Christo Whittle, who used the VISAT BEAM software to demonstrate the MERIS quality flags and differences between the MERIS ocean colour algorithms. This gave the participants a good idea of the limitations and potential errors associated with the ocean colour products.

Dr Mannaerts began the Friday joint session with an inland water quality demonstration application, which highlighted the need for coupling remote sensing with in situ measurements and hydrodynamic models. Dr Milton Kampel (INPE) then provided an overview of the CBERS instruments and applications, including forest mapping and land use change detection. This was followed by a marine session led by Christo Whittle, providing an overview of sea surface temperature (SST) processing and products. An afternoon session then provided practical demonstrations of the utility of SST data from MODIS in the Benguela Upwelling System. The Saturday session began with examples by Dr Bernard of harmful algal bloom applications of ocean colour to the Benguela Large Marine Ecosystem, as well as demonstration products presented by Dr Mark Dowell (JRC) and Dr Kampel. Some course participants presented their own applications, which were also presented at the IGARSS conference the following week.

In addition to these joint sessions, from Thursday onwards the Water Security participants started working on a set of guided exercises in the computer laboratory (e.g. import of MSG images, MPEF–SAF products, multitemporal data import routines via scripts and batch commands). Furthermore, other freeware utilities, such as BRAT and BEAM, were shown. On Saturday morning, the

various software utilities and datasets were collected by the participants, and a number of new developments with respect to GEONETCast (e.g. DevCoCast, the CBERS resolution merged product, and AIDA, the fire product for Southern Africa) were presented. The ITC GEONETCast website was also shown, as well as the Product Navigator of EUMETSAT and UMARF, the EUMETSAT archive. A presentation was also given on AMESD by the CICOS-AMESD representative, providing an overview of the programme and the various regional components.

The course concluded with a lecture by Dr Tsehaie Woldai (ITC), entitled "How can GEONETCast data contribute to African resource management in the future?" This lecture challenged the participants to think about how they could apply the GEONETCast data products in their own resource management environment.

For more information:
www.itc.nl/geonetcast-general-information

announcement

Pre-Departure Briefing Students Myanmar

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During the academic year 2008-2009, one of the first students since the '80s came from Myanmar (also known as Burma) to study at ITC. In September 2009, a group of five Burmese students will embark on their Master courses at ITC in Enschede, and we are delighted that they are joining us for the academic year 2009-2010.

On 25 August, ITC organised a pre-departure briefing for these five students who were leaving for the Netherlands so soon. They came to Thailand to pick up their visas at the Netherlands embassy in Bangkok. I provided them with some preliminary information, for example on what to bring, airport arrival procedures, adjustments to change and living conditions, life and study at ITC and IIH, and daily life in the Netherlands.

Four highly motivated beautiful young women sat at the table in my house in Bangkok. This was to be their first trip outside their own country, and it takes me back to the time I went on fieldwork during my study at Wageningen University – more than 16 years ago. Somehow the same situation: the first time to a new world (the tropics in my case) and the first time in a plane. I could feel their excitement and anticipation of a world yet unknown. With great interest, they asked me and my children questions about the Netherlands, meanwhile touching their hair: "Is there Asian food? Do we have to cycle? What about the weather? What kind of clothes should we wear?" Understandable questions in the minds of young Burmese women whose concept of the world did not go beyond the radius of home to work and who could pick up only scanty international news in their country.

Now more than ever, the people of Burma need our support and the chance to study abroad to gain knowledge and international exposure. They will come back as different personalities. From a distance, I watched them go and silently wished them a wonderful experience.

Four highly motivated beautiful young women sat at the table in my house in Bangkok

On their way to a new future

Group picture

Training Course in Philippines: Geoinformatics for Disaster Risk Reduction - Maximising the Potential of Low-Cost Tools

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On 26 September, Typhoon Ondoy passed over the northern Philippines, causing the worst flooding in the capital city Manila in over 40 years. In addition to affecting countless lives in this city of 10 million people, it also underscored the vast risk of hydrometeorological disasters that the country faces.

It was therefore timely that just before the most recent flood disaster, ITC, together with the German Organization for Technical Cooperation (GTZ) and the University of the Philippines (UP), had organised the 10-day training course Geoinformatics for Disaster Risk Reduction – Maximising the Potential of Low-Cost Tools. Running from 27 August to 4 September 2009, the course took place in Tacloban, the main city on the island of Leyte in the Visayas.

GTZ has for several years been working on local flood early warning systems, since the Philippine Atmospheric, Geophysical and Astronomical

Service Administration (PAGASA) monitors only the major rivers in the country. Focusing on more low-tech solutions, GTZ has set up operational local flood early warning systems (see e.g. www.leyte.org.ph/binahaan) that make use of land cover information derived from satellite data, and has plans for more effective use of elevation and satellite precipitation data for early warning. Working with the Regional Environmental Information System (REIS) based on the UP Tacloban Campus and with other partner organisations, GTZ had identified limited capacity in geoinformatics, particularly in image analysis for land cover and land use mapping, a critical prerequisite in disaster risk management. We therefore organised a course that covered the general utility of geo-information in disaster risk management, but focused on image-based land cover and land use mapping.

The 25 participants represented national and regional governmental agencies, academia and NGOs, and their prior knowledge of geoinformatics was quite variable. The resulting course was enjoyed by everyone involved, thanks in part to the excellent organisation by REIS director Marge de la Cruz and her staff, as

Course participants on the Tacloban university campus

well as the support by Olaf Neussner of the GTZ Tacloban office. The course included lectures, extensive practical sessions, and work in the field to develop a suitable mapping scheme and validate results – not to mention guest contributions made by PAGASA and the International Rice Research Institute based close to Manila.

