FACULTY OF GEO-INFORMATION SCIENCE AND EARTH OBSERVATION

# ITC News







- Topography in
   Seismic Amplification
- DecCoCast
- The Kronkel
- New Visual Identity

DEGREES, DIPLOMAS AND CERTIFICATES

in geo-information science and earth observation

stitutes worldwide



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### 2010number 2

### introduction

Red, blue, orange, green ... no, it's not rainbows on our mind but ITC's new visual identity (page 10). Along with the new faculty comes a new house style, and one that, while preserving the best of the past, introduces new elements that reflect ITC's new status as part of the University of Twente. The colours mentioned above, representing education, research, project services and faculty wide, respectively, are again prominently displayed - as indeed is the famous Kronkel (page 8), which has quite a history of its own!

No doubt ITC News itself can be considered faculty wide as it seeks to keep you up to date on developments in education (such as the refresher course on strengthening local land governance (page 12) and the course on GIS, remote sensing and GEONETCast (13) and movements on the project front (reports on the DevCoCast regional land training workshops in Argentina and Brazil (5) and the courses on GIS for disaster risk management in Thailand (18). And when it comes to research, well, this core ITC process is by its very nature news. The role of economic clusters in improving urban planning support (page 15) may seem a far cry from the importance of topography in seismic amplification (page 2) – but not at ITC.

Turning to more mundane matters, if you're faced with selecting a birthday gift for an inquisitive toddler, it might be an idea to add DUPLO to the top of your list. Not merely a possible solution to your immediate problem, it may also open the gate to a promising academic career in later life. In the article on the PhD training weekends (page 16) recommendations abound, so this product seems well worthy of serious investigation.

Of course, within these core processes are people, and it is always interesting to read about the multicoloured experiences of our alumni in their "life after ITC". If you turn to pages 28 and 30, you may come across names you know; you will certainly find two fascinating stories.

So even in this year of change, when a new visual identity is making its entry, we are hoping that, as in times past, ITC News is continuing to meet your needs in terms of communication and information.

Virtually yours,

Janneke Kalf Managing Editor Jorien Terlouw Editor

### colofon

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# The Importance of Topography in Seismic Amplification

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#### Seismic Amplification

Every year, earthquakes lead to massive destruction and high rates of casualties. It is noted, however, that not all earthquakes cause similar seismic shaking and resulting damage. Damage can vary strongly from one location to the other on a scale of a few hundred metres or even less. There are several factors that play a crucial role in the amount of shaking occurring at a particular site. The intensity of ground shaking that any location will experience during an earthquake is a function of three main factors: (i) earthquake source, (ii) medium and propagation, and (iii) site factors. Source effects are the earthquake magnitude, depth and mechanism. Large and shallow earthquakes at convergent faults usually produce ground motions of large amplitude and long duration. In addition, large earthguakes produce strong shaking over much larger areas than smaller earthquakes. The distance of a site from an earthquake affects the actual amplitude of ground shaking at that specific location. In general, the amplitude of ground motion decreases with increasing distance from the focus of an earthquake. The frequency content of the seismic signal also changes with distance. Close to the epicentre, both high- and lowfrequency motions are present. Farther away, low-frequency motions (slow deformation) are dominant, a natural consequence of wave attenuation in rock, thereby in general reducing the damage potential.

Analyses of earthquake damage worldwide suggest that the severity of shaking depends on several local site-specific factors besides the distance and magnitude of an earthquake. Local site conditions can lead to amplification of seismic waves and to unusually high damage. Unconsolidated materials, such as sediments and landfills, amplify ground motions. Certain frequencies of ground shaking may generate disproportionately large motions because of wave resonance and/or focusing in basins. Two famous cases of such local amplification effects are the events in Mexico City (1967), where amplification at specific frequencies occurred in the sediment basin underneath the city, and Seattle (1965), where subsurface topography led to focusing of seismic energy and very local amplification in part of the city.

#### Role of Topography

Seismologists have long been aware of the role of topography in influencing the intensity of seismic response. The impact of topography on the uneven distribution of seismic response and associated devastation has frequently been observed and documented during seismic events. Recent large events in Pakistan (Kashmir earthquake, 2005), China (Wenchuan earthquake, 2008) and Haiti (earthquake 2010) all show manifestations of seismic amplification due to the topography. This effect has been studied extensively, numerically and experimentally at a local scale (single slope or hill), and has shown amplification of seismic response at ridge crests and de-amplification at ridge toes. This effect has, however, rarely been investigated at a regional scale. Recently, seismologists have been working towards the development of techniques for nearreal-time ground shaking prediction at a regional scale. These techniques predict the spatial variation of ground shaking at a regional scale (i.e. large areas without exact boundaries and comprising many topographic features). The most common and



Seismic amplification\_01: Amplification map for Haiti (left) based on ASTER DEM (after Anggreani *et al.*, 2010). Map indicates (de-)amplification in % with respect to situation without topography. Clearly visible is the amplification effect on ridges and de-amplification in valleys and as "shadow" effect on slopes that are facing towards the earthquake source. It can clearly be seen that much higher detail is provided on local PGA extremes, compared with the output from ShakeMap (right). The result could be combined with results from ShakeMap to provide more accurate PGA values after an earthquake.

frequently applied tool has been developed by the USGS, i.e. ShakeMap. This and other models do not consider topography as an independent parameter in the estimation of ground shaking. And the relevance is illustrated by observations that topography can change peak ground acceleration (PGA) values by over 100% in rugged terrain. Since most of the seismically active areas are associated with rugged terrain, investigating and incorporating the topographic impact on seismic response is important for seismic hazard assessment, mitigation and nearreal-time seismic shaking prediction.

Impact of Topography at Regional Scale Predicting the realistic regional impact of topographic seismic response is strongly dependent on the resolution and accuracy of regional topographic information. With the widespread availability of the digital terrain representations generally referred to as digital elevation models (DEMs), many terrain analysis studies have explored the utility of DEMs and their derived topographic parameters. The resolution and accuracy of a DEM have a significant impact on the quality of DEM derivatives such as slope, relative height, aspect and curvature of the terrain, all very important factors in topographic seismic amplification analysis. Terrain features smaller than the DEM resolution cannot be represented distinctly or with their true value, but instead are averaged to a single pixel value, which is important when DEM derivatives are used for predictive modelling, such as for topographic seismic response prediction.

Shuttle Radar Topography Mission (SRTM) DEM and Spaceborne Thermal Emission and Reflection Radiometer (ASTER) derived DEM at 90m and 30m resolution, respectively, can be acquired with (almost) global coverage and free of charge. This readily available data can be utilized for exploring the topographic seismic response at regional and local scales, particularly in near-real time. Recent studies (e.g. Shafique et al., 2009; Anggreani et al., 2010) evaluate topographic attributes and seismic parameters computed from such DEMs in order to investigate the impact of quality and resolution on the derived topographic seismic response. Methodologies are being developed to readily derive the spatial distribution of relevant topographic attributes and seismic parameters. The impact of DEM source and resolution on slope gradient, relative height of terrain and shear wave velocity (top 30 m; VS 30) are evaluated through full waveform modelling using a spectral finite element modelling code (SPECFEM3D). It is observed that, although relatively coarse resolution DEMs (30 to 90 m) underestimate the critical sites of steep slope gradient and the lower VS 30 areas, it has little impact on derived regional topographic amplification factors. The slope gradient is observed to be the topographic attribute most sensitive to amplified seismic response, followed by the relative height between the bottom of the mountain and the top. Such seismic amplification models can be used in the future for rapid assessment of areas experiencing increased seismic amplification or for hazard studies by running various earthquake scenarios.



Muhammad Shafique



Dr. Mark van der Meijde

#### References

- Anngreani, D., van der Meijde, M., Shafique, M. Modelling the impact of topography on seismic amplification at regional scale. Enschede, UT-ITC, 2010, p. 46.
- Snafique, M., van der Meijde, M, et al. In: Remote Sensing for a Changing Europe: proceedings of the 28th EARSeL symposium, 2-7 June 2008, Istanbul, Turkey/edited by D.
  Maktav. Amsterdam: IOS Press, 2009. ISBN 978-1-58603-986-8-386. pp. 386-394.

