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2008

number 2

introduction

While we've been working to bring you ITC News 2008-2, the holiday season has come and gone and we're already halfway 2008. Your Managing Editor is among the few members of the ITC staff who is not that fond of globe-trotting. I prefer to keep my suitcase under the bed, and enjoy the colorful stories of the members of the ITC Community. I do study maps and read about countries and cities I would visit if I was a globe-trotter. Like my imaginary journey this issue of ITC News starts with an article about maps. More specific state of the art in automated map generalisation (page 2). Inspired by articles in this issue of ITC News I give you some tips to plan your trip across the globe.

In Asia you could follow the Silk Route used by traders since 200BC. Make sure you stop over in Beijing, China. In 2008 Beijing not only hosts the Olympics but also the 21st quadrennial ISPRS congress (page 20) and the Dragon Symposium (page 19). Well worth a visit are the Indian ocean corals. Science Daily reported about a new model developed by WCS and ITC that predicts where corals can thrive (page 18).

From Asia you might travel to the east to Latin America where ITC organised short course in Cuba, Mexico, Argentina, and Chile (page 16) and to Brazil to stop by an ITC Alumna and holder of a copy of the Nobel Peace prize (page 27).

Are you more into Africa? Here are some suggestions for study trips to this continent: what about attending the GEOSS workshop in Ghana (page 24) or apply for the postgraduate course in Applications of EO and GIS in Integrated Water Resources Management in Kenya (page 17).

Your Managing Editor will spend her holiday break in Europe. I will not even leave my country. There is much to attract people to the Netherlands and to Enschede. As a matter of fact a group of international professional engaged in e-learning and distance education most recently came together here in Enschede to share good practices in e-learning (page 6). This summer I will explore the city of Enschede which is in top gear and ready for the future. A number of large (building) projects, including the rebuilt Roombeek district that was hit by the firework disaster in 2000, will see completion in the year 2008 (page 10).

For those who have the privilege to go on holiday, enjoy!

Janneke Kalf
Managing Editor

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

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ITC Leads Study on State of the Art in Automated Map Generalisation

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Research in automated generalisation of topographic data (where small-scale maps are automatically derived from a large-scale dataset) has resulted in many promising results.

At the same time, it seems hard for vendors to implement automated generalisation solutions in commercial software. Since national mapping agencies (NMAs) would benefit significantly from automated solutions, EuroSDR (European Spatial Data Research) embarked on a research into the state of the art of automated generalisation implemented in commercial software. Within EuroSDR, NMAs, research institutes and private industry work together on research projects of common interest.

The project team in this instance (led by the author) consists of six NMAs, namely KMS (Denmark), ICC (Catalonia), IGN (France), IGN (Spain), OS (Great Britain) and Kadaster (the Netherlands), and three research institutes, namely the University of Hannover (Germany), the University of Zurich (Switzerland) and ITC. The project started in November 2006 and the final report is expected by the end of 2008. This article describes the project set-up and reports on progress so far.

Scope of the Project

The main objective of the project is to study how commercially available software can produce a map according to map require-

ments defined by NMAs. The project focuses on large- to medium-scale generalisation, since in this range more complexities are expected than in the smaller scales. It is important to note that the project does not aim to publish details of the quality of individual systems or rank the software tested. This is a research project where the explicit aim is to address what the industry proposes and offers in terms of automated generalisation, and how this can be used by NMAs and by research institutes to define future research directions.

Test Cases

A list of known complexities for map generalisation related to specific feature classes was generated. Based on this list, four test cases were selected in such a way as to ensure the inclusion of all interesting generalisation situations (see Table 1).

Figure 1 shows the test cases of the project.

Software Tested

It was decided to test commercial software systems that were available in June 2007. Based on the defined case studies and the project conditions, vendors were invited to participate in the project. Four vendors

Table 1 Test cases selected for the EuroSDR project

Type of area	Source dataset	Target dataset	Provided by	Number of input layers	Main layers
Urban area	1:1250	1:25k	OS Great Britain	37	Buildings, roads, river, relief, ...
Mountainous area	1:10k	1:50k	IGN France	23	Village, river, land use
Rural area	1:10k	1:50k	Kadaster	29	Small town, land use, planar partition
Coastal area	1:25k	1:50k	ICC Catalonia	74	Village, land use (not mosaic), hydrography



ICC starting dataset (1:25k)



OSGB starting dataset (1:1250)



IGN France starting dataset (1:10k)



Kadaster starting dataset (1:10k)

Figure 1 Source datasets in the EuroSDR generalisation project (maps reduced in size)

agreed to participate: ESRI (ArcGIS), 1Spatial (Clarity), Axes Systems (Genesys) and the University of Hannover (Change, Push, Typify).

Defining Map Requirements

How to define map requirements in a way that can be unambiguously understood by testers was the next challenge. This is important since it should be perfectly clear what a tester should express in the tested system. Specifying map requirements for the generalisation of topographic maps is not straightforward. In general terms, expectations for a satisfying generalisation solution (e.g. reducing the details to discern regional patterns) can be defined as follows: a map that reveals or conceals information inherent among a set of abstracted data; a map that

enables a user to succeed in a given task such as exploring, route finding, observing. The difficulty is to specify these types of requirements into such a format and knowledge level that they can steer the automated generalisation process. For the project, map requirements were defined as a list of constraints by the four NMAs. Constraints are conditions expressing what the generalisation output should look like without addressing how this result should be reached by describing the sequences of generalisation operations (such as aggregation, simplification) to be applied.

To have a uniform way of expressing constraints, the project team developed a template to define the constraints for the four test cases. The template distinguishes be-

tween constraints on one object (e.g. minimal area of a building), on two objects (e.g. minimal distance between road and building), and on a group of objects (e.g. the building pattern should be similar to that in the input data).

The NMAs in the EuroSDR project studied their current specifications and processes in order to specify their map requirements in a set of constraints. Well-defined requirements were not directly available since none of the NMAs has implemented automated generalisation. At NMAs, requirements are available in documents (i.e. specifications), software code or even in human minds. These requirements are available only at the human knowledge level since they are meant to be used by cartographers in current interactive (semi-automatic) processes that allow some

human interpretation. When specifying the project constraints, the impossibility of formalising all cartographers' interpretations (e.g. interpretation needed to handle the constraint "the generic characteristics of the terrain should be kept") was realised. In other cases, it was realised that we might need better, more detailed specifications than the available map specifications meant to be interpreted by humans. This project will give insight into those aspects.

Test Process

The tests were performed on commercially available out-of-the-box versions by project team members from June 2007 till March 2008. Every system was tested two or three times on four datasets. At the time of writing, 26 outputs have been delivered (examples given in Figure 2).



ICC target dataset (1:50k)



OSGB target dataset (1:25k)



IGN France target dataset (1:50k)



Kadaster target dataset (1:50k)

Figure 2 Example of outputs generated by automated generalisation in the EuroSDR project (maps reduced in size)

To ensure that the results would not be limited by the software experience of the testers or limited to June 2007, vendors were invited to do parallel tests with as much customisation as they wanted (including developing new algorithms) as long as they reported on this.

In every test, the tester tried to translate all defined constraints into a form understandable by the specific software. It was important for the generalisation process to be triggered either by a class of objects (theme) or by spatially indicated areas (partitions) (i.e. the tester was not allowed to trigger operations on an object-on-object basis).

Evaluation Methodology

Currently we are working on setting up the evaluation of the outputs. In the evaluation, several analyses will be performed to learn as much as possible from the tests. Initial evaluation has already begun. Apart from assessing the outputs themselves, the evaluation will provide insights into the complete methodology to set up such a case study, since this is the first time that such an extensive study on the state of the art in automated generalisation has been carried out. The main part of the evaluation stage concerns evaluating the cartographic outputs obtained with the software. Three parallel evaluation processes have been set up:

- an expert evaluation, where experts from the NMAs who provided the datasets assess the outputs. The outputs are interactively compared with expectations (i.e. with their specifications).
- an automated constraint-based evaluation. In this process the outputs are also compared with their specifications but the differences with the expected specifications are quantified by means of automatically computed indicators.
- a comparative evaluation where the outputs obtained for a given generalisation problem by the different software and testers are compared.

All three methodologies are set up in such a way that they are complementary. For example, the expert evaluation is used to assign values from "bad", "medium", "good" etc. to values calculated in the automated comparison. In addition, comparing results of the expert and automated evaluations can help in detecting inconsistencies between the two types of evaluation that need to be further investigated (e.g. bugs or inappropriate measuring tools in the automated evaluation process, misinterpretation of what was asked of the experts, subjectivity of the evaluations). The automated generalisation may also confirm or invalidate trends noticed through the comparative evaluation. In addition, the automated evaluation can identify aspects where a closer interactive analysis could be needed in the comparative evaluation.