The collaboration with the two Philippine partners was very effective, and we are hoping to have annual courses on other disaster risk management topics. There are also some very interesting MSc-level research opportunities that REIS and GTZ will support. In the medium term, our aim is to make a concrete contribution to building better capacity to deal with the disaster risk that the country faces.

Land cover and land use mapping in the field

Short Course Land Policy and Land Administration at NUM Mongolia

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ITC and the National University of Mongolia (NUM) have cooperated in delivering the one-week course Land Policy and Land Administration.

The course took place at the NUM premises in Ulaanbaatar, the capital of Mongolia. Dr Purevtseren Myagmartseren, a senior NUM lecturer, took care of all the logistics and the selection of course participants. In total about 45 students, PhD candidates and professionals participated, although in different compositions according to the subjects of the day. The course was delivered by ITC's Professor Paul van der Molen.

The first day was dedicated to law, land tenure and tenure security; the second day to systems of registration and cadastre; the third day to land markets, credit markets and land taxation; the fourth day to land use planning, land reform and state land acquisition; and the fifth day to global trends and e-land administration.

During the course, Narachimeg Bagadain, an ITC PhD candidate on fieldwork in the country at the time,

gave a guest lecture on the land privatisation process in Mongolia, and on dealing with uncertainties in this process. In another special session, Professor van der Molen discussed the worldwide financial crisis, and how it had all started with the problems in the US subprime mortgage market.

At the end of the course, all participants received a certificate of accomplishment. The course, which according to the participants was well appreciated, should be seen as a step in exploring possible further cooperation between ITC and NUM in the land administration sector.

The course took place at the NUM premises in Ulaanbaatar

Some 45 students, PhD candidates and professionals participated

All participants received a certificate of accomplishment

research news

Master Class by Professor Reiner Rummel

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Besides delivering the Schermerhorn Lecture on the occasion of the Opening of the Academic Year (see page 8), Professor Reiner Rummel met with the PhD students of ITC and gave a master class.

The master class consisted of two parts, the first of which was on the basics of gravity field measurements, with a focus on satellite missions. Professor Rummel is currently involved in two major satellite missions: GRACE and GOCE. In the former, the potential field of the Earth can be directly measured with a high precision and a resolution of approximately 200 km². The main challenge here is to separate external signals, such as the tide, to obtain accurate gravity field measurements. The GOCE satellites were launched in March 2009, and this project aims at measuring gravity field gradients, being sensitive to gravity field changes both spatially and temporally.

The second part of the presentation focused on current and future applications of the missions and the data and information obtained from them. One interesting observation is that, since mass relocation on Earth can be detected and tracked, it is possible to examine the impact of global climate change. Two effects will cause a rise in sea level: expansion through higher temperature and the melting of icebergs. Since the latter adds water to the sea, this mass relocation can be detected using high-resolution and accurate gravity field measurements.

PhD student Saibal Ghosh commented: "I attended the master class given by Professor Reiner Rummel, chairman of ESA's GOCE Mission Advisory Group, on 24 September 2009. This was one of best theoretical classes I have attended at ITC. Being a geologist by profession, I am always interested in advanced geophysical exploration techniques, and satellite-based gravity measurement was a new technique to me."

"The master class started with the famous philosophical 'falling apple' anecdote about the great physicist and mathematician, Sir Isaac Newton. But I was not aware that it was not simply a question of gravity. Even at that time, Sir Isaac was thinking in much broader abstract terms: that is, that every planet in our solar system is also guided by this simple physical law. Professor Rummel also deliberated on how, by using this very basic concept of the falling apple, we can also think of satellites revolving around our planet, and how mathematically solving the perturbations in their orbital paths can be used to measure changes in the Earth's gravity field. This was an easier and an effective way of explaining complicated things to the students."

"Professor Rummel structured his class into two broad parts: dealing first with the conceptual part, including a brief appraisal of ground-based gravimetric instruments, their measurements and limitations, followed by the instrumental architecture of satellite-based gravimetry from single to multi-part measuring accelerometers used in the GOCE mission; and second with the application area, problems of spatial resolution, and the future course of satellite-based gravimetric research. In this second part, he also elaborated on the success and limitations of NASA's GRACE mission and expressed his concerns about problems in replacing the mission in near future, as GRACE is now in its terminal stage."

Professor Reiner Rummel

"The most interesting part of this master class was the active interaction between participants and professor – which made for an extremely lively and enjoyable session."

