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2002 number 3

introduction

Here in the Netherlands as we move into November, autumn takes on a more sombre mood. Unfortunately this is reflected to a certain extent in this issue of *ITC News*. A quick glance at the table of contents will reveal no less than four obituaries, the loss of four friends and colleagues whose names will be well known to many, if not most of you. We would like to take this opportunity to express our deep sympathy to the immediate family and friends of Anneke Koese-Tammeling, Allan Brown, Theo Rijnberg and Chief R. Oluwole Coker. On reading further (pages 27 - 30) we realise that lifetime achievement, personal and professional, comes in many shapes and forms. The common link here, however, is that so many people were the beneficiaries of that achievement. Simply said, they will all be sorely missed.

Rotterdam, yes; Amsterdam, certainly; but Enschede? Well, perhaps not quite ... until recently, that is. If you remember Enschede as something of an urban backwater, then perhaps it's time for some "fieldwork" coupled with a comparative analysis (page 7). Reorganisation is definitively in the air, not only outside the Institute but inside too, where the scientific divisions have been reorganised into six new departments (page 2). And of course change and cyberspace are inextricably linked, it's a fact of modern-day life you can't escape. Which brings us naturally enough to ITC's new website (page 15) - well worth a visit, if you haven't taken a look already.

As said on many occasions, the aim of *ITC News* is to keep you abreast of events and changes affecting the Institute and its network. Not all news is good news and this is true of any family anywhere in the world. So perhaps looking backwards and forwards as this issue does - with a good deal in between - only serves to remind us that at heart the ITC community is an extended family ... but extended on a truly global scale!

Janneke Kalf

Acting Managing Editor

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Scientific Divisions Reorganised in Six Departments

Martien Molenaar

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On 1 July 2002, a major step forward in reorganising the scientific divisions into larger units as laid down in the Strategic Plan 2001-2004 was realised with the installation of six new scientific departments.

In an intensive and interactive process that provided ample opportunity for both management and staff of the former divisions to participate, 14 of the 15 divisions have been regrouped. Scientific coherence within departments and complementarity between departments were the more important criteria applied to the regrouping process. Furthermore, the departments with an average staff of some 20 members should be viable units. Each department will act as a centre of expertise for a particular segment of ITC's scientific domain and contribute to the Institute's primary activities, which are:

- educational activities in our six education programmes and our decentralised programmes; moreover, there is increasing interest in short courses at ITC and abroad
- research activities in our research programme, which includes the PhD programme
- project services in the context of institutional development and capacity building

The departments are responsible for the position of ITC in international professional and scientific networks in target countries and in the Western world. Contacts in these target countries should especially generate interest in ITC's educational and project services. Each new department is supervised by a management team, with a chair (in principle a professor) and portfolio managers for research, education and project services.

The six new scientific departments are as follows:

Department of Earth Observation Science (EOS)

The Department of Earth Observation Science (EOS) deals with earth observation technology, extracting information from image data, data quality, and mathematical and statistical aspects of spatio-temporal analysis. EOS focuses on generating and maintaining framework data and monitoring and modelling change detection. Prof. Dr Alfred Stein has been appointed chairman for a period of four years.

Department of Geo-Information Processing (GIP)

The Department of Geo-Information Processing (GIP) deals with the technological and methodological aspects of geo-information processing and infrastructure for solving complex application problems and for developing technology-oriented concepts for the new geo-information society. GIP holds part of the expertise and competence in software engineering, and ICT aspects of GDI operations and use, analysis, presentation and visualisation. Prof. Dr Menno-Jan Kraak has been appointed chairman for a period of four years.

Department of Urban and Regional Planning and Geo-Information Management (PGM)

The Department of Urban and Regional Planning and Geo-Information Management (PGM) deals with a closely linked set of interest fields, including urban planning, urban infrastructure, regional planning, and deci-

sion-making concepts and methods. PGM holds the expertise in geo-information management, the institutional aspects of geo-spatial data infrastructure and land administration as a special responsibility. Prof. Dr Henk Ottens has been appointed acting chairman until mid-2003.

Department of Natural Resources (NRS)

The Department of Natural Resources (NRS) deals with the use of earth observation data and spatial information for assessing, monitoring, planning and managing land resources for their sustainable use, development and restoration. NRS focuses on sustainable land use for managing and conserving natural/semi-natural areas and biodiversity, for carbon sequestration, and for food production and food security, and also focuses on the environmental impact of land use changes. Prof. Dr Andrew Skidmore has been appointed chairman for a period of four years.