As already mentioned, results are expected by the end of 2008

Sharing Good Practices in E-Learning

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From 11 to 13 June 2008, a group of international professionals engaged in e-learning and distance education came together at ITC for the international workshop Sharing Good Practices: E-learning in Surveying, Geo-information Sciences and Land Administration.

The organisation of the workshop was a combined effort of the International Federation of Surveyors (FIG), Commission 2 and Commission 7, and ITC. The Netherlands Cadastre, Land Registry and Mapping Agency sponsored the event.

The programme consisted of keynote speakers, technical sessions, hands-on sessions, demonstrations and guided discussions. The organisation received 30 accepted contributions, and 70 participants from 27 different countries actively participated in the various workshop sessions.

The workshop chair invited FIG President Professor Stig Enemark to deliver his opening address from Denmark, using video conferencing.

Keynotes

The first keynote speaker welcomed was Dr Nicholas Frunzi, director of Educational Services, ESRI, USA. Dr Frunzi gave an overview of ESRI's developments in educational services - from the instructor-led classroom training in 1988 to the ESRI virtual classroom of today and the blended learning with ESRI Press in the future.

Professor Bela Markus of the University of West Hungary, chair of FIG Commission 2, was the second keynote speaker. After introducing the concept of e-learning, he discussed the status, the trends, and the importance of business models in e-learning. He stressed the importance of a business model for reusing and sharing resources to build sustainable courses within networking partnerships.

The keynote address of András Osskó, chief advisor at the Budapest Land Office and chair of FIG Commission 7, focused on the importance of changes in the education of land surveyors. Interest in traditional land surveying is decreasing, whereas interest in land administration is increasing. Osskó made a plea for lifelong learning, which is necessary not only for individuals but also for institutions (so that the knowledge of their staff may be kept up to date).

Technical Sessions

Based on the content of the accepted contributions, the following technical sessions were offered:

- Good practices in e-learning and distance education
- Engaging in e-learning
- Continuous professional development
- International cooperation and/in e-learning.

During the workshop dinner, the Best Paper Award was presented to Dr Henny Mills of Newcastle University for her paper, co-written with David Barber, entitled "A virtual surveying field course for traversing". The paper describes an innovative e-learning tool developed for a geomatics degree course. It



The workshop chair invited FIG President Professor Stig Enemark to deliver his opening address from Denmark, using video conferencing



Poster with the programme of the opening session

was considered an excellent example of how a virtual fieldwork tool can support student understanding and prepare for real fieldwork.

Hands-on Sessions

One afternoon of the workshop was reserved for the hands-on sessions, and participants could choose from the following:

1. Captivate® for animations and simulations
2. Creating a Wiki
3. Quick and easy lecture video recording
4. Communicate. Collaborate. Educate with Elluminate®.

The workshop on Captivate attracted the highest number of participants. The workshops were followed by a demonstration of the e-learning activities of the Netherlands Cadastre, Land Registry and Mapping Agency.

Discussion Sessions

At the end of each day, participants came together in so-called home groups. These home groups were formed to create an informal platform for discussions, for formu-

lating discussion points, and for the exchange of experiences. Each home group was guided by a moderator.

Questions for home group discussion

Main issues

What thoughts came up during the keynote addresses and other sessions? How do they relate to your experience?

Sharing experiences

Do you have any recommendations or insights that you would like to share or discuss with the others?

Common themes and trends

Do you see any common themes or questions emerging from the workshop with regard to e-learning in the field of surveying, geo-information sciences and land administration?

Conclusions

The conclusions of the four home groups were presented during the closing session and summarised by Chris Paresi, head of ITC's Department of Urban and Regional Planning and Geo-information Management. The outcome of the discussions is summarised below.

1. The importance of partnerships

Working together and sharing experiences and resources is considered of great importance for the success and further development of e-learning in the field of surveying, geo-information science and land administration. In this context, the term "thematic network" and the e-learning concept "com-



Some e-learning professionals active during their presentations (Reinfried Mansberger, Sven Åke Bjørke, Mathilde Molendijk, Bela Markus and Nicholas Frunzi)

munity of practice" were also proposed. In particular, the following points were mentioned:

- Exploring cooperation between the professional organisations FIG, ISPRS and ICA
- Recognition of e-learning material and courses
- The importance of quality assurance
- The need for a credit exchange system
- The role of open source
- Sharing contents
- Stronger partnership between academia and professionals
- The need for an e-learning infrastructure
- Promoting a business model for reusing and sharing e-learning courses and courseware.

2. E-learning as a tool for continuous professional development

E-learning is considered an excellent tool for continuous professional development and lifelong learning, especially in the rapidly changing working field of the land professional.

In particular, the following points were discussed:

- Nano-units of (e-)learning: small focused training units for particular learning needs
- "Immediate" implementation of learned skills by professionals
- The changing meaning of learning and how to achieve this
- The strong link between e-learning and knowledge management

- Online communication and collaboration tools for the exchange of experiences and mutual learning
- Blended approaches preferred.

3. E-learning to engage young surveyors

An issue of concern within FIG is the decreasing interest of university students in the land surveying profession. Universities and professional training institutions need to review their education according to new requirements and student interests. E-learning may contribute to motivating students to join the profession.

The following points were mentioned by the groups:

- Online communication and collaboration tools for interaction, group work, peer exchange, supervision
- Students used to digital learning and communication
- Global interest of students
- Online mentoring and support through communities of practice
- Preparing students for lifelong learning
- An opportunity for students from developing countries.

4. Defining the field of e-learning within FIG

The workshop made it clear that a lot of knowledge has been accumulated in recent years in the field of e-learning and surveying, geo-information sciences and land administration. Many lessons have been learned and it is now the right time to analyse these lessons and publish the findings.

In particular, it was suggested that:

- a FIG publication be prepared on the topic of e-learning
- all the experts be brought together in a Wiki environment to write a reference book on e-learning.



Young surveyor Jennifer van Vooren from the KaHo Sint-Lieven in Ghent, Belgium, delivering an excellent presentation on a home study package for land surveyors

5. Some problems

Although many e-learning success stories were presented during the workshop, naturally there were many critical issues to discuss as well. Some of the identified shortcomings of e-learning are as follows:

- Language is a bottleneck.
- Cultural differences in learning style and content can be a problem.
- E-learning is a tool and learning is the objective.
- E-learning is considered of limited use for practical teaching.
- E-learning is not really rewarded by training institutions and universities.
- Developing e-learning courses and material is demanding in time and expertise.

6. Final Remark

An award for e-teachers? They deserve it!

More Information

- FIG International Workshop, Sharing Good Practices: E-learning in Surveying, Geo-information Sciences and Land Administration.
www.itc.nl/fig_elearning2008
- FIG Commission 2.
www.geo.info.hu/fig2/
- FIG Home
www.fig.net/

Proceedings

Proceedings with the full papers are available on CD-ROM. A paper publication of the Proceedings will be produced in the second half of 2008, including the outcome of the discussion sessions. All presentations can be found on the workshop website



Group picture of participants and resource persons in front of the ITC building

In top gear and ready for the future

Enschede to deliver in 2008!

Enschede Municipality

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The history of Enschede has known turbulent times, what with the city fire of 1862, the heavy bombardments during the Second World War, and the decline of the textile industry.

Furthermore, on 13 May 2000 the city was hit by what has gone down in the annals of history as the firework disaster. More than 40 ha of the city were completely devastated. The concentration of efforts and co-operation have been central to the rebuilding of Roombeek. Even after this disaster, the residents of Enschede have regained control and summoned up the strength to respond flexibly to the altered situation. This year the district will be symbolically handed back to its inhabitants. And a lot more besides is going on in the city. The year 2008 is the year of Enschede!

Prior to 13 May 2000, Roombeek was a real working-class district, characterised by working-class housing where textile workers used to live. It was chiefly artists who felt at home in Roombeek. Moreover, the many old factory premises heightened the ramshackle appearance of the district and even before the disaster there were plans to renovate the district.

Rebuilding Roombeek

After the disaster, Roombeek had to be completely rebuilt, and a plan was needed whereby those affected by the disaster

would be involved in the rebuilding as much as possible. Ultimately, half the new dwellings in Roombeek have been erected by private parties. In addition, attempts have been made to conserve the valuable elements of Roombeek's history. For example, not only has the old pattern of streets remained the same, but the industrial premises have been reused, ensuring that the memory of Enschede's history as a textile town is kept alive. Even the water, the Roombeek, which had almost vanished from the picture, has been restored to glory through the rebuilding. The year 2008 now sees 62 ha for residential, entrepreneurial, recreational, hospitality, cultural, architectural and educational purposes. What's more, in 2007 the district won an important award (Golden Pyramid 2007) for rebuilding and restructuring: a national award for an inspiring commission.