RGI Geo Innovation Award 2009

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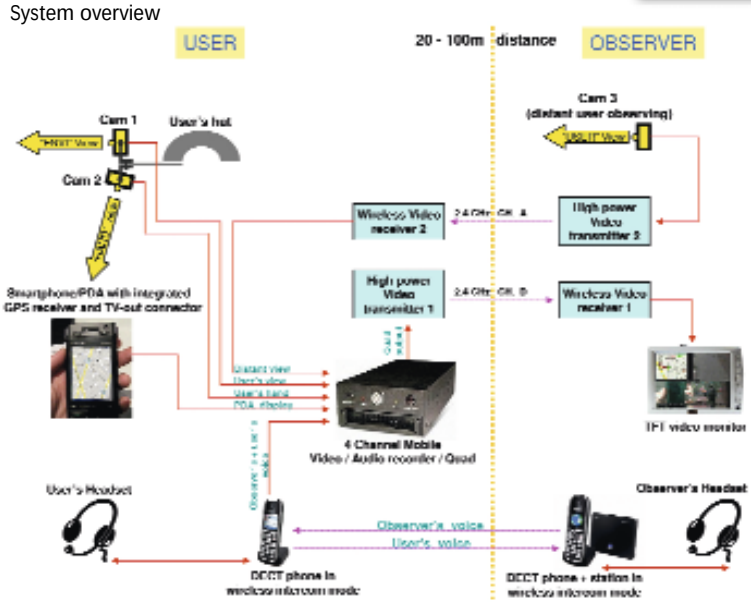
Over the past few years, quite a number of ITC staff and PhD candidates have been involved in contract research projects for the Dutch innovation programme Space for Geo-Information (RGI; see www.rgi.nl). As an incentive, the Dutch government has invested a total of 20 million euros in some 100 research projects carried out by consortia consisting of partners from geosciences, trade and industry, and representatives of users.
One of these research projects was the RGI-233 on "usable (and well-scaled) mobile maps for consumers" (see www.rgi-otb.nl/uwsm2/). The project was a reaction to the increasing use of geo-information in and through mobile devices such as smartphones and PDAs and focused on the map displays on these devices. These map displays suffer from the limitations imposed by small screen size and onboard (possibly outdated) map data files, as well as insufficient bandwidth wireless connections, storage capacity and processing power. In the project, two particular scientific challenges were addressed: automatic generalisation and the human factor aspect of mobile geo-applications. Generalisation is relevant for mobile geo-applications because zooming is an important method of user interaction with the map interface (zooming out for an overview, zooming in for detailed information). In addition, generalisation allows the progressive transfer of geodata from server to device, which benefits usability.

The research project ran from 2006 to 2009 and was executed by a consortium of research and development organisations (Delft University of Technology, ITC, Leibniz University Hannover and TNO Defense, Security and Safety), software companies (ESRI and 1Spatial) and end-user organisations (Municipality of Amsterdam and ANWB, the Dutch Automobile Association). The project leader was Professor Peter van Oosterom of Delft University of Technology. ITC, together with TNO, was mainly responsible for the research on human-factor aspects (use, user and usability research) and provided substantial project input. This input was delivered by PhD candidate Ioannis Delikostidis and Corné van Elzakker of ITC's Department of Geo-information Processing. Personal geo-identification (where am I?) and navigation in space through the interaction between reality, perception/cognition of reality in the minds of the users of mobile geo-applications, and representation of reality on mobile screens are central to the PhD research of Ioannis Delikostidis. Consequently, his PhD research work could be effectively integrated with the RGI project work and resulted in several publications. ITC's main contributions were developing and testing a field-based usability evaluation methodology (including the technical solutions), a comparative examination of two existing mobile geo-applications in the field (Amsterdam), and an expert (including heuristic) evaluation of two prototypes developed within the framework of the RGI project by other consortium partners. Some current and former ITC students and PhD candidates contributed to this user research by acting as test persons.

The innovation programme Space for Geo-Information officially terminated on 31 July 2009. However, beating off stiff opposition, our RGI-233 project was selected as overall winner of the RGI Geo Innovation Award in the category Scientific Excellence – highly encouraging for Ioannis Delikostidis in his ongoing PhD research (to be completed in 2011)!

A user testing in Amsterdam

System overview



project news

Second Phase of TIGER Capacity Building Facility Awarded to Consortium Led by ITC

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Following the 2002 Johannesburg World Summit on Sustainable Development, the European Space Agency (ESA) launched the TIGER initiative, focusing on the use of space technology for water resource management in Africa and providing concrete actions to match the resolutions.

The second implementation period, 2009-2011 (TIGER II), was officially launched at a special side event organised by ESA, AMCOW and the AWF at the 5th World Water Forum in Istanbul on 17 March 2009. As part of the initiative, a call for the second phase of the TIGER Capacity Building Facility was awarded in July 2009 to a consortium led by ITC.

Results First Implementation Period

The first implementation period of TIGER, running from 2005 to 2008, involved more than 150 African institutions (water authorities, universities, technical centres) through its projects and capacity building activities within the framework of the TIGER Capacity Building Facility. This was run by ITC in the last two years of the first phase. Almost 100 individuals were trained in the tailored programme for 15 selected projects. The best results were presented at different international conferences and in a volume now being published by UNESCO.

The achievements of the initiative were fully recognised at the First African Water Week organised by the African Ministerial Council on Water (AMCOW) and the African Water Facility in Tunis, from 25 to 29 March 2008, with a direct recommendation:

"International initiatives like TIGER which provide useful tools to the countries to strengthen their capacities for ensuring water security should be encouraged and supported."

Second Phase: TIGER II

As a direct response to this African request, TIGER II was proposed by the TIGER Steering Committee at its third meeting, which was hosted by UNESCO in July 2008.

This new period has opened up new opportunities for African water authorities, research centres and scientists to continue developing their capacities in pursuing better and more effective water observations and management systems that exploit the increasing advantages of earth observation technology.

Capacity Building for Water Resource Management

TIGER II contributes to the GEOSS Work Plan 2009-2011 (Task WA-06-07b: Capacity Building for Water Resource Management – Africa). In particular, TIGER II fosters through GEO the coordination with existing national and international initiatives (e.g. WHYCOS, AMESD and NASA's Africa-SERVIR).

To meet this challenging target, TIGER II relies on two main components that represent the continuity of existing activities:

- the water management research component
- the water management component.

The second phase of the TIGER Capacity Building Facility (TCBF II) supports mainly the water management research component, where 20 project proposals submitted by African institutes have been selected for implementation in the coming three years. These institutes are supported with datasets from ESA and with technical support from the TBCF. The facility is run by four European institutes: ITC (lead), Delft University of Technology, ISEGIUNL and VITO. These four institutes provide supervision and organise training programmes tailored to the needs of the TIGER research projects. Three regional offices (at RCMRD (Kenya), AGHRYMET and the South African Water Research Commission) develop information services and provide specific support in their respective regions. The first major activity of TCBF II is organising a workshop and the first training session in December 2009.