#### USGS Shakemap:

- http://earthquake.usgs.gov/earthquakes/shake map/ SPECFEM3D:
- www.geodynamics.org/cig/software/packages/ seismo/specfem3d/

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# DevCoCast Regional Land Training Workshops in Córdoba, Argentina, and Cachoeira Paulista, SP, Brazil

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Many countries face serious environmental risks and need accurate earth observation data and derived environmental information for their sustainable development. GEONETCast provides reliable, worldwide and continuous access to information and is an easy and effective way for countries to receive satellite and environmental data. The GEONETCast for and by Developing Countries (DevCoCast) project, funded by the European Community's 7th Framework Programme for Research, involves developing countries more closely in the GEONETCast initiative. Many earth observation data products, some produced in Latin America, are freely shared via GEONETCast and can be received using off-the-shelf lowcost ground reception infrastructure.

Building on experience previously gained in Africa when organizing similar training events in close collaboration with the EU and AU initiative African Monitoring of the Environment for Sustainable Development (AMESD) (e.g. at the RCMRD, Nairobi, and AGRYMET, Niamey), these five-day workshops were organized by the DevCoCast Latin American project partners (CREAN, INTA, INPE and ITC, with support from VITO), and were hosted by the Centre for Surveying and Assessment of Agriculture and Natural Resources (CREAN) of the National University of Córdoba from 31 May to 4 June 2010 and by the Centre for Weather Forecast and Climate Studies (CPTEC) of the National Institute for Space Research (INPE) from 7 to 11 June 2010.

To present the recent developments and achievements to a wide range of thematic experts from various countries in Latin America, these workshops focused on the following aspects:

 exploring the potential of the GEONETCast broadcasting technology and the environmental data it offers, with

### DevCoCast Latin American project partners

CREAN	Andres Ravelo
INTA	Tomas Hartmann
INPE	Sergio Pereira
VITO	Tim Jacobs
	Carolien Tote
ITC	Ben Maathuis
	Bas Retsios



Group photo of participants attending the Argentina workshop

particular reference to Meteosat Second Generation (MSG) and the SPOT Vegetation instrument

- demonstrating how to archive and process data, using the GEONETCast Toolbox plug-in developed under ILWIS 3.7
- presenting regional data disseminated via GEONETCast, building on the experience of Latin American users.

The DevCoCast Latin American workshops combined theory and practical assignments on a number of topics, for example GEONETCast, system reception and software, the data delivered by various GEONETCast services, as well as the regionspecific data delivered to Latin America through GEONETCast by various data distributors, such as INTA, INPE and VITO.

### GEONETCast, Reception System and Freeware Software Utilities

An overview of the GEONETCast Environmental Data Dissemination System and the international organizations supporting this effort (GEO-GEOSS) was provided. The set-up of a low-cost ground receiving station and the software utilities available (the newly developed GEONETCast toolbox plug-in under ILWIS 3.7 and SIGMACast) were shown. This was accompanied by a site visit and a demonstration of the lowcost ground receiving stations installed at CREAN and INPE-CPTEC, providing participants with a good overview of the required GEONETCast system hardware components. Furthermore, the application procedures for the EUMETCast/GEONETCast Americas services were presented. During the practical assignments, participants were introduced to the use of the GEONETCast toolbox and other software components (e.g. SIGMACast) that enable the GEONETCast data stream to be processed.

### Data Delivered by Various GEONETCast Services

Here the various satellite images and products available in the GEONETCast data stream were introduced, with special focus on MSG/GOES, SPOT Vegetation, INTA and INPE products in the DevCoCast America Service, including the fused CBERS high-resolution product. The theoretical background was also given in order to facilitate an appropriate assessment of the various DevCoCast products. In addition, attention was paid to relevant ongoing research and operational services, such as the INTA and **INPE-CPTEC** experiences in providing regular environmental products and disseminating these via GEONETCast, as well as the INPE-CPTEC SOS System for monitoring severe weather conditions.



Checking ground receiver at CREAN



Group photo of participants attending the Brazil workshop



An onsite visit to see the computer hardware configuration of the ground receiving stations used at  $\ensuremath{\mathsf{INPE}}$ 



The various antennas used at INPE

### Region-Specific Data Delivered to Latin America through GEONETCast and the DevCoCast Initiative

Various satellite images and data products covering South America and disseminated by GEONETCast and those produced on a regular basis through the DevCoCast initiative were used during the different practical sessions, for example:

- images from MSG, GOES and METOP-AVHRR/3, together with some of the MSG-derived products (e.g. cloud mask, multisensor precipitation estimate, atmospheric motion vectors)
- vegetation and agriculture indicators (e.g. SPOT Vegetation 10-day composite NDVI, dry matter productivity and green cover fraction, NOAA AVHRR-based NDVI, INTA's

absolute and anomaly NDVI) and their time series analysis

- water resources (NDWI) and weather products such as the 15-minute multisensor precipitation estimates, aggregated rainfall products and INPE's convective systems tracking and nowcasting, lightning discharges images, ultraviolet radiation index and other rainfall satellite products
- INTA's fire risk and detection product and the evapotranspiration product
- the high-resolution CBERS HRC-CCD fused image product.

Moreover, the diurnal variability of MSGbased products from LandSAF, such as land surface temperature and evapotranspiration, was investigated, using batch looping routines to facilitate effective import and preprocessing of the multi-temporal data.

The workshop also served as a platform for discussing relevant thematic applications to be further developed using information provided by the GEONETCast data stream during a two-week advanced training course provisionally planned at the beginning of next year at ITC. This effort should result in an application guide covering various topics that demonstrate the use of the images and data provided by GEONETCast and DevCoCast for Latin America. It is foreseen that selected participants of the various African workshops will also contribute, presenting relevant applications from the African continent. This application guide, including free open-source software and sample data, can be used by interested organizations and within universities to acquaint the parties concerned with the current capability in terms of reception and use of environmental data.

Both workshops were attended by a total of nearly 60 participants from Argentina, Bolivia, Brazil, Cabo Verde, Chile, Mexico, Paraguay and Peru. Some of the participants were able to attend thanks to sponsorship by NOAA–GEONETCast Americas. There was great interest in setting up ground receiving stations at participants' organizations for various applications using the images and data delivered by GEONETCast and the products that are currently operationally provided through the FP7-supported DevCoCast initiative.



An onsite visit to the weather forecasting room at  $\ensuremath{\mathsf{INPE-CPTEC}}$ 

For further information, consult the web resources indicated below. For further details on:

- DevCoCast and the products disseminated www.devcocast.eu
- DevCoCast Argentina workshop: www.fotomapgeo.com/devcocast-argentina
- Sigmacast: http://sigmacast.cptec.inpe.br/sigmacast/
- INPE SOS system: http://sos.cptec.inpe.br/sos
- Geonetcast Americas and the INPE products disseminated:http://geonetcastamericas.noaa.gov/product-productlisting.html and http://satelite.cptec.inpe.br/geonetcast
- ILWIS 3.7 and the GEONETCast toolbox: http://52north.org/ and http://itc.nl/GEONETCast-General-information
- MSG/METOP/JASON: www.eumetsat.int
- stream:www.eumetsat.int/Home/Main/Access\_to\_Data/Produ ctNavigator/index.htm
- Group on Earth Observation the Global Earth Observation System of Systems:www.earthobservations.org/

# The Kronkel: ITC's Logo and Trademark

### **Homme Martinus**

The Kronkel is a famous feature of ITC, and many of our alumni will recognize it as ITC's logo and trademark. A brief explanation for those readers unaware of its history:

In 1954 Charles Hammes, a sculptor who lived in Nijmegen, was invited by Prof. Willem Schermerhorn to create a decorative allegorical statue appropriate for a new and growing institute. It was unveiled at the opening of ITC's building in Delft in 1956.

The statue shows a broad continuous strip symbolizing the Earth, around which a figure is flying that can be seen as a bird or an aeroplane following its path. In this way, the statue symbolizes the range of science, worldwide in its scope (the bird), and photogrammetry (the aeroplane). It was mounted on a schist base, bearing the emblems of FAO and UNESCO. The Kronkel guarded the front door and it

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became a kind of tradition that, on graduation, groups of students were photographed in front of it, thus becoming immortalized.

When ITC moved from Delft to Enschede in 1971, the Kronkel followed. Here in Enschede, it was given a prominent place on Boulevard 1945 in front of the premises. It was unveiled on 24 November 1971 by the mayor of Enschede. As the original grey colour did not suit ITC's new building, the Kronkel was painted yellow.