Rozendaal Centre and Restoration of Roombeek

Roombeek is the artistic and cultural district of Enschede. One of the most prominent buildings in the district is the former Rozendaal textile factory. This factory has been transformed into the Rozendaal cultural complex and symbolises the rebuilding



Lonnekerspoorlaan in Roombeek: the heart of the district

and specific characteristics of the district: art, culture and architecture. The remains of the old derelict textile factory have been incorporated into this building in a contemporary building style. At 21 Rozendaal, the Rozendaal houses topical artwork, eight workshops, a museum café, an observatory, dwellings, apartments and the TwentseWelle museum. The cultural complex was opened on 22 April by Queen Beatrix.



One of the most prominent buildings in the district: the former Rozendaal textile factory



The TwentseWelle Museum is an amalgamation of the Van Deinsse Institute, the Jannink Museum and the Enschede Natural History Museum and places the developments in Twente in a wider context. Here nature and culture are woven into a unique concept

that represents the story of the human adventure: a universal story that takes Twente as its material. Attention is paid to archeology, history, folklore, local dialect, nature, landscape and much more.

Besides the fascinating design of the Rozendaal, Roombeek itself is quite exceptional in terms of architecture. Over the past years, Enschede has successfully engaged the services of several leading architects.

Enschede Delivers!

Besides the completion and symbolic restoration of Roombeek to its inhabitants, a number of other large (building) projects in Enschede will see completion in the year 2008. Indeed the theme of Enschede this year will be "Enschede delivers!" And this refers to projects that will enrich life in the city. In addition to the Rozendaal and Roombeek projects, the following can be mentioned.

Music Quarter

Enschede is characterised not only by art and architecture but also by its music culture. For years, many music organisations have been located in the city, and come November these will be housed in the Music Quarter in the city centre. This temple to music will provide accommodation for the Twente Podium, the Twente Music School, Atak Poppodium, the Artez Conservatorium, the Orchestra of the East and the National Travelling Opera. Enschede may rightfully call itself a "music city". Furthermore, with the coming of the Music Quarter, going out in Enschede will become an even more glittering occasion.

Scholingsboulevard

Besides art and culture, Enschede offers a wide range of education institutions. With the arrival of the Scholingsboulevard, three of these education institutions will be brought together in one building. The Scholingsboulevard is characterised not only by its unique education system but also by its challenging architecture. In an inspiring environment, pupils will be challenged to give of their best. With this boulevard, Enschede is writing education history and absolutely everything will be done to prevent pupils from leaving school prematurely.



The Prismare facility complex in Roombeek (situated near the Rozendaal)



The new Roomweg in Roombeek: the water in the district has re-emerged



View of Enschede from the Alpha Tower (104 m high): in the foreground the new Van Heekplein and the Klanderij shopping precinct

Twente Ice Rink and Arke Stadium

Further, from October sports enthusiasts can head for the Twente Ice Rink. This fully covered ice rink is the second in the Netherlands. The Twente Ice Rink is being built near the Arke Stadium. The home base of the FC Twente football club is undergoing considerable expansion this year, with the realisation of a second tier. Following this expansion, the Arke Stadium will have seating capacity for over 24,000 people.

Metamorphosis Enschede

All in all, Enschede is undergoing a radical metamorphosis in the year 2008. Over the past years, this student city has already acquired a completely renovated centre, the Van Heekplein. The coming of the Alpha Tower, the tallest residential building in Overijssel, likewise contributes to this renovated centre. The Alpha Tower is part of the Boulevard project and consists of five buildings. The tower is a real eye-catcher and can be seen from every corner of Enschede. The Boulevard architecture richly complements the new construction work round the Van Heekplein.

In short, Enschede has much to offer in terms of architecture as well as art and culture. The appearance of Enschede has dramatically changed in the course of the years and the city is well on the way to becoming a high-principled city of quality. The old textile town has made way for a city that has something to offer everyone. More information can be found at www.enschede.nl.

Facing the Food Crisis

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Is There a Food Crisis?

The year 2008 marks the 60th anniversary of the Universal Declaration of Human Rights. Included in article 25 is the "right to food". Nobody has failed to notice that this right is severely jeopardised by the current, spectacular rises in food prices. Many reasons for this phenomenon have been given, including the competition between food and biofuels, recurrent droughts and bad harvests, the high prices of fossil fuels, the changing diets of a growing population, and speculation. Many Asian governments have banned the export of rice and lowered import tariffs, clearly showing the fear of food shortages and riots in cities. Such measures show the extremely strategic value of food. If you have no car, you walk; if you have no television, you listen to the radio; but if you have no food, you simply perish. Most African countries are net importers of food, and face a worsening trade balance. Millennium Development Goal 1 (halving hunger and poverty by 2015) will never be met if no action is taken. What the crisis clearly shows is that dependence on a completely liberalised market is dangerous. There should be a focus on regional and local production, allowing countries with food deficits to pro-

tect their markets to some extent. Of particular importance is the fact that countries and regions are allowed to maintain certain food stocks. Now that the stocks at world scale are so small, prices tend to fluctuate alarmingly.

It also seems that the role of the World Food Program (WFP) will become increasingly significant. From a UN centre for emergency relief, it has turned into a world food distribution centre. As the world grows towards nine billion inhabitants, it seems necessary for WFP to indulge in even more strategic thinking on future food production. At this time, WFP has problems in buying food surpluses, clearly showing the urgency of the situation. WFP will increasingly need state-of-the-art expertise and technology in drought monitoring, early food deficit and surplus detection, and models describing relations between food needs, infrastructure, and transport and delivery times.

Feeding Nine Billion People

It will be a hell of a job to feed nine billion people. Even though technological development has allowed us to step up agricultural productivity, we have a tough job ahead of



Soybean farms in Mato Grosso, Brazil, can be as large as 10,000 ha (picture Eric Smaling)

us. Although it may potentially be possible to feed even 20 billion people, it is clear at this time that no forests or savannas will survive. Soybean and livestock are pushing back the Amazon forest, oil palm production is a major threat to Southeast Asian forest habitats, and the European Union (EU) is going to abolish its current "set-aside" regime and its quota system on milk production. Trade-offs between agriculture, pasture and nature will be in the limelight more than ever before. A major investment in agriculture is necessary, in such a way that natural land is safeguarded as much as possible. Land use planning and negotiation will soon be back at the top of the agenda. Furthermore, people will have to change their diets. Meat consumption over the past 15 years has risen from 200 to 300 million tons. The Chinese have moved from a consumption level of 20 kg meat/person in 1985 to 50 kg in 2007. To produce a kilo of meat, somewhere between 5 and 8 kg of plant material is needed. Over the past years, importation of soy meal from South America has increased massively. At the same time, the newest soybean farms in Brazil are over 10,000 ha in size, offering work to only a few people per unit land.

The EU intends to have 10% of total transport fuels derived from biofuels by 2020. This is very ambitious, and goes back to the time when first-generation biofuels were still seen as an environment-friendly solution to the looming fossil fuel shortage. Today, how-

ever, enthusiasm has dwindled. Large areas would be necessary if any impact were to be made. Moreover, biofuels are not really CO₂-neutral, and they compete with other land uses, food being the most prominent. Finally and less obvious, they take away soil fertility, whereas they are grown for their carbon only. Nonetheless, there is room for biofuels. In the tropics, jatropha plants can do well on land that is not used for other purposes, and this may be a catalyst for local development.

A Regional Approach in Africa?

What would be a way out for Africa? The International Food Policy Research Institute (IFPRI) thinks a regional approach may work. Let's have a look at West Africa for example, focusing on the 15 countries that make up the ECOWAS region. Wouldn't it be nice for this region if it was allowed to develop some kind of Common Agricultural Policy? - the way we have in Europe. ECOWAS and the EU meet regularly, but agriculture is not often on the agenda. If you forget about all the borders in the region, you remain with roughly three zones: the Sahel, the savanna, and the humid zones along the southern coast, where all the big cities are and where you find most consumers. The following questions now come to mind. What is the current and future food demand in the region? How do diets change? How can production of preferred food stuffs such as rice and meat be increased in the region? Where are the best soils? Do they need a bit of



Tea pluckers in Assam, India (picture Eric Smaling)



Sikasso, Mali: farmer groups take decisions for the new planting season
(picture Eric Smaling)



Kaya, Burkina Faso: large cattle herds are a common feature in Sahelian countries
(picture Eric Smaling)

phosphorus as a corrective application? (The P reserves abound in the region, so this should not be too difficult.) What has to remain as natural land and forest? How can we help producer organisations to invest and organise themselves? How can tariffs between member states be streamlined and how can the countries improve their tax revenues? How can we make the R&D agendas of member states more effective by avoiding

the duplication of efforts? Why should Senegal, Mali, Burkina Faso and Niger do the same type of research with too little money? Why not pool resources? The Dutch government has development programmes in Ghana, Benin, Burkina Faso and Mali - why not also include Togo and treat these five neighbour countries as a region?