For more information about the TIGER initiative, please visit www.tiger.esa.int/; for more information about the TIGER Capacity Building Facility, visit www.itc.nl/external/tiger

partnership news

ITC and Vietnamese Universities Sign MoUs

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On 10 September 2009, ITC signed Memoranda of Understanding (MoUs) with two Vietnamese universities to provide a framework for an academic partnership in education and research. The partnerships will enhance the academic skills and research activities in both universities, and will assist in coordinating the exchange of academic staff and materials and in organising joint courses and research activities.

In the morning, Professor Molenaar, rector of ITC, and Professor Tran Dinh Kien, rector of HUMG, signed the MoU at Hanoi University of Mining and Geology (HUMG). This partnership will focus on applied earth systems, exploration and geo-engineering, and the use of GIS and remote sensing in these fields.

On the afternoon of the same day, at Hanoi University of Science (HUS) of Vietnam National University (VNU), Professor Molenaar and Professor Bui Duy Cam, rector of HUS, signed a similar MoU, relating to cooperation in the field of land administration and geoinformatics.

The MOUs were signed in the presence of the development team, which consists of staff of both universities and ITC.

After the signing, Professor Molenaar said: "These MoUs open up a multitude of new opportunities for both students and staff, especially in the field of research and education in Vietnam and the Netherlands. ITC is pleased to formalise these partnerships, which have already been active for several years, and I anticipate that we will find many more opportunities to work together to provide additional benefits to Vietnamese students and staff of all three institutions (HUMG, HUS and ITC)."

It is anticipated that in September 2010 a new joint MSc programme course will be offered in Vietnam, with branches at HUS in land administration and geoinformatics and at HUMG in remote sensing for engineering and exploration in Vietnam. There will be clear synergy and joint elements between the three specialisations. Several course modules (e.g. GIS, remote sensing and research methodology) will be offered together.

The partners will also jointly offer short courses. In October, a first short course on land administration was offered in Hanoi, with input from Professor van der Molen of ITC and Dr Huan and Dr Binh of HUS. The course was offered in the week following the 7th FIG Regional Conference held in Hanoi, Vietnam, from 19 to 22 October 2009, to allow international course participants to join.

Professor Molenaar and Professor Bui Duy Cam (rector of HUS) signed an MoU relating to cooperation in the field of land administration and geoinformatics

Professor Tran Dinh Kien (rector of HUMG) signing the MoU at Hanoi University of Mining and Geology

Professor Molenaar teaching Vietnamese students

events

International Seminar: Capacity Building in Disaster Geo-information Management in Developing Countries

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An international Executive Seminar on "Capacity building in disaster geo-information management in developing countries" was held at ITC from 23 to 25 September 2009. Forty-five experts dealing with capacity building in the use of geo-information for disaster risk management gathered to discuss the current state of existing capacity, as well as the remaining gaps and optimal modes of implementing capacity building for different beneficiary types. Representatives from international organisations (e.g. World Bank, UN-ISDR, UNITAR/UNOSAT, UN-OOSA), geodata providers (e.g. NASA, EUMETSAT), non-governmental organisations (e.g. MapAction), knowledge centres and university networks (e.g. UN-affiliated training centres, ADPC), as well as user organisations, attended the seminar.

Seminar Rationale

The world is confronted with the rapidly growing impact of disasters (a result of many factors that cause an increase in the vulnerability of society), combined with an increase in (hydrometeorological) hazard events related to climatic change and unsuitable land use practices. The possible impacts of hazardous events are severe, particularly in developing countries, and governments have to incorporate risk reduction strategies in development planning at different adminstrative and spatial levels. The evaluation of expected losses due to hazardous events requires a spatial analysis, as all components of a risk assessment differ in space and time. Therefore, risk assessment and management can be carried out effectively only if based on extensive, multidisciplinary studies based on spatial information. There is an urgent need to include the concepts of disaster geo-information management in emergency preparedness planning, spatial planning and environmental impact assessment, and this requires the sustained capacity building and training of disaster management experts and professionals. The Hyogo Framework of Action 2005-2015 of the UN-ISDR indicates risk assessment and education as two key areas for the development of action in the coming years.

Many initiatives dealing with earth observation and geo-information for disaster management are ongoing and focus on developing countries (e.g. GEOSS, GMES, UN-SPIDER, ESA/TIGER and the International Charter Space and Major Disasters). Many of these efforts require knowledgeable resource persons on the ground. Whether there is sufficient absorption capacity in economically less developed countries and how efficient application of earth observation can be achieved are recurrent issues in these initiatives.

ITC has been active in building capacity in developing countries through the United Nations University–ITC School for Disaster Geo-Information Management (UNU-ITC DGIM), its main objective being to support the capacity building of organisations in developing countries by training individuals in the collection, management, analysis and dissemination of spatial information before, during and after disaster events (see www.itc.nl/unu/dgim/).

Seminar Objectives

The seminar had the following objectives:

- identification of the capacity needs of organisations working on disaster risk management topics
- assessment of existing capacity gaps in the use of geo-information

Participants of the international Executive Seminar held at ITC from 23 to 25 September 2009

for disaster risk management from the perspective of the different stakeholders
- evaluation of how well the diverse capacity needs are reflected in existing capacity building measures
- assessment of the suitability and lasting effectiveness of different capacity building modes (e.g. traditional degree programmes, short courses, distance education, university networks)
- assessment of the role of research in capacity building, and how it can be strengthened
- definition of the role of the recently established UN-SPIDER Capacity Building Working Group.