The tradition of immortalization in front of the Kronkel lived on.

However, as plans for a new building were being finalized in 1993, it became clear that



In front of the building in Delft



On Hengelosestraat



Emblems of FAO (ear of corn) and UNESCO (temple)



In front of ITC (1970)

no place had been planned for the Kronkel. Afraid that the statue would be consigned to the scrap yard, Mrs Ann Stewart, editor of the ITC Journal, made an appeal to journal readers in the 1993-3 issue to save the Kronkel. As far as can be recalled, about 100 readers completed and returned the short form among them, alumni from the 1950s!

ITC moved to its new premises in 1996, leaving the Kronkel behind on Boulevard 1945. In 1999, permission was granted by



On Boulevard 1945, Enschede

the Enschede City Council to move the Kronkel to ITC's new building, and in February 2000 the statue was lifted from its base and, after an overhaul, relocated to Hengelosestraat on 7 April.

For six years the Kronkel stayed at this location. Because of adjustments to Hengelosestraat, the Kronkel was moved next to the entrance of the Institute. In the meantime the bronze colour had been changed to bright yellow again.

The ITC logo is based on the Kronkel and is used on all the Institute's stationery and products. It was introduced in the early '60s and has undergone a few variations over the years



A - Used while the Institute was housed in Delft up to 1971

C - Almost a copy of the actual statue (but in reverse), used from the mid-'80s until 17 May 1994





used from 17 May 1994 till today



On the occasion of the Institute's 50th anniversary in 2000; this special jubilee logo was used only throughout that particular year

B - As used in the '80s

# A New Visual Identity for ITC

### Janneke Kalf

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On 1 January 2010, the International Institute for Geo-Information Science and Earth Observation (ITC) became a faculty of the University of Twente. The merger has been implemented in a way that preserves the distinctive character and mission of ITC. As a university faculty, ITC will be more firmly embedded in the Dutch academic education system. Furthermore, the integration with the University of Twente will lead to innovative research and education in areas such as energy, environment, climate change, water, geo-information and earth observation, and disaster management.

ITC's new status as a faculty of the University of Twente obviously influences our visual identity (or house style). We will introduce the UT's visual identity in such a way that ITC's identity will be preserved. The visual identity of the University of Twente consists of a logotype (figure 1) and a number of elements (figure 2). The logotype is plain and strong: University of Twente. It is part of a new, innovative, ambitious style. A universe of elements, used in different ways and variations on means of communication, has been created.

The most prominent feature of ITC's " old" visual identity, the ITC logo (or *Kronkel*), will be preserved and, when you read the article on page 8 about the origin and history of the ITC Kronkel, you will understand why. Furthermore, our colour scheme (red for education, blue for research, orange for project services and green for faculty wide) will return in the element that is part of our new visual identity (see figure 3). A new background colour for brochures will be added to the colour palette (see figure 4).

## **UNIVERSITY OF TWENTE.**

Figure 1: The University's logotype: plain and strong

The visual identity of the University of Twente will be introduced at ITC in phases. Starting in July 2010, we aim to have adapted all communication means and media carrying the "old" visual identity by December 2010. So do not be surprised when you start to see new business cards, stationery (figure 5), brochures, documents and other materials with a fresh look and feel emerging from ITC. They will still carry our familiar ITC logo!



Figure 2: A universe of elements as part of the visual identity of the



### education news

### Refresher Course Strengthening Local Land Governance – Bagamoyo, Tanzania

Johan de Meijere Anthony Arko Adjei

Land policies are intended to guide access to land, land reform and land development. These are central themes in the ITC Land Administration programme. The registration of people's rights to land is an important component as it may help to protect rights against third parties.

Land policies are reflections of the ideology and political ideas of the governing (urban) elite. When policies are implemented and reach local and remote realities, there might be a mismatch between the policy perceptions and priorities and the local conditions. Especially in countries where a dual tenure system is found (customary and statutory), the mismatch may be big. The analysis of land policies with their implicit perceptions and local conditions was the theme of a refresher course financed by NUFFIC for the East African Region. The course took place in Bagamoyo, Tanzania, between 14 and 25 June. NFP alumni from ITC, ISS and IHS joined the programme, which was organized as a workshop.

The Land Administration Unit within ARDI University in Dar es Salam, a partner of the UNU-ITC School of Land Administration Studies, was the counterpart in the workshop and provided all the logistical support in an excellent manner. Applications for the workshop had to be accompanied by an abstract of a presentation and paper to be delivered in the programme. Participants were selected based on these abstracts. A group of 16 participants and some ARU staff joined the programme. Johan de Meijere and Anthony Arko Adjei from ITC facilitated the programme, while ARU staff and resource persons from other agencies provided additional lectures.

The presentation of each participant was summarized and documented in a "mental map". Towards the end, some 20 of these maps were available. Participants then clustered them in themes to summarize findings and draw conclusions. Four themes were identified: land policy – formulation and implementation; access to land and land information; public goods and land acquisition compensation; customary systems and change.

A major finding was that East African countries have been subject to dramatic changes in tenure regimes imposed by new ruling classes. Customary or feudal regimes are being overruled by colonial, military, socialist, tribal and other elites. Since the 1990s, African nations have admeijere@itc.nl arkoadjei@itc.nl

hered to liberal market economic ideologies, combined with concepts of good governance. Land tenure, though, is only being slowly or partially reformed. Land in many countries still belongs to " the people" (i.e. the state and vested in the president). Often the interests of foreign investors supported by the government prevail over the rights to land of traditional land users. In how far the criteria of good governance are really being met at central and local levels is a topic for further analysis and research.

In neo-liberal land policies, issuance of certificates to "improve tenure security" is a favourite topic. Big projects have been undertaken in several countries to issue such documents, but the usefulness and institutional embedding of such titling programmes have not been proved. Interesting were the findings that small farmers in Ethiopia perceive the document as a guarantee that no



Participants of the refresher course

new policy reform, with corresponding land tenure regime change, will occur in the short run. The finding that perceived (freehold) tenure in informal urban areas of Dar es Salam was better and more flexible than the Certificate of Residence as issued by the state (restrictive leasehold) is also very interesting.

The abuse of political power in allocating public/state land to elites is a phenomenon that has occurred on a massive scale in Kenya, and possibly continues in several countries. The lack of public land registers facilitates such practices. Once registered in formal private land registers, it becomes almost impossible to remedy these injustices from the past, as the experience in Kenya shows.

Many more interesting findings and conclusions were discussed, stimulating our critical thinking about land administration. The well prepared presentations of the participants and the active participation of all, combined with the beautiful location on the shore of the Indian Ocean, made the programme a refreshing experience in many ways. The exchange of professional and personal experiences in the workshop was of great value, and we are happy that NUFFIC offered the opportunity for this refresher course, as it produced a lot of added value for all – alumni as well as staff from the educational institutes offering land administration courses.



A beautiful location on the shore of the Indian Ocean



Field visit to Chamakweza and Pingo - Land conflict between pastoralist and farmers

### Course on GIS, Remote Sensing and GEONETCast Undertaken by SADC-THEMA

© African Monitoring of Environment for Sustainable Development (AMESD), 2010

A total of 19 participants from seven different SADC countries successfully concluded ITC's distance education course GIS, Remote Sensing and GEONETCast on 25 June 2010. The course, which began on 17 May 2010, was undertaken within the framework of the Southern African Development Community Thematic Action (SADC-THEMA) of the African Monitoring of Environment for Sustainable Development (AMESD). AMESD in Southern Africa aims to empower SADC and its member states to manage their agricultural and environmental resources in a sustainable way.

#### Goal

"This training will improve the capacity of the participating countries to work with the GEONETCast data, and enables our participants to become familiar with GIS and remote sensing," says Isaac Kusane, the project leader of SADC-THEMA within the Botswana Department of Meteorological Services. He further explains, "Good knowledge of GIS and remote sensing forms the basis for working with AMESD services in the future. Ultimately we are not aiming at passive users of the services, but rather active users who will improve and expand the services in response to the needs of their countries."

The course participants were staff members of the collaborating min-

istries (Ministry of Agriculture and Ministry of Environment) of the participating member countries. Participants from Botswana, Zambia, Zimbabwe, South Africa, Namibia, Malawi and Swaziland attended the distance education course. A second session is planned to start in November 2010.