Meanwhile, countries and regions such as ECOWAS are forced to venture into economic partnership agreements that at the end of the day allow the EU to enter their markets. This is not what the countries and regions need. Europe, the USA, China and Japan, all have protected their home markets for a long time in order to develop the agricultural sector. Once this has been successful, other sectors have also developed well as a result of better-fed populations with increased purchasing power. And who is in the best position to help these African economic regions to build their own agricultural sector? The EU of course. It knows everything about successful agricultural development!

education news

Spatial Information for Disaster Risk Management in Latin America

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In October and November of 2007, ITC organised four short courses in Latin America for CYTED-UTEEDA on GeoSpatial Information in Disaster Risk Management for Agriculture and Natural Resource Management. The first two were given by Michael McCall at UNAH (National Agricultural University of Havana), La Habana, Cuba, and UNAM, Mexico DF; the other two by Bas Wesselman at the Institute for Climate and Water (INTA), Argentina, and the University of Chile, Chile.

CYTED (Ciencia y Tecnología para el Desarrollo), an Ibero-American network that includes UTEEDA (Uso de las Tecnologías Espaciales para la Evaluación, Monitoreo y Manejo de Desastres Naturales en la Agricultura), is coordinated by Professor Dámaso Ponvert-Delisle of UNAH.

The five-day courses were all directed towards developing skills in geospatial information for disaster management, specifically in the fields of agricultural and natural resource management in Latin America, in line with the primary mission of CYTED-UTEEDA.

The principal topics covered were concepts of hazard, vulnerability, risk, coping mechanisms, and preparedness; DRR (disaster risk reduction) institutions and agencies in Latin America; geospatial information for hazards and vulnerability; and DRR decision-making levels and institutions in agriculture and natural resources management. Field trips (with field exercises) were organised by the counterparts to hazard and risk management sites to define real spatial information needs, and these were followed up by presentations on the geo-information sources and applications.

The participants were very responsive to the courses, particularly in Cuba, where external training courses are less common. Frequently highlighted by the participants were:

- the basic objectives and content (since many participants were from the CYTED network)
- the breadth of training materials and documentation (particularly useful in Cuba)
- software accessibility
- the ITC-style of training, with its mix of practice and theory
- group work
- the lively interactive discussions of experiences among and between participants and staff
- the fieldwork, a chance to practise techniques and see an actual risk situation.

The fieldwork trips were highly appreciated. In Cuba, it was a full-day excursion to the south coast, and included discussions at the Oficina Municipal de la Defensa Civil de Batabanó, and visits to areas of ma-

rine inundation and hurricane damage. The fieldwork in Mexico was conducted on the UNAM campus and the hazards concerned related to storm damage, pollution from waste, safety/security, and insane bicyclists on the new bicycle paths.

The courses were given in a combination of Spanish and English, with most PowerPoint presentations in Spanish but many documents in English.

Participant numbers were higher than expected: 35 in Cuba, 24 in Mexico, 25 in Argentina and 30 in Chile. Among the participants were disaster risk specialists, geologists, agriculturalists, meteorologists, social scientists, ecologists and land use planners, representing a wide range of specialisations and skills. The basic content of the topic dealing with the spatial information needed for risk reduction management provoked much interest, while the group work was mixed to stimulate interdisciplinary discussions and competing views.

Among the participants were people active in the CYTED Red network, staff and students from the host uni-



La Defensa Civil, Cuba



CYTED group, Batabanó, Cuba

versities (UNAH and UNAM), in Mexico professors from the University of Colima and the University of Baja California, and in Cuba professionals and scientists from CUJAE and the fields of meteorology, protected

areas, etc. Cuba does not as yet have an institute like ITC or a Netherlands alumni association, and this has made it more difficult to organise courses and has limited ITC networking in the area.



CYTED group, UNAM, Mexico DF



Mapping hazards on UNAM Campus, Mexico DF

Joint Postgraduate Certificate Course in Applications of Earth Observation and GIS in IWRM Successfully Launched

Arno van Lieshout

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Friday, 25 January 2008, was the big day for the participants and international staff involved in the four-month postgraduate certificate course Applications of Earth Observation and GIS in Integrated Water Resources Management (IWRM). For the second time, the course was officially opened by Professor Rose A. Mwonya, deputy vice-chancellor, Academic Affairs, Egerton University, in the presence of Dr Wilbur Otichillo, director of the Regional Centre for Mapping of Resources for Development (RCMRD) and Arno van Lieshout, course director of ITC. The official opening was followed by refreshments and lively informal interaction.

The course has an interesting set-up. It is partly conducted in Nairobi at RCMRD and Egerton University (Njoro campus), and the teaching staff are drawn from RCMRD, the universities

of Egerton and Addis Ababa, and ITC. The course has an application-oriented focus. The use of earth observation and GIS techniques for various aspects of water resource management is demonstrated. Groundwater, surface water and management issues and IWRM concepts are addressed. The experience of ITC and Egerton University in Lake Naivasha enables the lecturers to focus on real-life issues and problem-solving methods.

A total of 16 candidates enrolled for this year's course. Sponsorship for the participants is offered by various sources, including the Nile Basin

Initiative and the ITC-United Nations University School for Disaster Geo-Information Management.

The course is scheduled to run each year in the months January to April for a total of 16 weeks.



Measuring the flow velocity of the Gilgil river in Kenya

For more information:

www.itc.nl/education/courses.aspx

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Dr Tesfay Korme, RCMRD (korme@rcmr.org)

Professor Japheth Onyando, Egerton University (jonyando@yahoo.com)

research news

New Model Predicts Where Corals Can Thrive

Science Daily

www.sciencedaily.com

The Wildlife Conservation Society (WCS) and the International Institute for Geo-Information Science and Earth Observation (ITC) have developed a new scientific model that accurately maps where coral reefs are in the most trouble and identifies regions where reefs can be protected best. The model, which is being applied in areas throughout the Indian Ocean, is described in a recent issue of the journal *Ecological Modelling*.

The model synthesizes several ocean conditions, such as seawater temperatures, photosynthetic and ultraviolet light, winds and currents, and the concentration of microscopic plankton on the ocean's surface. These data were factored into previous reports of coral stress or bleaching and were then used to map the distribution of these inhospitable conditions.

The researchers found that much of the northern Indian Ocean contains very stressful environments for corals and that half of its marine parks with the strictest regulations are found within these harsh areas.

Areas of the Maldives and the Seychelles fall in the middle of the most severe conditions; these include some of the best coral reef parks and diving spots. In an area east and just north of Madagascar lie the least-stressed reefs, which include those off the islands of Mauritius, Rodrigues, and Reunion. These are now among the reefs the model identifies as the highest priority for conservation.

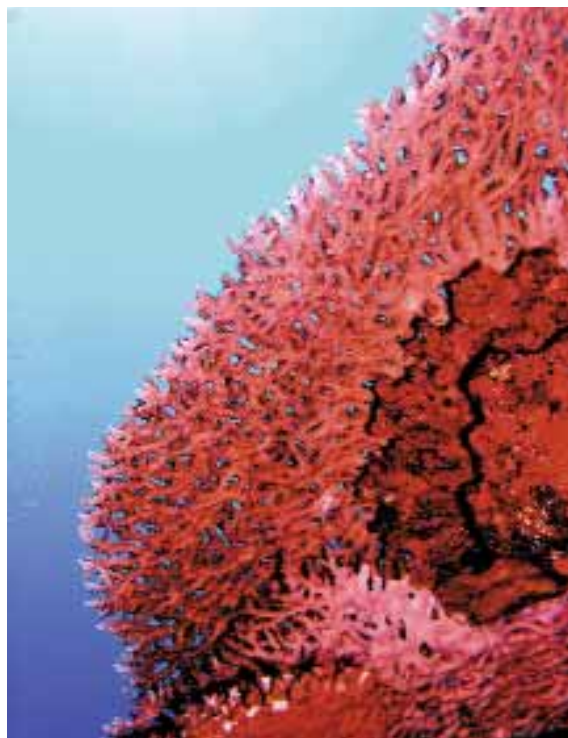
Corals have been devastated in large areas across the world. Disappearing at rates up to 5.4 percent per year over the past 30 years, they are among the earliest victims of climate change. Bleaching, which climate change exacerbates, occurs when corals become so stressed that they eject the beneficial algae that give them their color. This eventually causes large sections of the reefs to lose much of their biodiversity.