Outcomes

In addition to selected presentations, much time during the seminar was devoted to discussion sessions to address these objectives, leading to the following principal observations:

- The organisations providing spatial information and services for disaster risk management have very mixed views on the beneficiaries of their products. This is related to:
  - the nature of the organisations (e.g. academic, governmental, non-governmental) and their attitude towards capacity building in geo-information for disaster risk management (project offspring, main objective, on the job)
  - the difference between disaster risk management and disaster response.
- The beneficiaries and users, their responsibilities, and the requirements for geo-information are highly variable in the different phases of disaster risk management, and this needs to be reflected in capacity building efforts.
- Typically, the responsibility for risk assessment is not as well defined as the responsibility for disaster response, although this is critical for effective capacity development.
- The tendency is to focus on maximising the (technical) capacity and effectiveness of different stakeholders, while neglecting the elements in the data/information flow or chain of command that are not working optimally. This can be the "last mile" (e.g. early warning at village level) or the weakest link in the chain (e.g. lack of communication between two governmental units). Without addressing these weaknesses there can be no effective disaster risk management.
- The random organisation of one-off short courses on the use of geo-information for disaster risk management, which thus target individuals, is not an effective capacity building approach.
- It is desirable to create a graphical overview (e.g. a world map of capacity) that reflects:
  - identified needs for different aspects of disaster risk management
  - who has done what sort of capacity building
  - when and who benefited

  as well as to list and link these individuals and organisations. The last can increase their visibility to make the trained people wanted and needed. The UN-SPIDER Knowledge Portal was identified as a potential platform for such an inventory.
- Sustainable capacity development in the use of spatial information in disaster risk management is best carried out through the support of local universities, whereby they incorporate the aspects of disaster risk management relevant to each discipline and support the setting up of disaster risk management curricula.
- Real capacity development should combine education and original research on applying tools and techniques in the specific country situations.
- Universities organised in networks will only support each other if they see mutual benefit in exchanging information, curricula, teaching staff, researchers and students.
- The training of in-service staff of the organisations involved is best performed in a blended learning approach, combining e-learning with short intensive courses.
- Open materials (open courseware, open-source models and software, and open access to data) should be used in capacity development.

Our aim is to continue this discussion in order to arrive at a comprehensive, sustainable and stakeholder-specific capacity building strategy for the widespread incorporation of geo-information concepts and data in all phases of disaster risk management.

Hyogo framework for action 2005-2015

Priorities for action:
- Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation
- Identify, assess and monitor disaster risks and enhance early warning
- Use knowledge, innovation and education to build a culture of safety and resilience at all levels
- Reduce the underlying risk factors
- Strengthen disaster preparedness for effective response at all levels.

For more information: www.unisdr.org/eng/hfa/hfa.htm

announcements

New 3D lab at ITC

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The digital photogrammetric cluster at ITC has recently been upgraded to a more generic-purpose 3D lab. Special requirements were formulated for this environment, where various people work in a relatively small room on 3D projects.
Advances in the development of single-screen stereo devices provided a solution: these single-screen stereoscopic TFT monitors have no mechanical or electronic component for 3D generation and sensation and are thus preferred to more vulnerable systems using two screens or active glasses triggered by emitters.
Although their display quality is inferior to that of the professional systems that are widely used in production environments, they fulfil the requirements for an educational setting at ITC. In spring 2009, the 3D lab was equipped with 10 Miracube single-screen stereoscopic TFT monitors (www.miracube.net) from Prosystems (www.prosystems.nl). The lab is available for educational modules, research projects and project services that require the special 3D hardware and the state-of-the-art processing power of PCs.s

Cluster in operation

Final model ITC Hotel Nima Jalali (top) and Saxion University of Applied Sciences (bottom)

New and Improved ITC Website Online!

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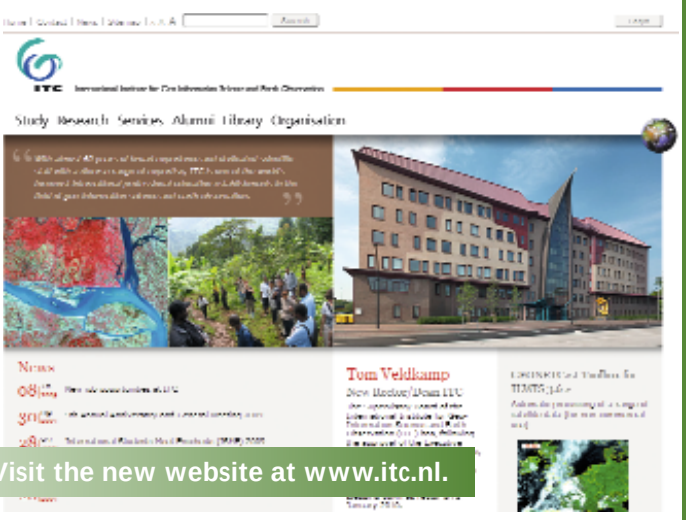
As you may have noticed, we have recently renovated the ITC website. With a completely new look, as well as a new feel to it, the website boasts an improved navigation structure and some new functionalities.

Make sure that you log on with your ITC (alumni) account! You need to log on to gain access to restricted News & Events posts on the website. Restricted content can be recognised by the blue hyperlinks.