### **Course Content**

This six-week course takes 20 to 24 hours a week. The main topics are the principles of remote sensing (three weeks), the principles of geographical information systems (two weeks), and GEONETCast (one week). The course has been specially compiled for SADC-THEMA of AMESD and combines selfstudy with online support by ITC staff. The general approach is task-based learning that blends theory and practice. Most communication occurs via ITC's digital learning environment Blackboard. The participants have to submit the results of their exercises to ITC on a regular basis for assessment purposes. The distance education course concludes with an online realtime exam.

#### Advantages

"The biggest advantage is that the trainees can stay at their own premises while following this distance education course. It is often difficult for staff to take time off for such a course. By combining it with their regular duties, most staff can easily manage to follow such a course,"



Masego Nkepu, one of the trainees in Botswana

says Isaac Kusane. "Many of the participants will come to the kick-off workshop in July in Gaborone and I'm looking forward to hearing about their experiences."



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### research news

### **Role of Economic Clusters in Improving Urban Planning Support**

**Zhenshan Yang** 

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Realizing an integrated approach to economic and spatial developments is an important issue in urban policy analysis and design. As economic clusters (ECs) are becoming an important issue in contemporary urban development in both economic and spatial practices, the research addresses the potential role of ECs in improving urban planning support. Specifically, the aim of this PhD research is to explore the roles of ECs in strengthening the analytical and monitoring ability of urban planning through better accommodating urban economic dynamics.

The aim is examined through three research questions on the conceptual, practical and instrumental aspects. The research includes an empirical study of Beijing, analysing the evolution of ECs in both economic and geographical spaces and the relationship between cluster developments and urban growth.

Theoretical explorations conceptually show the value of incorporating ECs into models of urban planning processes through providing fine tuning between economic and spatial developments. Theoretical analysis also indicates the need for an empirical approach to address the nature of EC development in economic space (functional clusters) and geographical space (spatial clusters).

Within the case study of Beijing, elements of a practical implementation of ECs in urban planning practice are developed and assessed. This includes identifying functional and spatial clusters and examining their developments in relation to urban



Zhenshan Yang

growth and change. Based on inputoutput tables, statistical analysis derives functional clusters, answering the question " what are clusters?" . Correspondingly, spatial statistics techniques address the issue " where are clusters?" by detecting spatial clusters of functionally related economic activities and their patterns in the city. Furthermore, planning analysis is implemented with concern for urban spatial growth, transportation and housing. The major empirical findings are as follows:

- ECs are a key driver and are closely related to current urban economicspatial dynamics.
- The cluster pattern changes indicate that Beijing's urban structure is physically evolving towards polycentrism, whereas functionally the

city region is still predominantly monocentric, which challenges the current urban plans.

Accordingly, cluster-based recommendations stress strengthening manufacturing services relationships, balancing diversification and specialization in spatial development, and integrating clusters into the functioning of places for healthy and sustainable urban spatial-economic development.

Based on the conceptual and empirical work in this thesis, a framework is proposed to integrate ECs as an instrument in urban planning support systems. It considers three aspects: conceptual and explanatory considerations, methods, and contextual (institutional, organizational) considerations. To realize such a system, suggestions are also made with regard to building data capacity and additional case-based qualitatively oriented research.

The prime value added by the research is linking the physical and economic aspects of urban development and addressing the issue of ECs as an organizing principle and driver for current and future urban growth. The research presents the theoretical rationale, an implementation approach and an institutional framework.

### PhD Training Weekends: 7-8 November 2009 and 26-27 June 2010

Paul van Dijk

The Graduate Programme at ITC initially grew from the first doctorate issued in 1990 to a stable community of around 50 registered PhDs between 1995 and 2005, with some 10 graduations yearly. Since 2005, however, the ITC Graduate Programme has quickly grown to 140 registrations in 2010 (including PhD bursaries and AiOs; not counting temporary PhD interns and co-registrations at other Dutch universities). Apart from composing the research proposal in the qualifier period, each PhD student coming to Enschede has to get to know the local environment (customs and culture), how to get along with staff and colleagues, how to find a balance between work and leisure, and how to keep in touch with the family. This is a monstrous task indeed, even for those who were at ITC for their MSc (about half of the PhD candidates), and it is clear that in a diverse community like that of ITC the mutual support among the students is huge. It is quite fortunate for the students of the Graduate Programme that the IPC (ITC PhD Committee) has grown, in line with the increasing number of registrants,

from an ad hoc group of active students to a formal representative body of PhD students at ITC. The IPC statutes and by-laws were ratified by the former rector, Prof. Molenaar, in December 2009.

Nevertheless, the need to equip ITC's PhD students for their PhD adventure was felt by many, and articulated by the IPC in 2009. As a result, the first PhD training weekend was held on 7 and 8 November 2009 in Rheine, Germany, with 42 participants from 19 countries<sup>1</sup> To cater for those who missed this opportunity and for the newcomers in 2010, a second PhD training weekend was held on 26 and 27 June 2010, this time in Tecklenburg, Germany The second weekend was attended by 30 students from 16 countries<sup>2</sup>.

On both weekends a variegated programme was offered, with group assignments, personal SWOT reflections, and discussions on the most perceived strengths, weaknesses, opportunities and threats. Also included were presentations on the ITC Graduate Programme and the IPC, the experiences of a number of PhDs in (or past) their final stage, publishing strategy, stress, cultural differences, and helpful tools for PhDs. The presentations were given by a number of ITC and external staff. Claudius van de Vijver of the PE&RC research school contributed during both weekends. In particular the socalled "DUPLO game", concerning topics such as planning, responsibilities, collaboration, communication and deadlines, was an eye opener for many. So the weekends are a mix of getting to know one another, team building, and acquiring a lot of useful information. Perhaps the most comforting side of it is the realization that to some extent all PhDs share the same problems, face the same challenges, and have to deal with supervisors. One aspect stood out very clearly: PhD students are in the process of becoming independent researchers and, while making optimal

<sup>&</sup>lt;sup>2</sup> Total of 30 in 2010: China, India = 5 each; Rwanda, Kenya = 3 each; Pakistan, South Africa = 2 each; Brazil, Bulgaria, Colombia, Ethiopia, Georgia, Iran, Iraq, Italy, Mozambique, Nigeria = 1 each.



The first PhD training weekend was held on 7 and 8 November 2009 in Rheine, Germany



A second PhD training weekend was held on 26 and 27 June 2010, this time in Tecklenburg, Germany

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<sup>&</sup>lt;sup>1</sup> Total of 42 in 2009: India = 12; Pakistan = 7; China = 6; Vietnam = 2; Argentina, Bangladesh, Chile, Colombia, Germany, Ghana, Iran, Italy, Kenya, Nepal, Portugal, Rwanda, South Africa, Syria, Tanzania = 1 each.



Discussions on the most perceived strengths, weaknesses, opportunities and threats

use of the feedback of their supervisors, should be at the steering wheel – not ignoring useful hints, but nor waiting for full instructions on how to do something.

After the 2010 weekend, some participants gave their opinion of what they perceived to be the best part of it, and this probably gives the best impression, together with the photographs of the events:

- I enjoyed the weekend because:

   it was in a place nearby but outside our usual place of study, this time in a very nice German town.
   I had the opportunity to meet new PhD students, share experiences and have fun with them.
   Furthermore, there were activities and talks by lecturers and students about research skills, cultural differences, and technical tools useful for our research.
- The IPC organizing team did a great job because it is a great idea to meet other experienced people outside ITC and discuss PhD life

with them.

 The best of the weekend was:

 a talk about scientific publishing, which is the core of our activities at ITC. It was presented in such a way that one became aware of what to expect and therefore of how to prepare and act accordingly.

- listening to a completing PhD candidate from Pakistan narrating his academic and social challenges during the PhD journey and how he had dealt with the same. It was insightful because I share the same challenges.

- Playing with children's toys (Duplo) helped us to:
  - learn complex ideas from simple games
  - understand the challenges faced on the PhD journey and gain an insight into strategies to overcome these challenges
  - learn how to manage group responsibility and how to share ideas with different modes of



In particular the so-called "DUPLO game", concerning topics such as planning, responsibilities, collaboration, communication and deadlines, was an eye opener for many

communication to meet objectives, while enjoying a simple task provided many happy memories. Last but not least, the result of this play seems simple but it represents success and/or accomplishment.