"Despite the large areas in high and severe stress, the model suggests that there are some reefs with less stressful conditions and more reasons for hope," said WCS researcher Dr. Timothy McClanahan, one of the study's authors.

Reference: Joseph Maina, Valentijn Venus, Timothy R. McClanahan, Mebrahtu Ateweberhan. *Modelling susceptibility of coral reefs to environmental stress using remote sensing data and GIS models*. Ecological Modelling. Volume 212, Issues 3-4, 10 April 2008, Pages 180-199.

Adapted from materials provided by Wildlife Conservation Society (www.wcs.org/), via EurekAlert! (www.eurekalert.org/), a service of AAAS.

Source: Science Daily / University of Toronto
www.sciencedaily.com/releases/2008/04/080416165732.htm



Acropora red coral (credit: Tim McClanahan)

project news

Professor Bob Su Honoured at Dragon Symposium, Beijing

Bob Su

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At a symposium held in Beijing, P.R. China, from 21 to 25 April, to present the final results of the Dragon 1 programme (2004-2007) and kick off the Dragon 2 projects, Professor Bob Su received an award for an outstanding contribution (drought monitoring and prediction research and the scientific coordination of three advanced thematic training courses) to the Dragon 1 programme from the hands of Mr Zhang Guocheng, director of the National Remote Sensing Centre of China (NRSCC), and Mr Karl Bergquist, administrator of the European Space Agency (ESA). ESA and NRSCC, an entity that falls under the Ministry of Science and Technology of China, have cooperated in the field of earth observation application development for the last 10 years.

The work realised in Dragon 1 contributed to, and benefited, research application development in 16 thematic application projects related to land, ocean and atmospheric monitoring. Within the framework of the Dragon programme, ESA and NRSCC provided a series of advanced thematic training courses on remote sensing applications, which were hosted by university and research institutions in China. The first of these courses was held in 2004 on ocean applications, the second in 2005 on land remote sensing, and the third in 2006 on atmospheric remote sensing. In 2007 another advanced course was held on ocean remote sensing applications. ITC-WRS staff provided technical assistance for the last three courses.

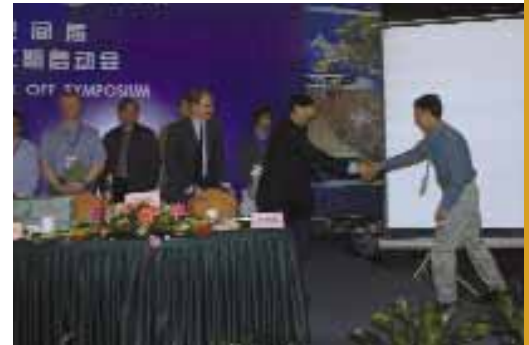
The Dragon 2 programme, which will last four years, is targeted towards land, ocean and atmospheric investigations in China and is expected to:

- promote the use of ESA, TPM (Third Party Mission) and Chinese earth observation data for scientific and application development
- stimulate scientific exchange in earth observation science and application by the formation of joint Sino-European teams
- publish co-authored results of the research and applications development at the mid-term stage and at the end of the programme
- provide training in processing, algorithm and product development, using ESA, TPM and Chinese earth observation data in land, ocean and atmospheric applications.

ITC staff will continue to be involved in several themes of the Dragon research:

- drought monitoring
- prediction of, and adaptation to, climatic changes
- estuarine, inland and coastal water quality monitoring, using earth observation data.

Professor Bob Su will again be involved in a series of advanced training courses, starting with the first Dragon 2 advanced training course on land remote sensing. This will take place from 13 to 17 October 2008 and will be hosted by the State Key Laboratory for Information Engineering in Surveying, Mapping and Remote Sensing (LIESMARS) of Wuhan University, Wuhan, China.



Bob Su receiving the award for an outstanding contribution to the Dragon 1 programme



The Dragon 2 programme, which will last four years, is targeted towards land, ocean and atmospheric investigations in China

events

2008 ISPRS congress and ITC alumni meeting in Beijing, China

Marja Verburg

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Beijing, China has been this year's host for the 21st quadrennial ISPRS congress. The theme of the congress "*Silk Road for Information from Imagery*" symbolizes the transfer from the last ISPRS congress in Istanbul, 2004 to Beijing in 2008 following the Silk Road used by traders since 200BC. It also recognises the global aspects of the congress in terms of bringing nations and cultures together.

The conference was organised by the State Bureau of Surveying and Mapping in China and sponsored by the Chinese Society of Geodesy, Photogrammetry and Cartography.

The opening ceremony included an opening address from the president of the Chinese Society of Geodesy, Photogrammetry and Cartography and ITC alumnus Prof. Yang Kai; followed by the welcome address by the Vice Minister of Ministry of Land and Resources, Director General of the State Bureau of Surveying and Mapping Mr. Lu Xinshe and the welcome address by the ISPRS President Prof. Ian Dowman.

Don't expect to read a full and scientific based report on the congress outcome; for that I'll refer to the congress web site: www.isprs2008-beijing.org/

Worthwhile mentioning is, that the Congress adopted a "*Beijing Declaration*" that, among other issues, called for support from international communities:

1. to commit adequate investment and active engagement in scientific research and development, education and training, and capacity and infrastructure building
2. to promote the sharing of imagery technology and data for scientific research and peaceful applications
3. to encourage constructive dialogue and close cooperation and collaboration between scientists, governments, public and private sectors, non-governmental organizations, and international organizations and institutions.

The Congress further calls for a contribution from everyone to establish and operate a new silk road for imagery, leading to a people-centered and development-oriented society.

Prizes and awards

Participants of the congress received a well filled and very practical conference bag. After a quick inspection of the contents, my attention was drawn to a small booklet entitled "ISPRS awards" and I wondered how many of them are, in one way or the other, related to ITC.

The **Otto von Gruber Award** is donated by the ITC fund and consists of a medal and a monetary grant, presented to an author under 40 years of age for a paper of outstanding merit in the photogrammetry, remote sensing and spatial information sciences over the four years prior to the Congress.

This year's winner of the award was Matthias Butenuth from Germany.

Then there is the **Willem Schermerhorn Award**, named after Willem Schermerhorn, the founding father of ITC, sponsored by Geo-Information Netherlands (GIN), awarded to ITC alumna Sisi Zlatanova (Netherlands) in recognition of her excellent performance as Chair of ISPRS working group IV/8: Spatial Data Integration for Emergency Services.

Overseas congress registrations:	1516
- full registration	1035
- day registration	64
- students and seniors	244
- free registration	173
Domestic participation:	1280
- full	460
- part-time	670
- VIP's	50
Accompanying persons:	50
In total:	2946
(ITC participants: 32)	



Sisi Zlatanova

The **Samuel Gamble Award**, sponsored by the Canadian Institute of Geomatics in honour of Dr. Samuel G. Gamble, former President of ISPRS and Director of the 1972 Congress was presented to three winners, two of them ITC alumni. They all meet the criteria that the recipient of the award should be a person who, like Dr. Gamble, contributed significantly to the development, organization or professional activities in the field of photogrammetry, remote sensing and spatial information sciences, at national or international level. The winners of the Award are: Wilber K. Ottichilo (Kenya), Jide Kufoniya (Nigeria) both ITC alumni and Li Deren (China). Unfortunately, Wilber Ottichilo wasn't able to come to the congress so he missed out the presentation ceremony.

Furthermore ITC staff member Sander Oude Elberink won one of the ISPRS Prizes for **Best Papers by Young Authors** (sponsored by donor organizations and by ISPRS to authors who are less than 35 years old and who are the sole author of a high quality paper presented at the Congress). This 2008 award has been sponsored by ISPRS, Dr. Sherman Wu and the European Science Foundation.

Not all prizewinners or award winners were known at forehand. In the Computer Assisted Teaching Competition (CATCON), held for the fifth time since 1996, ITC staff member Ben

Alumni reception

In the evening of 8 July, during a very well organized alumni reception, ITC also commemorated 30 years of cooperation between ITC and SBSM. Rector of ITC Professor Martien Molenaar and Deputy Director General Dr. Wang Chunfeng of SBSM exchanged gifts on this special occasion. Around 170 alumni, students and staff attended this festive gathering; they met with old and new friends and enjoyed a delicious dinner.