If you don't have an ITC alumni account but you did study at ITC, you can sign up for an account at www.itc.nl/sign-up.



life after itc

Joint Education Programmes Are Beneficial and Should Continue

Mathias Lemmens

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As a high school student, Dr Olajide Kufoniyi (Jide) was fond of mathematics and was good at it. But how does one transfer skills in understanding a world of abstractions into professional opportunities in the tough world called reality? One opts for a career in surveying – and that is precisely what Jide did. But he was also curious about new technologies and how they could aid the further development of his home country, Nigeria. This brought him to ITC, the Netherlands, for two long periods: first between October 1986 and April 1989 to pursue a PGD and an MSc in photogrammetry, next from January 1992 to May 1995 to conduct PhD research. Jide revisited ITC fairly regularly after that – most recently to attend the seminar on "Capacity building in disaster geo-information management in developing countries", which was held from 23 to 25 September 2009. We were curious to know how education at ITC had helped to shape his career.

Long Time

Starting with a first degree in geography and after a postgraduate diploma in surveying from the University of Lagos in January 1983, Jide (born 1954) went to work at the Federal Survey Department of Nigeria. His duties included the demarcation and survey of boundaries, including the Nigeria/Benin boundary and the boundaries of the newly created Federal Capital Territory (FCT Abuja). He became involved in photogrammetric mapping. The technology impressed him a great deal and triggered the desire to pursue further education abroad. As he says, "In 1986 I applied for an EU fellowship programme with, as preferences, University College London (UCL) for a one-year MSc programme and ITC for a 2.5-year PGD/MSc programme." ITC was the first to grant admission and, when the arrangements had already been completed, he also received notice of UCL admission. "To stay outside my country for more than two years, yeah, that's a long time, but I've never regretted my choice. The education at ITC was thorough, and the mix of education and training beneficial. After having learned the concepts, I could practise them immediately – a perfect preparation for later professional activities." After nine months into the course, Jide's wife and newborn daughter joined him. His second child was born in Enschede.

High Quality Research

With an MSc degree in photogrammetry (with distinction), Jide became head of the Department of Photogrammetry at the Federal School of Surveying, Oyo, Nigeria, in April 1989. He introduced computer programming into the curriculum and established the Computer Unit – achievements he is still proud of today. Developing photogrammetric adjustment and mapping software opened his eyes to geographical information systems (GIS). Again he thought, "The best way to enrich my knowledge is by going abroad." ITC accepted his application. January 1992 he left his wife again and now three children – the third one being just five months old. "At ITC the research environment was fine, while the opportunities to attend conferences and present research results, together with the feedback I received, enabled me to accomplish a high-quality study." In May 1995, Jide defended his PhD thesis *Spatial Coincidence Modelling, Automated Database Updating and Data Consistency in Vector GIS* at Wageningen Agricultural University (today Wageningen University). His promotor was Professor Martien Molenaar. "When doing my research, the time went by very quickly because I had to do many things," Jide reflects. "But my family stayed in Nigeria, and for them time didn't fly." Fifteen years ago, the world was not the global village it is today. "To speak to my wife, I always had to go through a neighbour living some 2 km away. The family had a telephone. I would phone them, set a time, and my wife would go over there. Often I had to try for hours to get contact. Just telephone and letter, no e-mail, no skype. How times change!"

Dr Olajide Kufoniyi

Fruitful

"To pursue my education at ITC has been my best decision ever," says Jide. In 1998, he became chief executive of the school he left in 1992 to conduct PhD research. He modernised the programmes from analogue land surveying to fully digital surveying and geoinformatics, for example, by introducing a geoinformatics department and a postgraduate diploma in GIS. The inclusion of the school in the Education Trust Fund as a beneficiary at the same level as any Nigerian Polytechnic is another highlight of his service at the school. From 1 September 2000 to 31 August 2008, Jide served the maximum tenure of eight years as executive director of the Regional Centre for Training in Aerospace Survey (RECTAS), located on the Obafemi Awolowo University (OAU) campus, Ile-Ife, Osun State, Nigeria. Established in 1972 under the auspices of the UN Economic Commission for Africa, RECTAS is a joint initiative of African countries in the field of geoinformatics. At RECTAS, Jide introduced GIS and cartography specialisations, and facilitated joint MSc courses in geoinformatics with ITC and joint Master/MSc courses in remote sensing and GIS with OAU. Are there sufficient students willing to pursue a study in geoinformatics? "Yes, there are," replies Jide. "The challenge is not so much the number of students as their employment." Graduates do not find good employment. Not because there are no vacancies but because of an embargo on new employment. Although institutions require fresh blood, they were not allowed to recruit new people. It is only recently that the embargo was lifted. If the utilities (electricity, communication lines) were better, graduates would be able to generate jobs themselves through self-employment. Unfortunately, to be able to run computers (which are relatively cheap) reliably, expensive generators and fuel must first be bought. For many, this is too big an investment and it creates a competitive disadvantage. Furthermore, today's way of doing business requires access to reliable communication lines and these are lacking. Also, at RECTAS the supply of electricity may be interrupted for days, necessitating the use of electricity generators. "Buying fuel reduces the budget for improving training facilities. Staff are prevented from travelling abroad to renew their knowledge, and therefore foreign funding is extremely important."

Cross-fertilisation

Should students from Africa go abroad for a high-quality academic education as Jide once did, or would they do better to stay in their home country now that the world has become a global village? An unambiguous answer, in terms of a simple yes or no cannot be given. Compared with 20 years ago, the level of academic education has risen tremendously in Africa. But even when education at the same level is available at home, this does not mean that an education abroad would be a waste. Why? "Studying in another environment brings cross-fertilisation, feedback and knowledge exchange. It answers the question 'Are we on the right track?' So cross-border education is always good. However, the need for human resources trained in geoinformatics is so large that we cannot rely only on sending people abroad. In this respect, joint education programmes run in collaboration between North and South institutions, as ITC is doing with RECTAS, are beneficial and should continue."