The **Department of Water Resources (WRS)** is ITC's focal point for expertise in water resources and water-related environmental studies, concentrating on six inter-related knowledge nodes: water resources analysis and management; satellite hydrology and its application in agricultural production systems; groundwater management; environmental hydrology; geo-information for coastal zone management; and information systems for integrated water management. Dr Chris Mannaerts has been appointed acting chairman for a period of approximately one year, pending the appointment of a new professor in the department.

Department of Earth Systems Analysis (ESA)

The Department of Earth Systems Analysis (ESA) focuses on geo-information science and earth science applications and deals with inventories, storage and the management of earth resource (geological, geomorphological, soil) data, as well as the analysis and application of this geo-information for managing earth resources and solving environmental problems in the broadest sense. Prof. Dr Ir Freek van der Meer has been appointed chairman for a period of four years.

The former **Division of Engineering Geology** will have a *Status Aparte* pending a final decision about its future. Discussions regarding the embedment of this division in the faculty of Civil Engineering and Technical Earth Sciences of the Technical University of Delft are in progress.



ITC in China

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China is the country with the mind-boggling figures.¹

With its 1.3 billion inhabitants, it is the largest market in the world.

Particularly since China's entry into the World Trade Organization, many internationally operating companies and organisations have been struggling to establish themselves in China. Everyone wants a share of that huge market. So what's ITC doing in China?

In fact, we are no newcomers. We've been in China for quite some time and next year our relationship celebrates its 25th anniversary. It was in 1978, when the country was just starting to open up, that the ITC management went on the first fact-finding mission to China. They visited a number of universities but the best match was - not surprisingly - with the "specialised" Wuhan Technical University of Surveying and Mapping (WTUSM). This university was primarily meant to train staff for the National Bureau of Surveying and Mapping (NBSM).² In those early years, ITC organised a special course for a number of Chinese photogrammetrists³ and there was a certain amount of academic exchange. The cooperation with WTUSM began in earnest in 1986, with the

joint project "Establishing the Education Centre for Urban and Rural Surveys, Planning and Management (ECURSPAM)". The aim of this very ambitious enterprise was to set up a whole new school within the university (including a new building; see photo), with courses on (urban) planning with the use of GIS and remote sensing. The ECURSPAM project was extended twice, reaching a total duration of some 12 years. The end result can be seen today - a thriving school called since 1993 the School of Urban Studies (SUS), which offers BSc and MSc programmes on urban planning and design.

During the project, our relationship with WTUSM became so close that we acknowledged each other as sister institutes. This family tie continued when WTUSM merged with Wuhan University⁴. Of course, even sisters have other friends too, and over the years our contacts in China multiplied to include a wide range of government agencies, universities, research organisations under the Chinese Academy of Sciences, scholarship foundations, companies, etc. We have trained their staff and carried out projects with them.

To date, the number of Chinese alumni stands at around 440, among them 14 PhD students⁵. Another eight PhD candidates are currently studying at ITC. This year's intake



A view of part of the campus of the Wuhan University

¹ For example, there are an estimated 200,000 people working in the surveying and mapping business.

² Later on this became the State Bureau of Surveying and Mapping (SBSM).

³ Many have since climbed to high positions in the Chinese government.

⁴ Large numbers again - Wuhan University has some 40,000 students.

⁵ These alumni obtained diplomas, Professional Master's degrees or MSc degrees. But, in addition, many people have come to ITC for short training courses or during study tours.



The intake of new students at Wuhan University

of PM and MSc students is 30. It is important to note that we can increasingly strike cost-sharing fellowship agreements in China and that the number of self-financing students is on the rise. As far as projects are concerned, there has been a wide variety, ranging from forest conservation to city planning and from land consolidation to wetlands studies. However, the coal fire projects are probably the best known. ITC cooperated with Chinese and Dutch companies in developing a methodology to detect and map underground coal fires and consequently have the means to extinguish them more efficiently.⁶ These fires pose a tremendous problem, both environmentally (pollution) and economically (valuable coal is burned). These projects also created a worldwide interest in these relatively unknown problems.