From the ITC Booth

As a first time ITC booth assistant, I enjoyed every minute of my time, trying to help out and provide information to a lot of visitors. Due to the fact that ITC is well known in the RS field, the main interest of the visitors to the booth was how to obtain a PhD at ITC... There were however also questions like 'what is the distance from Enschede to the Keukenhof? Specific questions on, for example cooperation with ITC, were addressed to Martien or Sjaak, who in between sessions came to the booth to meet with these special visitors

Maathuis won the third prize with the GEONET cast toolbox based on ILWIS. He received the bronze medal during the closing ceremony.

And last but not least, the Rector of ITC Martien Molenaar was unanimously elected president of ISPRS Commission VI as successor of Prof. Cho for the period 2008 – 2012.



Li Deren and Jide Kufoniya



Sander Oude Elberink



Ben Maathuis

In Memoriam: Daniel Omondi Omolo (29 July 1976 – 16 July 2008)

Janneke Kalf

itcnews@itc.nl

The ITC Community is shocked by death of Daniel Omondi Omolo from Kenya, PhD student in the department of Natural Resources. Without any warning Dan suddenly passed away during the weekly ITC run in all probability by a cardiac arrest.

As from September 2002 onwards, Daniel became a familiar face in the

ITC community. On 22 July in the presence of his brother and cousin a memorial service was held in the Jacobus Kerk in Enschede. The memorial service was attended by Her Excellency Professor Ruthie Rono, Ambassador of the Embassy of the Republic of Kenya in the Netherlands, ITC students and staff. We would like to extend our deepest sympathy to Daniel's family.



Eulogy for the late Daniel Peter Omolo

Enock Titus Adhola, Dan's brother (enocktit@gmail.com)

The late Daniel Peter Omolo was born on 29 July 1976 in Kisumu City, Kenya to the late Jack Omolo Oketch and Esther Adoyo Omolo. He was the second born in a family of five children that composed four brothers and a sister.

He started his early education at Xaverian Primary School and completed his high school education at Kisumu Boys High School in 1994. He joined Kenyatta University under a government scholarship in 1996 for his undergraduate studies, and graduated in 2000 with a Bachelors degree in Environmental Sciences. In 2002, he won a Netherlands Fellowship Programme (NFP) scholarship to pursue a 12 month Professional Masters in Natural Resource Management at the International Institute for Geo-Information Science and Earth Observation (ITC) in the Netherlands where he graduated in 2003. A year later, in August 2004, he was awarded an 18 month Erasmus Mundus MSc fellowship which brought him back to ITC until March 2006 when he graduated. However, owing to his sterling academic per-

formance and great rapport with his professors, Dan was to return to ITC in August 2007 – for the third time and again under an NFP fellowship – to start his Doctoral studies within the research theme of Biodiversity in Fragmenting Landscapes (BIOFRAG). At the time of his death, he had finished about one third of his PhD programme.

Career wise, Dan was a committed conservationist who dedicated his career to environmental matters. In particular, he used his knowledge and skills, especially in Geographic Information Systems (GIS), and Remote Sensing to advance conservation related research for biodiversity conservation. Among the places he worked include the National Museums of Kenya (NMK), Nature Kenya, and the International Livestock Research Institute (ILRI), all in Kenya, and BirdLife International in Cambridge, UK. Dan's contribution to these institutions and to conservation in general was outstanding. Kenya will miss a truly dedicated conservationist.

To his friends and work colleagues, Dan was a charmer who had a trade-

mark smile that was so contagious! He was the kind of person who would be standing when people are seated. When people would be standing, he would stand out; when people stood out, he would be outstanding; when people were dared to be outstanding, then Dan would be the very standards to be used! Academically and professionally, he was a highflier, a trailblazer, always aiming for the sky. He was a dedicated Christian who led his life by example and always motivated family and friends alike to better their best.

As a family, words alone cannot describe our deep sense of loss and sadness at Dan's unexpected and sudden demise and we forever hold him dear in our hearts. Even though he will never be replaced in our lives, we will always treasure every moment we shared with him. We thank The Almighty God for Dan Omolo's wonderful, fulfilling and richly blessed life.

May the almighty God rest his soul in eternal peace.

announcements

UNESCO Publishes New Manual on Applications of Remote Sensing to Groundwater Studies

Use of satellite remote sensing for groundwater studies is particularly challenging because most of the useful information identified by satellites is revealed indirectly (e.g. through surface vegetation or fracture zones).

The manual *Remote Sensing Applications to Groundwater* seeks to help interested people learn skills in deciphering groundwater information using remote sensing. It has been prepared in collaboration with the International Institute for Geo-Information Science and Earth Observation (ITC) within the framework of UNESCO's International Hydrological Programme and as a contribution toward the TIGER initiative. It has been written from a hydrogeologist-practitioner perspective and assumes no prior knowledge of remote sensing.

Professor Allard Meijerink, together with co-authors, has written the manual. Part I deals with image processing methods useful for groundwater studies and contains chapters on the use of thermal and radar images in hydrogeology. Part II discusses and illustrates the hydrogeological interpretation of images of the main types of geological terrain, with examples from warm climates. Part III concentrates on the use of remote sensing for groundwater management, modelling, aquifer recharge management, and various cross-cutting themes such as evapotranspiration, vegetation, soil moisture and new sensor technologies.

The manual also refers readers to various sources where satellite images can be downloaded free of charge and to internet sites offering open source software for remote sensing and GIS.

The manual was published on CD-ROM and in hardcopy by UNESCO at the end of 2007. Courtesy of UNESCO, a hard copy will be sent to each of the TIGER principal investigators, using the addresses listed in the ESA project database (<http://www.tiger.esa.int>). The investigators are advised to notify the persons below of any change in their address.

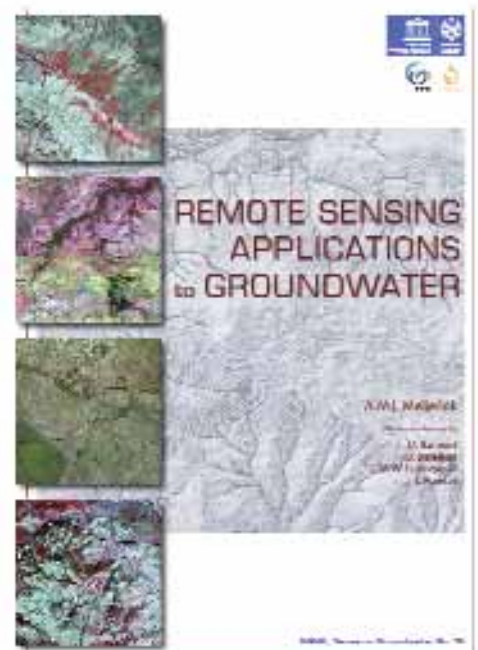
Other interested parties can request a free copy by sending an e-mail to Mr Vincent Leogardo (v.leogardo@unesco.org), with a copy to Dr Annukka Lipponen (a.lipponen@unesco.org), specifying their preference: hardcopy or CD version. A pdf file web version will also be made available at <http://unesdoc.unesco.org/ulis/index.shtml>.

Source: UNESCO, International Hydrological Programme

Contact:

Dr Annukka Lipponen at
a.lipponen@unesco.org

For more information:
www.unesco.org



GEOSS Workshop for Water Security and Governance in Africa

Venue: Alisa hotel, Accra, Ghana
 Date: 24-26 October 2008
 Time: Registration at 8 am on 24 October
 Fee: No fee; open participation (registration required)

This three-day AARSE2008 pre-conference workshop focuses on human capacity building for the Global Earth Observation System of Systems (GEOSS) and will provide the latest update on the implementation of the GEOSS information infrastructure. Special attention will be given to ways of developing operational end-user applications and actively working with end users to secure informed decision making for water security and governance. The workshop will provide a forum for discussing the development and operational issues of water security and governance for Africa.