Jide is currently the secretary-general of the African Association of Remote Sensing of the Environment, and also the ISPRS regional representative for Africa.

ESRI User Conference San Diego, 13-17 July 2009

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The theme of the ESRI International User Conference (EUC) of 2009 was "GIS: designing our future". More than 12,000 GIS professionals gathered together to share information and collaborate on how GIS can be used to do just that.

ESRI president Jack Dangermond explained the choice of this theme as follows: "The idea of designing the future entails that we combine the wealth of data available about our world with sophisticated analysis and management tools as the prescription for understanding and shaping the future of our planet – an anthropogenic future where advances in human society, technology, etc. are designed in close collaboration with nature, resulting in the best of possible future worlds. It's a huge task and a delicate balance, for sure, but with help from GIS and GeoDesign tools, we readily accept that challenge. Because, frankly, we have no other choice."

A delegation from ITC attended the conference. As usual, the EUC provided an excellent platform to meet with ITC's clients, relations and alumni. ITC hosted a booth at the Tuesday to Thursday exhibition and at the Monday evening academic fair (both courtesy of ESRI).

There are too many interesting contacts at such a big conference to do justice to them all in a short report. Here we just mention two examples: one is the reconfirmation of plans to intensify ITC's support to UN peacekeeping operations; the other is continued cooperation with ESRI, including the software donation to our recent graduates and educational partners.

The ITC alumni reception held on the Wednesday evening was attended by some 40 alumni and relations. What makes the San Diego reception so special is that, compared with other ITC events, there is an even wider diversity in geographical background, graduation year and career path of the participants (and yet everyone speaks the ITC language!). And what makes it so extra special is that at some point (now becoming more or less a tradition) Jack Dangermond strolls in to discuss GIS with people from all over the world.

Alumni meet San Diego

ITC booth at ESRI User Conference

Impacts of Infrastructure and Transport: Refresher Course in Kumasi, Ghana

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On 10 August, 27 alumni from ITC and UNESCO-IHE Delft gathered in Kumasi, Ghana, to attend the Nuffic-sponsored two-week refresher course Impacts of Infrastructure and Transport: Modelling and Mapping Sustainable Infrastructure Development in an Urbanising Landscape in West Africa. This refresher course was organised jointly by the College of Engineering (CoE) of Kwame Nkrumah University of Science & Technology (KNUST) in Kumasi, Ghana, and the ITC Departments of Natural Resources (NRS) and Urban and Regional Planning and Geo-information Management (PGM).

The course aimed to bring together professionals from geo-information science, urban and regional planning, natural resources, and transport engineering to discuss the impacts of road infrastructure and transport, especially in relation to the fields of tension and possible trade-offs between natural resources and urban and regional development in infrastructure and transport provision. Geo-information technology is believed to play an important role in the planning and management of infrastructure in rapidly urbanising regions such as West Africa. Lecturers and participants discussed:

- issues of ecological and social sustainability, as well as economic sustainability and its integration in the planning and management of infrastructure and transport systems
- the use of geographical information systems (GIS) and transport models in analysing and mapping the positive (e.g. improved access and community development) and negative (e.g. ecosystem fragmentation) impacts of infrastructure and transport
- the use of geospatial tools for land use planning and site selection for new developments
- the use of spatial analysis tools in

selecting and prioritising infrastructure development options in urbanising regions.

At the end of each course day, Ghanaian guest lecturers gave lectures with a local flavour, reflecting on the relevance of the day's topic for Ghana. A Saturday excursion to Bandai Hills Forest Reserve revealed not only the possible negative impact of urban and infrastructure development on pristine forest areas but also the new chances for local communities when previously inaccessible areas are opened up The last stop of the tour was a good example of this: tourist development at beautiful Lake Bosotwi, where the group enjoyed a nice drink.

Course participants came from as many different backgrounds (e.g. transportation engineering, natural resources, wildlife management, forestry, land economics, geo-informatics and civil engineering) as countries (i.e. Ghana, Tanzania, Mozambique, Zambia, Namibia, Nigeria, Senegal and Nigeria). Consequently, discussions among participants and lecturers on the planning of large-scale infrastructure became very lively!

Among the lecturing staff from ITC were Louise van Leeuwen (NRS), Frans van den Bosch (PGM) and Mark Zuidgeest (PGM), while various staff from KNUST also gave lectures and guest lectures. The course, logistics and social activities were very well organised by KNUST staff, especially Professor K. Ampadu (COE), Mr Charles Adams (COE), Professor S. Oppong (FRNR), and their assistants. Our thanks to you all!

Participants and lecturers of the refresher course

Opening session: (from left to right) Professor Oppong (FRNR), Professor Momade (CoE), Professor W. Ellis (pro-vice-chancellor), Dr Zuidgeest (ITC) and Professor Ampadu (CoE)

Professor Oppong at Bandai Hills, a forest without trees

Refresher Course Addis Ababa: Targeting Urban Poverty Alleviation

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A 12-day refresher course sponsored by NUFFIC and entitled "Targeting Urban Poverty Alleviation" was held in Addis Ababa, Ethiopia, from 14 to 25 September 2009. The UNCC served as the venue and in total 20 participants from Ethiopia, Kenya, Malawi, Tanzania, Uganda and Zambia completed the course.