- The best part of the weekend was the Duplo game. We learned many skills, such as strategy design, cooperation, quality control and time management ... and, what's more, we had a lot of fun.
- Sharing personal strengths and weaknesses helped:
  - to encourage us, since we realized that we are not an exception
    several others experience the same problems. The solutions to weaknesses were also useful and will help us to improve.

- us to understand ourselves better and find a way to improve through others' experiences.

- It was an eye-opener for me, giving me the chance to escape from my office and the too-narrow research work and get to know other PhDs and their research and daily life.
   And last, but not least:
- The PhD weekend should be compulsory for every PhD because it helps students to understand expectations during the PhD journey, size down ambitions and become aware of what you are asked to do and what you expect from the supervising team and collaborators

### project news

### **Courses on GIS for Disaster Risk Management**

**Dinand Alkema** 

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This coming August, ITC will jointly organize the fifth GIS for Disaster Risk Management course together with the Asian Disaster Preparedness Center (ADPC) and the Asian Institute of Technology – Geo-Informatics Center (AIT-GIC). Approximately 20 participants from Asia, the Middle East and Africa will learn more about the application of GIS in the field of disaster management.

Rapid population growth and urbanization, combined with extreme climatic events, are causing a rapid increase in the vulnerability of communities exposed to hazardous events. As a result, disasters are increasingly taking a heavy toll of life and property. Unplanned growth, both in urban and non-urban areas, calls for adequate preparation to reduce the impact of disasters. There is a need to include disaster risk information in development planning and to create awareness among the disaster management professionals. Disaster risk information is spatial in nature, and geographical information systems (GIS) play an important role in disaster risk assessment and management.

The course started a few years ago as an initiative of ITC alumnus Mr Falak Nawaz, who worked at ADPC at that time. He realized that many disaster management practitioners and organizations had little knowledge of the use of GIS and earth observation information. The first courses were a mix of geo-information and earth observation technology, without any clear definition of the target audience. It quickly became apparent that more focus was needed, and



The course offers participants a number of options (according to their interests and background) for evaluating specific types of hazards and associated risks



During the advanced course, specialists are given numerous hands-on exercises

now two types of course are offered annually: an introduction course on GIS for disaster management practitioners, and an advanced course for GIS specialists who need to upgrade their GIS skills in the field of disaster risk management.

The introduction course deals primarily with the geographical aspects of disaster risk assessment and management, and targets disaster management professionals who intend to use GIS in their day-to-day work but have no previous – or only very limited – GIS experience. The exercises are more demo-style in character. The main objective of the course is to impart knowledge and skills in using GIS and spatial data for disaster risk assessment and management to disaster management practitioners. Participants will learn not only how to carry out disaster risk assessment for different hazard types, but also how to use risk information for emergency planning and preparedness. During the advanced course, specialists are given numerous hands-on exercises. The course deals with the procedures involved in collecting and analysing spatial data for hazard and risk assessments of various natural and human-induced hazards, and offers participants a number of options (according to their interests and background) for evaluating specific types of hazards and associated risks. The main objective of the advanced course is to provide knowledge and skills in multi-hazard risk assessment to professionals with a GIS and remote sensing background. Participants will gain practical knowledge of the uses of GIS and remote sensing not only in hazard and risk assessment but also in loss estimation and multicriteria analysis for decision-making purposes.

Introduction course (level 1): 16 to 27 August 2010 Advanced course (level 2): 1 to 12 November 2010 Both courses will be conducted in Bangkok, Thailand. Course fee: USD 2,000

More information on both courses can be obtained at www.adpc.net, by e-mail (tedadpc@adpc.net), and by using the course finder on the ITC website (certificate course). You may also contact the author (alkema@itc.nl).

### events

### ITC Delegation at 24th FIG Congress

Chris Paresi

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Attracting more than 2,200 participants from 100 countries, the 24th FIG congress, Facing the Challenges – Building the Capacity, which was held in Sydney, Australia, from 11 to 16 April 2010, turned out to be the biggest FIG congress ever. Among the participants were 120 students and 250 accompanying persons.

The technical programme, where more than 700 of the 1,000 or so submitted papers were presented in Sydney, was a big hit. In total there were more than 150 technical and flash sessions, workshops and special seminars, while the total number of presented papers exceeded 800. The participants packed both plenary halls and the technical session rooms at the Sydney Convention and Exhibition Centre, which is located in Darling Harbour in the heart of Sydney. During the presidency of Stig Enemark, FIG has extended its partnership with various UN agencies, especially in developing pro-poor land administration and related good governance. FIG now has 103 members (from nearly the same number of countries), 37 associate members, 89 academic members and 35 corporate members.

The following issues were highlighted at the FIG congress:

• The congress focused on land governance and capacity building.



24th FIG Congress in Sydney



View of the General Assembly

- New concepts for land and property registration and corresponding open-source software have been developed and tested. FIG has been cooperating with both FAO (FLOSS project) and UN Habitat (Social Tenure Domain Model) on developing low-cost and flexible land registration systems.
- Satellite-based systems are rapidly becoming the standard solution for positioning and land surveying.
- Property registers could play a critical role in early warning services.
- With the wide availability of geographical information, the concept of "spatially empowered societies" is developing rapidly.
- There has been a definitive move in land surveying education from the acquisition of data to its management and use, and there has been considerable development in elearning.

The General Assembly elected Mr Teo CheeHai from Malaysia to be the new FIG president for the period 2011-2014.

The 25th FIG congress will take place in Kuala Lumpur, Malaysia, from 9 to 16 May 2014.



Panel (second from right: Christiaan Lemmen) at the STDM special session

### ITC Highly Visible at 24th FIG Congress

The General Assembly appointed:

- Professor Paul van de Molen as honorary member of FIG for his contribution to the development and promotion of the surveying profession at the international level
- Christiaan Lemmen to succeed Paul van de Molen as director of the International Office of Cadastre and Land Records (OICRF), a permanent institution of FIG.

Eight new FIG publications were launched, three of which are (co-) authored by ITC colleagues:

- The Social Tenure Domain Model, A Pro-Poor Land Tool, authored by Christiaan Lemmen
- Enhancing Surveying Education through e-Learning, co-authored by Liza Groenendijk
- Land Governance in Support of the Millennium Development Goals, co-authored by Paul van de Molen.

Furthermore, ITC, UN-Habitat, World Bank and FIG launched the Social Tenure Domain Model (STDM), an open-source pro-poor land administration software package. And finally, ITC representatives contributed 11 papers and several session chairs to the technical programme of the congress



New (left) and past (right) FIG presidents



View of the exhibition

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### **ISPRS TC VI Symposium**

Tsehaie Woldai

The ISPRS Technical Commission VI on Education and Outreach organized a mid-term symposium from 2 to 4 June at ITC in Enschede. The symposium had the title "Cross-Border Education for Global Geoinformation" and was co-organized by ITC in collaboration with the African Association of Remote Sensing of the Environment (AARSE) and Geo-Information Nederland (GIN).

The mid-term symposium was opened by Prof. Martien Molenaar, conference chair and president of ISPRS Commission VI, who highlighted the importance of cross-border education for global geo-information. This was followed by welcome speeches by Prof. Tom Veldkamp, the rector/dean of ITC; M. Marien de Bakker, on behalf of the president of Geo-Information Nederlands (GIN); and Prof. Ian Dowman, on behalf of the ISPRS president Prof. Orhan Althan.

The three-day mid-term symposium featured around 10 sessions, 40 presented papers, more than six demonstrations, a number of posters, business meetings, an ice-breaker reception, and a symposium dinner. It was attended by over 70 participants from some 30 countries.

The papers dealt with such topics as e-learning methods and tools, webbased education, e-delivery of educational services, cross-border educational programmes, and the institutional aspects of cross-border education. Furthermore, attention was paid to promoting our profession to young people, and to the activities and strengthening of the ISPRS Students Consortium.

The highlight of the last day of the symposium was the Best Paper



Best Paper Award was presented to Mr Arnaud Deshogues (photo taken by Tuul Batbaldan)

Award presented to Mr Arnaud Deshoques for his paper entitled " Enhancement of e-learning in geomatics by the integration of dynamic mathematics tools". The prize, which consisted of a certificate and a grant of €500, was awarded for originality and degree of innovation, relevance to the symposium topic, and in particular for the quality, clarity and style of presentation.