For more information, please visit:

www.itc.nl/news_events/archive/general/GEOSS_Workshop.asp

or contact one of the organisers:

- Harold Annegarn hannegarn@gmail.com
- Ian Dowman idowman@cege.ucl.ac.uk
- Roger King rking@ece.msstate.edu
- Chuck Luther chuckluther@aol.com
- Chris Mannaerts mannaerts@itc.nl
- Jay Pearlman jay.pearlman@ieee.org
- Tsehaie Woldai woldai@itc.nl
- Rob Lemmens for 52North lemmens@itc.nl



staff news

Welcome to ITC	Ms L.B. Oosterhold	Staff member Service Unit (Bookshop) Facility Management (per 21 April 2008)
	Dr M.W. Straatsma	Assistant Professor Earth Systems Analysis (per 1 June 2008)
	Prof.dr. J.A. Zevenbergen	Professor Urban Regional Planning and Geo-Information Management (per 1 June 2008)
	Dr. M.K. Hazarika	Researcher Earth Systems Analysis (per 25 June 2008)
Staff leaving	Prof.dr.ir. M.G. Bos	Department of Water Resources (per 1 April 2008)
	Ms. M. Meester	Department of Earth Observation Science (per 1 April 2008)
	Ms. M.J.H.J. Geurts	Communication department (per 1 June 2008)
	J.H.M. Hendrikse	Department of Water Resources (per 1 June 2008)
	Dr. A.A. Abkar	Department of Natural Resources (per 1 June 2008)
	Ing. A. van den Noort	IT department (per 1 June 2008)

life after itc

Copy of Nobel Peace Prize Award Certificate for Carmen Lucia Midaglia

Janneke Kalf

itcnews@itc.nl

Carmen Lucia Midaglia (midaglia.07671@alumni@itc.nl) - ITC alumna Rural and Land Ecology Survey 1987 - has received a copy of the award certificate for the Nobel Peace Prize bestowed on the Intergovernmental Panel on Climate Change (IPCC) in 2007.

The credit for this prestigious award goes to Carmen and other colleagues who have admirably contributed to the work of the IPCC. Only those who have contributed substantially to the work of the IPCC over the years since the inception of the organisation have been given a copy of this award.

As a surveyor, Carmen collaborated with the IPCC National Inventory (Brazil) in:

- elaborating the *First National Inventory of Greenhouse Gases from Methane Emissions - Sector Waste from (CH₄) Industrial Sources* in accordance with IPCC methodology, coordinated by PNUD/MCT (Brazilian Ministry of Sciences and Technology) and executed by CETESB - São Paulo Environment Agency (<http://www.mct.gov.br/index.php/content/view/20378.html>).
- coordinating the 3rd Partial Project Activities Report (Bra/95/G31) *Enabling Brazil to Fulfill Its Commitments to the United Nations Convention on Climate Change*, under an agreement with PNUD/CETESB (study focused on the infrastructure needed to meet programme goals).
- participating in the national survey of domestic solid waste disposal in cities with populations higher than

50,000 inhabitants in São Paulo State and over 100,000 inhabitants in Brazil (identified sanitary dumps for methane gas emission estimation and assisted in storing information in databases).

- organising the international IPCC expert meeting on Good Practice in Inventory Preparation: Emissions from Waste, which was held at CETESB, São Paulo, Brazil, from 26 to 29 July 1999, and was promoted by the United Nations Development Program, the International Energy Agency and the Organization for Economic Cooperation and Development.
- contributing to concept development and research, as well as the distribution of *Ozônio: A Proteção Que Envolve a Terra*, a textbook for teenagers on the importance of saving the ozone layer, which was

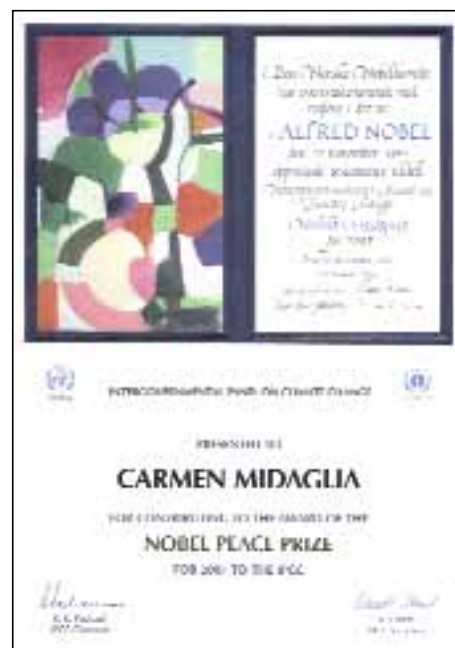
produced by SMA/SP-Environment State Secretariat (<http://www.ambiente.sp.gov.br/prozonesp>).

Carmen has also written an article about the effects of climate change on the Netherlands. It is a review of many articles that deal with the possibility of the Netherlands being under water in the future. Carmen hopes the article may help to inspire both Brazilian public politics in this area and students in water management. The full article (in Portuguese only) can be found at <http://cecemca.rc.unesp.br/ojs/index.php/climatologia/article/view/677/710>

Nowadays Carmen is working at CETESB on water quality issues and is responsible for the geographical coordination of the São Paulo inland water monitoring network.



Carmen Lucia Midaglia holding a copy of the award certificate for the Nobel Peace Prize



Copy of the award certificate for the Nobel Peace Prize

Operational Aspects of Research: Challenges in Scientific Life after PhD at ITC

Zhengdong Huang

hzhd@alumni.itc.nl

Since my graduation in 2003, I have worked as a university teacher, an urban planning consultant for local government, and an organiser of a large-scale investigation campaign involving university students. Basically, my research career has not been interrupted, and the PhD life at ITC has contributed much to my research activities. Actually, life devoted to scientific research is as hard as life in many other professions. In the scientific sphere, the biggest challenge in many cases is how to compete for research projects. Major operational issues related to this challenge may include determining the devotion to a scientific life, looking for a suitable position, making appropriate use of institutional resources, and fostering a competent research team. These issues might differ considerably from one PhD'er to another, and might also be influenced by the practical working environment. Also, different activities are actually interconnected and contribute to scientific research in one way or another. Based on my personal experiences, as well as the observations of several other PhD'ers from ITC, some details of the operational aspects challenging scientific life are presented below.

Introduction

On 28 March 2003, I defended my dissertation and gained a PhD title at Utrecht University. This defence also concluded my four-year life as a PhD student at ITC, which was sponsored by the DSO Sino-Dutch project. The project was implemented between ITC and the then School of Urban Studies, Wuhan Technical University of Surveying and Mapping (WTUSM), China. WTUSM was merged with other universities to form the new Wuhan University in 2000, and the School of Urban Studies was renamed



Dr Zhengdong Huang

the School of Urban Design (SUD) in 2005. During my PhD study under the supervision of Professor Ian Masser and Professor Henk Ottens, I focused my research on information support for urban transport planning. My PhD career lasted exactly four years, with one year in Wuhan for data collection and some teaching activities at the university. On graduation, I went back to Wuhan to continue my career as a university teacher.

My Career

The cooperation between ITC and Wuhan has lasted for almost 20 years, and I have witnessed the whole process. There were three major economic financing periods: 1986 to 1990, 1992 to 1996, and 1998 to 2003. Interestingly, I was an undergraduate student of urban planning during the first period, I was appointed an MSc student at ITC during the second period, and I worked for my PhD during the third period. Now there is a joint MSc programme between SUD and ITC.

Eight months after my return to Wuhan, the university assigned me to a two-year part-time post as deputy

director at the High-Tech Development Zone, Nanchang city. My mission mainly concerned the strategic spatial development of the whole district (213 km²). The mission was carried out satisfactorily, and at the end of 2005 I returned to Wuhan University as a full-time professor.

In 2006, the dean of SUD initiated a large-scale campaign to explore the human settlements and architectural styles along the national border. This was known as "Marching along the Border of China". I was appointed to the organising team as acting director, responsible for coordinating activities in scenario development, for team construction and training, and for seeking sponsors. The programme was composed of 108 students, divided into 18 teams, who travelled some 60,000 km in 38 days during the summer holiday of that year. It was a successful programme, and received an award from the national youth committee for being an excellent holiday programme.

But the scientific research goes on. I have completed several peer-reviewed papers and have taken part in some academic conferences. Academic life in China is not as simple as it used to be. Looking for research projects has become a major task. In 2006, I wrote a proposal for the National Science Foundation (NSFC) and it was approved. The proposal dealt with optimising urban public transport travel with the support of a multi-tier transit data model - so also an extension of one part of my PhD work. While the NSFC emphasises theoretical improvements, the high-tech 863 development programme emphasises innovative inventions using modern technology. Transport is a sponsored field in this programme, and public transport



School of Urban Design, Wuhan University



plays a role. In 2007, I wrote a proposal on optimising the transit route network from the perspective of transit planning and deployment. This was also approved, but with challenging requirements. As an urban planner, it is important to take part in activities of the planning society. In 2007, I passed the test to become a certified urban planner in China.

My current job also involves tasks such as the qualification and development of the urban planning discipline, and the application of PhD certification. These are time-consuming yet fundamental issues that will promote the future development of the school.