The course stemmed from an initiative of Mr Sisay Zenebe from the Dutch Alumni Association (AETNHEI) and was conducted by ITC staff in cooperation with Addis Ababa University (Department of Urban and Regional Planning). The coordination and execution was undertaken by Dr Javier Martínez and Dr Richard Sliuzas (ITC), with support from Dr Fisseha Wegayeh (URP-Addis Ababa University), Mr Alemu Nebebe Mekonnen and Mr Sissay Zenebe (URP-Addis Ababa University). The course was facilitated by André Nonguierma and Girum Asrat of the ICT, Science, and Technology Division of the United Nations Economic Commission for Africa.

The course had the benefit of a valuable contribution from Dr Alphonce Kyessi of Ardhi University, who gave a presentation on poverty alleviation strategies in Sub-Saharan Africa and Dar es Salaam, Tanzania. The

Participants concentrated on urban indicators and poverty mapping using GIS

A total of 20 participants from Ethiopia, Kenya, Malawi, Tanzania, Uganda and Zambia completed the course

Ethiopian case and perspective was presented by Dr Fisseha Wegayeh from Addis Ababa University.

The main topics covered in the course were urban poverty dimensions and alleviation strategies, urban and intra-urban poverty/indicators, global monitoring tools and urban poverty mapping. The content included theoretical and practical approaches to urban poverty assessment and alleviation strategies, with the main focus on developing countries.

In the first week, the participants were exposed to sharing experiences on poverty reduction strategies, as well as remote sensing techniques for the spatial targeting of urban poverty. Within this context, Ms Tsion Lema (Addis Ababa Municipality) gave a presentation on the slum identification project in Addis Ababa. Dr Gora Mboup (chief of the Global Urban Observatory) gave a presentation on urban indicators for monitoring the Habitat agenda and the Millennium Development Goals, with reference to the monitoring tool UrbanInfo.

Participants were given the opportunity to present country-based studies. This was very useful and offered new and unique ways of dealing with urban poverty alleviation and reduction.

Two excursions were organised during the course: on Wednesday afternoon a visit to the open market area (mercato) in the city centre of Addis Ababa; on Saturday a visit to the neighbouring city of Adama to see a labour-intensive project that uses local materials (so double advantage): the paving of roads with cobblestones.

In the second week, participants concentrated on urban indicators and poverty mapping using GIS. On one day, the participants also attended the ESRI User Conference, where they could follow the present GIS situation in Eastern Africa in relation to planning, land management and economic development. The refresher course was open for half a day as a pre-conference workshop, and welcomed 70 participants. During this workshop, Mr Hilary Kamela shared the main findings of the refresher course and presented a list of challenges related to targeting urban poverty within the African context. Ms Elsa Sereke (Helvetas) presented her research on the urban quality of life and its spatial distribution in Addis Ababa. Finally, and on behalf of Dr Dozie Ezigbalike, chief of UNECA's Geoinformation Systems Section, André Nonguierma and Girum Asrat gave a presentation on the development of geospatial databases for socio-economic development in Africa.

According to the course evaluation, the course enabled participants to improve their skills and be exposed to ideas and methods that would be useful in their work and particularly in targeting poverty. During the closing ceremony, the participants received a certificate of attendance and a bundle of materials for reference purposes.

ESRI Eastern Africa User Conference, 24-25 September 2009

The 4th ESRI Eastern Africa User Conference was organised in Ethiopia at the United Nations Conference Centre in Addis Ababa. The conference brought together ESRI software users from across Eastern Africa to share their experiences and learn more about ESRI and GIS in general.

The theme of this year's conference: 'GIS Designing our Future', connected particularly well to Africa coming in the backdrop of the continent's current focus on infrastructure development, common markets and utilization of its energy, water, mineral and other resources.

ITC alumni reception
25 September 2009

The ITC alumni association of Ethiopia organised a reception in Addis Ababa on 25 of September. Some 80 alumni participated in the reception. Also, Mr Franta Wijchers of the Netherlands Embassy participated in the reception

Alumni gathering at Ghion Hotel

Mr Franta Wijchers of the Netherlands Embassy participated in the reception

URISA Student Paper Award for Diana María Contreras Mojica

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Diana Maria Contreras Mojica's paper (a summary of her ITC MSc thesis) has been awarded second place by the review committee of the 2009 URISA Student Paper Competition.

Fending off tough competition, Diana's paper, "Designing a spatial planning support system for rapid building damage survey after an earthquake: the case of Bogotá D.C., Colombia", was deemed exemplary by the committee. The award ceremony and research presentation took place on 1 October 2009 and Diana received many complimentary remarks afterwards. Her attendance to the event was partially supported by the Austrian Organisation Österreichische Forschungsgemeinschaft (ÖFG). Those who attended the conference came from the USA, Canada, SA Guyana, Suriname, Jamaica, Japan, Korea, Belgium and Austria.

Diana obtained her MSc degree in geo-information science and earth observation for urban planning and management in 2009 under the supervision of Dr. Johannes Flacke (first supervisor) and Dr. Cees van Westen (second supervisor). She is currently doing her PhD in the topic of geospatial indicators for recovery process after disasters and working as a researcher at the Centre for Geoinformatics, Z_GIS, at Salzburg University, in the MOVE project about methods for the improvement of vulnerability assessment in Europe.

On behalf of the ITC community, we would like to congratulate Diana on her achievement.

Diana María Contreras Mojica (right) with URISA 2009 president Ms Hilary Perkins, who conducted the ceremony

The MSc thesis of Diana María Contreras Mojica can be downloaded from the ITC Library web pages:
www.itc.nl/library/papers_2009/msc/upm/contreras.pdf

More information about the event can be found at:
http://spatialnews.geocomm.com/dailynews/2009/sep/02/news4.html
www.urisa.org/node/1291
www.urisa.org/about/anaheim