Group picture of the ISPRS symposium participants

### visits to ITC

### **ITC Visits the Balkans**

Marleen Noomen Sabine Maresch Dimo Todorovski

Since the 1950s, only around 100 students from the Balkan region have studied at ITC, while ITC staff have hardly visited the Balkans at all. With the Balkan region taking its first steps towards the European Union, it was felt the time had come to organize a visit to the region to meet with our alumni and to strengthen ITC's visibility and network in the region. Therefore, Marleen Noomen, assistant professor at ITC's Department of Earth Systems Analysis, teamed up with ITC alumnus Dimo Todorovski from Macedonia to visit several universities and institutes in the region.

From 10 to 19 May, four different countries, eight universities, two embassies and several (governmental) institutes were visited. The tour started in Sarajevo (Bosnia-Herzegovina), where a visit was paid noomen@itc.nl maresch@itc.nl todorovski10394@alumni.itc.nl



Polytechnic University of Tirana, Department of Geodesy (third from the right: Dr Gëzim Gjata, ITC alumnus from 1992, now head of the department)

to the University of Sarajevo. The next stop was Macedonia, where presentations were given at the universities of Ss. Cyril and Methodius



University of Tirana (from left to right): Irena Ymeti (ITC alumna, now at Institute of Geosciences, Tirana), Marleen Noomen (ITC), Dimo Todorovski (ITC alumnus, now at Cadastre in Skopje and president of the Mak Hol Nuffic Alumni Association in Macedonia), and Sonila Xhafa (University of Tirana, Department of Geography)

(Skopje) and Goce Delcev (Štip), as well as the State University of Tetovo. At each of the universities, the audience consisted of interested staff and students from departments related to earth science. Besides universities, visits were also paid to the Dutch embassy in Skopje and the Ministry of Environment and Spatial Planning to exchange ideas about cooperation.

After a visit to neighbouring Kosovo, where the University of Priština and the Kosovo Ministry of Environment and Spatial Planning were visited, the journey continued to Albania. At the University of Tirana, the Polytechnic University of Tirana and the Agricultural University of Tirana, many students and staff attended the presentations and showed a keen interest in how to apply to study at ITC. Visits to the Institute of Geosciences (where two ITC alumni are working) and the Dutch embassy in Tirana concluded the trip.

All in all it was a very interesting, hectic and fruitful visit. We met many enthusiastic people with a great interest in ITC's studies and research areas; we learned a lot about the countries and organisations visited; and we are looking forward to receiving many more students from the Balkans in the coming years. To conclude, we would like to thank all the ITC alumni that so kindly helped us to make this visit such a success.



University of Priština, Kosovo



University of Priština, Kosovo

### Visit Malaysian Minister of National Resources and Environment

Sabine Maresch

On Friday, 21 May 2010, the Malaysian Minister of National Resources and Environment, the Honourable Dato Sri Douglas Uggah Embas, paid a study visit to ITC, together with a delegation of high officials from the Ministry and the Land Surveyors Board. ITC was pleased to welcome ITC alumnus Prof. Abdul Kadir bin Taib, directorgeneral of Survey and Mapping Malaysia and chairman of the Land Surveyors Board Malaysia, as one of the delegation members.

The Malaysian Land Surveyors Board is strongly involved in ongoing capacity building programmes and the visiting delegation was particularly interested in ITC's expertise in the latest developments in land registration systems and in spatial data infrastructures. After words of welcome from Dr Anne Flierman, president of the Executive Board of the University of Twente, presentations were given by Mr Sjaak Beerens (Faculty Bureau ITC and former member of the ITC Directorate), Prof. Jaap Zevenbergen (professor of land administration systems), Mr Chris Paresi (director of the ITC-UNU School for Land Administration Studies) and Dr Javier Morales (assistant professor of spatial data infrastructure systems). The presentations were followed by a lively discussion on the latest trends and possibilities for collaboration, during which the Minister showed a keen interest in the topics discussed and in strengthening the collaboration with ITC in a continuous building of capacities at the Malaysian Land Surveyors Board. The visit closed with the exchange of presents and words of appreciation from the Minister and from ITC.

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The Malaysian delegation with ITC staff in the ITC garden (in the front row, fifth from the left: the Honourable Minister Dato Sri Douglas Uggah Embas; on his left: his wife, Datin Sri Doreen Mayang)

### announcements

### ESRI Development Center Student of the Year Award for the McMaster EDC

Rolf de By

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It is always rewarding to find that our former students are doing well in their professional life "after ITC". We recently received news that Ron Dalumpines from the Philippines, a 2008 MSc graduate of the UPM course, has been awarded the prestigious EDC Student of the Year Award for 2010 at McMaster University.

ESRI Inc., the well-known firm that develops GIS solutions, recognizes a selection of academic departments at ESRI Development Centre (EDC). To qualify, the department must be running special educational programmes where the development of GIS solutions using ArcGIS and sister software is of outstanding quality. Students enrolled in such programmes enjoy special possibilities with regard to equipment, licences and suchlike, to help them further their understanding and research projects. Ron Dalumpines is currently a PhD student at the School of Geography and Earth Sciences at McMaster University, Hamilton, Ontario. This school holds EDC status. After receiving his MSc degree from ITC, Ron was granted a six-month ESRI-ITC international internship at ESRI, Redlands, California. This proved to be highly successful and brought him a few interesting job offers. However, he saw his career developing in the research domain and eventually accepted a PhD position in Hamilton. He has now completed his first year there, working on routing problems, map making and tracking.

Ron received the award not only because of his in-depth knowledge of geo-information science and the tools that come with it, but also because of his performance as a teaching assistant and the fact that he is a regular port of call for fellow PhDs when it comes to finding solutions to technically challenging GIS problems. We at his Alma Mater wish him the best of success in pursuing the PhD degree that he has set his sights on.



Ron Dalumpine

### life after itc

### **Alumni Meet Nepal**

Anish Joshi

On Wednesday, 2 June, the ITC Alumni Association Nepal (IAAN) organized a small get-together and dinner reception for Dr Yousif Hussin and Ms Louise van Leeuwen, who were visiting Kathmandu for a workshop. We had a great time sharing our memories of ITC, discussing new perspectives for organizing short/refresher courses in Kathmandu, and talking about other issues.



Group Picture of the Alumni Meet Nepal

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IAAN President Joshi Chudamani, Louise van Leeuwen and Dr. Yousif Hussin



A small get-together and dinner reception for Dr Yousif Hussin and Ms Louise van Leeuwen

### Alumni Meet Havana

Sabine Maresch

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ITC staff members Bart Krol and Sabine Maresch participated in the International Disaster Management Conference organized by the Civil Defense in Havana, Cuba, from 14 to 18 June 2010, and also organized a small get-together with ITC alumni in Cuba. The ITC team met with some 12 ITC alumni in a gathering held on 17 June in Hotel Palco, Havana. The Dutch ambassa-

Group picture alumni meet Havana

dor, Mr R.C.J. Muyzert, and the deputy head of the Dutch embassy, Mr B.M. van Zwieten, also attended, and happily took the opportunity to get to know our alumni in Cuba over drinks and snacks.



### Life at ITC

### Mevan Nishantha Kumar Bandara

"Sounds really good to be an ITC student ..."

Four years ago (in 2006), I heard the above phrase from a former student of ITC. At that moment I decided to apply for scholarships and finally, I guess, one of my dreams has come true. I was selected for the 2010 GFM4 Diploma course in Geoinformatics, specializing in digital photogrammetry and remote sensing. From that moment till now, I have felt that ITC is the most suitable place to study geoinformatics, as well as being a place characterized by kindness to other members from all over the world. I am meeting many friends of various religions and cultures in many countries. I think it is very rare to have the chance to visit a lot of countries to study a lot of courses. All the students are treated the same and ITC has a very good educational system.

A Sri Lankan as well as a government worker, I am really interested in pursuing my profession. As a photogrammetric technician, I can fly over the mountains and I can touch my motherland so softly. Even more, I can give my strength to the government to develop my small beautiful island. I am being educated in many fields, such as information technology, drafting, painting, remote sensing, cartography and much more besides. So I am facing a big challenge: to help my small country to a pleasant future. And I hope I can do this satisfactorily, using this new knowledge of geo-information science.