Challenges in Scientific Life

There are quite a few challenges in scientific research, such as competing for research projects, building a research team, training students and collecting data. Of these issues, the biggest challenge is to construct a competent research team. This is very difficult in some cases because of the poor ability of the institute or the lack of suitable professionals. Some good ideas might be thwarted by the in-

ability to build a good research team. Therefore, when it comes to looking for a job, it is always a good idea to find an institute with profound scientific activities and outputs.

Research problems exist at different levels: for example, within the international, the national and the local context. The concerns at international level might be quite different from those at national and local levels. Normally, a Request For Proposals (RFP) or proposal guide will identify the major focal points. These need to be carefully analysed before fingering the keyboard.

Reflections

My story seems to demonstrate that there are close connections between PhD research at ITC and the scientific life afterwards. These connections are reflected in the following aspects. First, to a large extent a PhD research is a process of improving scientific thinking. A critical attitude and a systematic concept have to be formed. Second, effective cooperation and communication among our colleagues is indispensable. Third, gaining a PhD is also a process that improves scientific techniques such as GIS, quantitative and qualitative methods. Last but not the least, a heart with ambition is always necessary.

Let's be more specific and make a SWOT analysis of being a PhD student at ITC:

- **Strength:** We can deliver a strong academic output based on the research context.
- **Weakness:** We may need to travel for at least two hours before setting our feet towards efficient linkages with some advanced research bodies.
- **Opportunity:** Through the ITC platform we have access to the huge ITC alumni network, as well as an international network.
- **Threat:** This relates to the connections with the ITC research agenda. Some candidates may come with good ambitions but may not satisfy the ITC research context. Extra efforts are needed to cope with this situation.

Suggestions to Fellow PhD Students

Many routine suggestions can be made to the average PhD candidate with regard to tracing the frontiers of research: for example, take part in academic conferences and read conference proceedings and papers in recent journals. But two more issues are also worthwhile pursuing: (i) become more involved in the Dutch academic network, especially the research schools, (ii) start building some international connections through the ITC platform, particularly connections with advanced institutes with whom there might be cooperation after graduation. In addition, candidates should be relaxed enough to enjoy the academic life in the Netherlands.



Dr Zhengdong Huang with his promotor, Professor Ian Masser, during a visit to China

Dr Zhengdong Huang received his PhD degree from Utrecht University and ITC in 2003. He is now a professor at the School of Urban Design, Wuhan University, and a registered urban planner in China.

ITC Alumni Meet in Yangon Just before Devastating Cyclone Struck Myanmar

Marjan Kreijns

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Just three days before the devastating cyclone struck Myanmar (Burma) on Saturday, 3 May, a group of ITC alumni brought together by Mr U Thein Lwin and Marjan Kreijns, ITC representative for Southeast Asia, met for dinner at the Traders Hotel in Yangon. Most of the 159 registered ITC alumni were trained at ITC in the '70s and '80s, when Myanmar was still eligible under the Netherlands Fellowship Programme (NFP).

It is extremely sad that these natural disasters strike in countries where people already live under difficult cir-

cumstances. According to the state media in Myanmar, more than 22,000 people were killed in the storm and more than 40,000 others are missing. The authorities say that many lost their lives in a huge tidal surge that swept inland during the storm. The international community in Bangkok reports that the death toll is probably much higher, and it is already being seen as the worst natural disaster in East Asia since the tsunami of 2004.

Millions have been left homeless and without food and water. The rice har-

vest of this year has been completely destroyed, and Burma faces a serious short-term and possible long-term problem in feeding its people. "This disaster is going to last," said one European diplomat. "It's not something that is going to be over in a couple of weeks or months. It will have far-reaching consequences until the next harvest."

Five days after the disaster, Marjan Kreijns was able to get in contact with Mr U Thein Lwin, who reported the chaos in Yangon.



ITC alumni (1974) with Ms Marjan Kreijns



Group of ITC alumni



Mr U Thein Lwin and Ms Marjan Kreijns

"Young" and "old" ITC students meet in Stockholm

Jacqueline Mol

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The Working Week of the International Federation of Surveyors (FIG) from 14 to 19 of June 2008 in Stockholm, with its conference theme Integrating Generations, was an excellent opportunity for ITC to invite "young" and "old" ITC students and staff for an informal get-together.

On Tuesday 17 June an alumni reception was organized in the lobby of the Conference Hotel the ITC alumni were welcomed by ITC Master and PhD students and staff. The presence of the President of FIG, Professor Stig Enemark, and Vice-president

Professor Paul van der Molen, as well as Bas Kok President of the GS DI Association was highly appreciated by everybody.

Apply now for the one-day tutorial

Hyperspectral Remote Sensing

Spectroscopy, calibration, validation, mapping and modelling high spectral resolution images for environmental studies

On Thursday, 13 November 2008, parallel to the ACRS 2008 in Colombo, Sri Lanka, ITC will organise a one-day tutorial. Of the 20 places available, 15 are reserved for ITC alumni.

Hyperspectral remote sensing deals with data from instruments acquiring reflectance images in a large number (>40) of narrow (<0.01 to 0.02 μm in width), contiguous (i.e., adjacent and not overlapping) spectral bands, enabling the mineralogy of objects to be derived or obtaining information on soil, water and biochemical composition.

What Is This Tutorial About?

Participants in this one-day tutorial will be exposed to the basic physics of spectroscopy and learn how to interpret spectra derived in the laboratory and field and integrate these with image data. The full processing chain, from data acquisition through calibration to thematic mapping, will

be covered in the tutorial. Elective case studies will serve to instruct participants in the use and application of hyperspectral data, covering real-life examples from the fields of geology and exploration, environmental science, geoengineering, vegetation science, agriculture and water quality studies.

For Whom Is This Tutorial Relevant?

This tutorial is designed for students, researchers and practitioners in the field of remote sensing who have a background and interest in earth and/or life sciences and who want to learn the basics and prospective applications of hyperspectral remote sensing. Basic knowledge of remote sensing is required.

Costs

The course is fully sponsored by ITC and no tuition fee or additional costs

are charged. Participants need to arrange and finance their own travel and accommodation.



For more information and registration:

www.itc.nl/news_events/archive/alumni/_registration_sriLanka/default.aspx



The presence of Professor Paul van der Molen, President of the GSDI Association Bas Kok and Prof Stig Enemark was highly appreciated



Professor Paul van der Molen, Director of the UNU-ITC School for Land Administration Studies (left)



Prof Stig Enemark, President of the International Federation of Surveyors (FIG) and vice President FIG (2nd from right)



Letter to editor

From: sekeleti@alumni.itc.nl
 Sent: 18 March 2008 13:17
 To: alumni@itc.nl;
 itcnews@itc.nl
 Subject: RE: ITC Update 2008-01

Dear Janneke

There is one thing that has kept me connected to ITC all the time since I left the Netherlands in March 2004: the ITC News magazine. I am very impressed that it is available online because now I may not have to miss a single issue.

Since I left ITC, I have changed postal address more than three times and ITC has had only one address update. This means in many instances the hard copy of the ITC News goes missing along the way and I also lose touch with ITC for that moment.

Through the online version, I read about Saskia Groenedijk winning the Henk Scholten award for 2007. In my own view, Saskia's winning of the award was long overdue. She simply deserves the award and I am sure my fellow alumni will totally agree with me. Not only is she hard-working, she is also charming and makes the students feel well attended to and easily at home away from home. Through this mail, I would like to say: Saskia, congratulations and keep on promoting the "we" spirit of ITC! It is not easy but you can also stimulate others to believe in it and act in such a manner that gives a feeling of oneness and of being home.

One of my best lecturers was Emile Dopheide. He just made me feel good in many aspects, both in and outside class. I remember his lessons in project planning, especially the log frame analysis and project funding. I

came from the project world and his lecture provided me with one of my best times at ITC. Besides the academic work with Emile at ITC, we shared some sporting moments, and a beer of course, during many ITC organised events. Isn't that a lovely way to get along with students? By far, he is one of the people that have influenced my work and I want to thank him for his character and effort. Please pass on my heartfelt congratulatory remarks to him.

Besides the award-winning members of ITC staff, I know there are so many more people at ITC who work very hard to make other people's lives comfortable. I know this from my experience as a member of the ITC Student Association Board (SAB). I came to know a lot of people who are very humble, selfless and committed, and together they keep the ITC spirit alive and moving. Examples are the organisers of Run4fun, SAB excursions, the spring party, graduations, the end-of-module parties and fieldwork, as well as the staff at the ITC restaurant and helpdesk.

Janneke, thank you for the good work you are doing, and I shall always keep in touch with ITC through the ITC News magazine.

Best regards
Martin Sekeleti
 Former SAB President 2003