This GFM4 course covers many areas of geo-information science. The core modules dealt with methods of geodata acquisition and the basic principles of geographical information systems and geo-visualization, while by the end of the fourth module the basic concepts of photogrammetry and remote sensing, database design, cartographic concepts and the dissemination of geo-information via internet had been covered. Then came the three main specialization categories: remote sensing, GIS operation, and cartography and geo-visualization. During these classes, many new technological applications in the geo-information domain are treated. And finally the integration group project, including the study excursion, will come, with the individual final assignment in modules 10 and 11. The entire process of this wellcategorized course has been devised by thoughtful geo-informative minds, and the learning path is piloted

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under the sharp eyes of the coordination staff and course directors.

Another good point is that the students have reasonable refreshment periods, enabling them to visit many places in Europe. With the help of the Student Association Board (SAB), I have visited many European countries, for example the United Kingdom and Germany, as well as many nice cities in the Netherlands. The SAB organizes many trips, not only for enjoyment but also for the purpose of gaining comparative knowledge of other European cultures. This method is again really good in terms of refreshing our overall knowledge. For many years, I have wanted to find great satisfaction in working at my job, and ITC stands out as the premium institution to deliver the required training in an enjoyable environment. In addition to academic breadth, there is a great variety of extracurricular activities, and I am excited about continuing my interests in sport alongside my geoinformatics studies.

ITC has its own sophisticated scientific library, which contributes to the effectiveness of the education. Here students can gain in-depth knowledge and expertise in many fields.



London trip



Visit to the clog factory

This service is very helpful during research studies as its scope goes beyond the boundaries of any normal library. Internet facilities and the library's own web page give readers mass resource coverage, helping them to achieve their goals.

The ITC hotel deserves considerable praise too. From the reception staff to the cleaning staff, they all work so considerately. They always have a good system to follow and it serves as a fine example to other hotel systems. ITC and the hotel are well coupled, giving good service to all nationalities.

NUFFIC too erected a remarkable milestone in my life. Linking Knowledge Worldwide is well reflected, with shining gold letters in our book of knowledge. It provides us with a tremendous opportunity to visit the Dutch nation and surf the entire European region.

Finally, I conclude that ITC has clearly emerged as the best choice for me.

Not all but most of the technical problems are solved with the sound knowledge provided, and I truly believe that I will fulfil my potential by attending the University of Twente Faculty of Geo-Information Science and Earth Observation.



Surveying task



### What does ITC Mean?

Reinaldo Paul Pérez Machado

I graduated as a geographer at the University of Havana in 1981 and started to work with GIS and digital cartography in 1984 while employed as a young scientific researcher at the Institute of Geography of the Cuban Academy of Sciences. In those days, we used a simple PC (8086 processor driven with 20 megabyte hard disk) and AutoCAD, together with Dbase, to build a sort of integration of graphic and attribute data that should, somehow, behave as a vector GIS. Almost always it did ... slowly, but it did. I took my first remote sensing course in 1986 (remote sensing applied to geology). It was offered as a postgraduate course for Academy of Sciences professionals by the Institute of Geology of the same institution. On that occasion, the majority of the analysis and interpretation was analogical, performed on plotted satellite images.

During the year 1988, I first heard about ITC (known at that time as the International Institute for Aerospace Survey and Earth Sciences) and decided to apply for a scholarship for a postgraduate course that seemed to match my interests perfectly: GIS/LIS for Urban Applications. The bureaucracy was so ponderous and inefficient at the Institute of Geography that I could not present the documentation on time, even though the process had started several months in advance. So, on the first working day of 1989, I initiated the whole procedure again. This time the efforts succeeded: the application was accepted by ITC and I was granted a scholarship – I was going to study GIS at one of the world's most important teaching organizations concerned with this subject!

#### Studying at ITC

Arriving in Enschede during the first days of September 1989 was a turning point in my life. The first shock was the language: ITC English. I clearly remember one of our first meetings in a classroom at the old building on Boulevard 1945. All three branches (Cadastral, Rural and Urban) of the postgraduate GIS/LIS course were gathered in the same room; there were about 40 people. The professor leading the session, Johan de Meijere, encouraged guestions from the students. He was very active and efficient in the process, and gradually the complexity of the questions from these students, who came from so many parts of the world, increased, as did the speed of conversation. At a certain point, I realized with great surprise that I was able to understand only the answers or comments provided by Mr de Meijere, or eventually (if it came from a Latin American country) a question. So I found myself imagining the questions based on the information provided by the answers. When the class ended, I went to talk to the professor and he said that after a couple of months all of us would be capable of understanding one another perfectly well, and we would also know from which part of the world our fellow student came just by the way he spoke English. He was right!

Time was passing by, and we were immersed in a hectic routine of theoretical lectures, evaluations and practical exercises that occupied most of our time. We learned many things ... sometimes the hard way, like finding out that, if you delayed leaving ITC too long in the afternoon, you might not have fresh bread to eat that night. No supermarket was open after 6:00 pm in those days. Enschede has changed a great deal. rpmgis@usp.br

The everyday learning activities were very intense and I enjoyed them a lot, especially because the teaching method encouraged students to take their own decisions and explore as deeply as desired. It was demanding, but at the same time gave the freedom to choose and behave accordingly. We studied many computer-related topics, statistics and, what I liked more, everything related to geographical information systems. I also enjoyed the opportunity to deal with ILWIS, the Integrated Land and Water Information System. So for my final report, I used this software as the main analytical tool to complete my paper.



In March 2010, I was invited to come to ITC as a visiting scholar for one month



The professor leading the session, Johan de Meijere, encouraged questions from the students

#### Social Life

Social life at ITC at the end of the 1980s could be intense or almost non-existent. It depended on several factors, such as the course you were taking (some courses were more time-demanding than others), whether you had come alone or with your family, and whether you were single or married. But, it must be mentioned, the opportunities were there for all the students to take. At least once or twice a month, there were scheduled guided tours through the Netherlands. These trips, organized together with the Netherlands Fellowship Programmes (NUFFIC), were a great success, giving us the opportunity to learn a great deal about the country that was hosting our studies.



When I mentioned that coming to ITC was a turning point in my life, this was indeed the case – and not only from the professional point of view



I have been happily married to my wife, Violêta Kubrusly, since then. Yes, we are another example of an ITC couple

When I mentioned that coming to ITC was a turning point in my life, this was indeed the case - and not only from the professional point of view. It was more important for my love life. I have been happily married to my wife, Violêta Kubrusly, since then. Yes, we are another example of an ITC couple. Violêta is Brazilian, an architect and an urbanist, and she entered the same postgraduate course, GIS/LIS for Urban Applications, that I took back in 1989. Sometimes we say - and our friends corroborate this - that we were meant for each other. We met in 1989 and have been together ever since

When Violêta heard of a open competition organized by the Municipality of São Paulo to select a candidate to go to study at ITC, she was reluctant to participate until the very last moment. She had already left the premises of the Planning Secretariat where she worked at that time and had reached the bus stop when she decided to go back and add her name to the list. That was the closing day. A few days later the competition took place and she won first place. In the other hemisphere, I was again going through all the steps that had not worked the previous year. So we met in 1989 and have been together ever since. The unwanted delay of 1988 turned out to be a wonderful thing for me. Otherwise we would never have got to know each other. In August 1990, when the course at ITC was finished. I went to live in Brazil, where I still live today.

### Living in Brazil

Brazil is a very big and beautiful country, full of contrasts, which are displayed with high intensity in the city of São Paulo. Since the beginning, I have been fascinated by this city, actually one of the biggest in the world. In 1993, I passed the examination to enter the Department of Geography of the University of São Paulo as a lecturer. Since then my career has evolved more along the lines of academic teaching and research. Today I am an associate professor with a PhD in human geography (2001). I have done post-doctorates at the University of Barcelona (2006-2007) and at the Center for International Earth Science Information Network (CIESIN) of Columbia University (2009). I teach remote sensing, GIS and cartography to undergraduate and postgraduate students.

#### Returning to ITC

Since 1990, I have had the opportunity to visit ITC several times. So I have been lucky and have been able to maintain the ties with the institution. And I have seen all the changes that have occurred since the end of my postgraduate course – the new building and the transformation into a faculty of the University of Twente being among the most relevant of these changes.

In March 2010, I was invited to come to ITC as a visiting scholar for one month. The invitation was sustained by the Erasmus Mundus Programme of the European Union, with the recommendation of the university consortium running the Geo-Information Science for Environmental Modelling and Management MSc programme and made effective by Prof. A.K. Skidmore, head of the Department of Natural Resources and GEM programme coordinator. This was really an honour, as well as a good opportunity to come back to ITC, this time for a longer period, and become involved with the other side of the institution, teaching rather than studying. What's more, a lot of good memories came flooding back when I was assigned to stay at the ITC International Hotel. The last surprise was that the reservation was at the very same building and on the very same floor where I lived as a student more than 20 years ago!

### Working for Capacity Development in Geo-information Field in Timor-Leste (East Timor)

### Toru Nagayama

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Since March 2009, six months after my graduation from the NRM Master course, I have worked for the government of the Democratic Republic of Timor-Leste (East Timor) as an adviser on mapping and GIS. I was seconded from the Geospatial Information Authority of Japan (GSI), the national mapping agency, through the Japan International Cooperation Agency (JICA). In this article, I would like to introduce my work in Timor-Leste and share my views about the usefulness of ITC experiences with the readers.

### Outline of Timor-Leste

Timor-Leste is a Southeast Asian country that covers approximately 15,000 km2 of the eastern part of Timor Island. The country is inhabited by 1,000,000 people and Dili is the capital city. Following Portuguese colonization over 400 years, Timor-Leste was occupied and administered by Indonesia from 1975 to 1999. Established in 2000, UNTAET (United Nations Transitional Administration in East Timor) supported the country's administration until Timor-Leste won its independence in 2002. As one of the youngest states in the world, Timor-Leste is now looking forward to nation building, so it needs assistance in all sectors, including the geo-information field.

#### Activities as an Adviser

My activities, which are conducted mainly at the National Directorate of Land, Property and Cadastral Services (DNTPSC), Ministry of Justice, are characterized by three pillars. The first pillar is establishing a geographical information distribution system. Although DNTPSC provided clients with topographic maps, aerial photos, etc., there were no documented rules and procedures for managing



GIG members at GIS day exhibition

and distributing geographical information. To make the system healthy and sustainable, I drafted two sets of guidelines for geographical information management and distribution to operate the system. DNTPSC has just started applying the new guidelines. The next task is to train and familiarize staff with the system for the purpose of quality services. The second pillar is the technical transfer activity. Visualization of geographical datasets using GIS software is the main part. Sometimes DNTPSC staff produce customized maps for clients on a job training basis. One big challenge is maintaining the availability of GIS software. Breakdown of a PC server last year has made it difficult to use GIS software so the results of this activity have been somewhat limited. The third pillar is promoting the use of geographical information among stakeholders. To this end, I volunteered to be the secretary of the Geographical Information Group (GIG). GIG, which is a non-profit voluntary organization, provides a forum for exchanging ideas on GIS issues by holding a meeting every two or three months and maintaining its website (http://sites.google.com/ site/gigtimorleste/home). About 50

experts from government and international organizations, as well as individuals, have joined this group. In the absence of a legal or institutional framework for GIS policy in Timor-Leste, GIG can be considered the national coordination body of GIS policy within the country at present.

First GIS Day Event in Timor-Leste One of GIG's recent remarkable achievements was the implementation of a first-ever GIS Day event in Timor-Leste to raise awareness of GIS activities within the country. This started with the shared recognition among some GIG members that, despite their important contributions to the development of Timor-Leste, the work and achievements of GIS-related organizations required higher visibility and awareness among the people of the country. To change the situation, the idea of holding a map exhibition to commemorate International GIS Day was proposed by me and some colleagues at the GIG meeting in July 2009 and received positive support from the meeting participants.

As this was to be the first event of this nature in the country, preparation was based on trial and error. To maintain effective management, preparatory management meetings (seven in total) were held under my facilitation every two weeks leading up to the launch of the event. Tasks ranged from securing the venue, determining the event title, securing sponsors and creating exhibition materials and presentations, to preparing public relation materials for distribution. Both Timor-Leste and international GIG members cooperated to launch and celebrate this one-week event on International GIS Day (18 November 2009).

The map exhibition, entitled *Ho Mapa Ita Harii Futuru Timor-Leste* (in Tetun, the official local language; in English: With Maps, We Build the Future of Timor-Leste), was held in the exhibition space at the Delegation of the European Union to



Technical transfer activity conducted at DNTPSC



Toru Nagayama presenting at the GIG meeting, July 2009



Toru Nagayama with the GIS day memorial map

Timor-Leste (Casa Europa) from 18 to 25 November 2009. Five Timorese government agencies and eight UN and aid agencies exhibited maps and gave presentations at daily seminars over one week. It was estimated that about 500 people visited the event.

For the first time, this event offered visitors an overview of the use and contribution of GIS and mapping activities in supporting the development of the country. Implementing the event also provided the local and international community with opportunities to transfer technologies and share experiences. At the same time, it was recognized that, given the fact that it was the end of the school year and owing to the limited public relations activities, there were fewer visits from school students and local people to the event. Significant parts of the event preparation and implementation were organized by international GIG members, which suggests the possibility of Timorese members assuming more leadership in conducting an event of this kind in the future.

### Usefulness of ITC Experiences The experiences at ITC are very useful in my present job in Timor-Leste. So far I recognize three major areas to explain this.

- GIS principles and skills learned at ITC: These are directly applied to training DNTPSC staff. In other words, the GIS principles and skills that ITC offered are being disseminated to the staff of Timor-Leste government through me. It is also notable that the GIS software purchased at ITC through a special academic offer supports my work every day.
- Systematic approaches to problem solving: In the NRM Master course, the class learned about the system approach and several techniques of project management: stakeholder analysis, problem tree, etc. I have found these approaches to be very useful for identifying problems in the geographical information distribution system at DNTPSC. Clear problem recognition and structure greatly helped me to draft guidelines for operating the system.
- Working in a multinational environment: One of the values of studying at ITC is its multinational nature. However, the interdisciplinary project in Schiermonnikoog, an island in the Dutch Wadden Sea, was a truly unique experience for my class, as well as being valuable in terms of understanding how to work in a multinational environment. As a matter of fact, so many

donors and international organizations work in Timor-Leste – and the field of geo-information is no exception – that the working environment is multinational rather than bilateral. When engaged in GIG activities and talking with DNTPSC clients from various countries, I have in mind the way to get good results from work with my colleagues, always remembering the experiences I had at ITC.

#### Closing

To be honest, I did not expect that the experiences at ITC would become so useful so soon, and I would be happy if my article can give readers some ideas about career development after ITC. Finally, I would like to thank the staff of ITC – especially Dr Dick van der Zee and Mr Henk Kloosterman – and my classmates for sharing the wonderful experiences of the NRM Master course 2007-2008.

### Alumnus received ESRI Lifetime Achievement Award

**Communication Department** 

Mr. Carlos Salman Gonzalez, Director General of 'Sistemas de Información Geográfica, México, received a Lifetime Achievement Award during the ESRI User Conference in San Diego.

Mr. Salman Gonzales is an ITC alumnus (Graduated in 1975) and acknowledged ITC in his speech. He brought modern mapping tools to Mexico. Mr. Salman Gonzales also purchased a nursery and led a movement that has planted millions of trees in that country. After working for the Mexican government, he opened his own mapping company, which today is the largest mapping company in South America.

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Mr. Salman Gonzales

group members.

### ITC Alumni on LinkedIn

Alumni Office

ITC has built up an extensive network of international contacts with former students, which since the foundation of ITC in 1950 has grown to a community of more than 20,000 individuals spread over 171 countries. ITC's mission stresses the vital importance of its relations with and consequently its ongoing services to its alumni in their efforts to develop and to strengthen their productive, teaching, and management capabilities. LinkedIn is an interconnected network of experienced professionals from around the world. An ITC alumnus and the ITC alumni office have created a group community in which you as ITC alumnus/a, student or (former) staff member can share common experiences, passions, interests, affiliations or goals. At the moment the ITC alumni group has over 700 members and we hope to grow even more. Discussions, news items and job postings are updated regularly by the alumni office or other members. Feel free to join and post interesting topics, job opportunities or connect with fellow



Join the ITC Alumni community at: www.linkedin.com/groups?gid=142077&trk=hb\_side\_g

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