And our way ahead in China? For each of our core activities (education, research, projects), we are fortunate to have some strong partners. In the area of education this is first and foremost our sister institute, Wuhan University. We have already started a joint MSc degree course on urban planning with the School of Urban Studies (SUS). Students will study at both SUS and ITC and obtain a degree from both institutes. The first batch of nine students is expected to arrive at ITC in March 2003 to write their theses. Under the decentralisation policy, another initiative with the same university is starting up with the School of Resources and Environmental

Sciences (SRES). This concerns a joint course on Geographic Information for Natural Resource and Environmental Management. We will continue to expand this programme of joint courses with the university. We are also looking into the possibility of establishing a node in Xi'an to cater for the serious training needs in the west of China⁷. This would entail cooperation with the Xi'an University of Science and Technology (XUST) and the Shaanxi Bureau of Surveying and Mapping. The topic for a pilot joint course would be geo-information management.

As far as research is concerned, we have two partners whose research mandates coincide precisely with our research spearhead on global change. There is the Institute of Geographical Sciences and Natural Resources Research (IGSNRR), which houses the Global Change Information and Research Centre⁸, and there is the China Meteorological Administration (CMA), which is the responsible agency in China for global change issues. A proposal is being discussed that can be submitted to our internal research programme and the Chinese 863 research programme⁹.

As for new projects, we are continually on the lookout for business opportunities with big donors such as the Asian Development Bank, European Union, World Bank, etc. We recently tendered for a GEF-financed project on biodiversity mapping, but unfortunately were not selected. Other "hot" sponsor-supported topics that attract our interest include monitoring the frequent flooding of the Yangtze River, forecasting earthquakes and landslides, the desertification in the west of the country, nature conservation and land

⁶ The present ongoing coal fire project is in collaboration with the German Aerospace Centre (DLR). A key player in all these projects is Prof. John van Genderen, whom you might call an "old hand" when it comes to China. He has made no less than 100 separate trips to China!

⁷ The Chinese government has embarked on a policy (the so-called "Go West" or "Great West" policy) to develop the west of the country, and considerable amounts of money have been invested in this endeavour.

⁸ Prof. Liu Chuang, director of the Centre, will give the keynote address at the Opening of the Academic Year 2002.

⁹ This is the National Programme for High Tech Research, which is also open to European partners



Prof. Zhou Zhongmo, Prof. Qiu Zhavyui, Prof. M Juppenlatz (ITC) and Prof. Yang Hongyi at the ceremony of laying the foundation stone at ECURSPAM, WTUSM, Wuhan, on 26 March 1987

administration. One new education project that we did acquire lies within the framework of the EU-funded Asia-Link programme. The objective of this programme is to stimulate cooperation between European and Asian universities. ITC submitted a proposal to cooperate with Wuhan University, the University of the Philippines and Dortmund University in developing new educational material in the field of urban poverty alleviation. This proposal was approved and the project will kick off with a workshop in December 2002.



Our Rector sees a bright future in China

Our main “client” in China is the Ministry of Land and Resources (MLR). Only established in April 1998, this is a relatively new ministry. Given its mandate, it is a natural partner for



Our Rector in a technical discussion with Prof. Liu Chuang of the Chinese Academy of Sciences

ITC. A number of our traditional partners such as the State Bureau of Surveying and Mapping and the China Geological Survey now also fall under the Ministry. In July 1999, we signed a Memorandum of Understanding relating to cooperation with the Ministry. A recurring activity under this agreement is the organisation of study tours for senior ministry officials. Another successful component is the fellowship arrangement whereby MLR sends six students a year to study at ITC.

That ITC management attaches great importance to our link with China is underscored by the fact that we have established a resident office in Beijing. Our present on-the-spot representative is Marjan Kreijns. The office has recently been further strengthened by the arrival of her new-born son Joost. Members of the Directorate are also regular visitors to China, maintaining and strengthening contacts. The most recent visits of our rector, Prof. Martien Molenaar, took place in February and October 2001, while Director External Affairs Sjaak Beerens and Head of Project Services Mark Noort are scheduled to visit in the second half of October this year¹⁰.

Sometimes people think that ITC stands for “International Training for Chinese” - or even “International Travel for Chinese”. And the exact Chinese translation of our new name is still being debated. But what’s in a name? It is clear that ITC has a strong position in China with great potential for further expansion. After all, if only one out of every 10,000 Chinese comes to study at ITC (a reasonable assumption), we will still be in business for the next 288 years.

¹⁰ In ITC HQ, the special project officer for China is Paul Schoonackers, who coordinates all activities related to China. Marjan Kreijns can be contacted at kreijns@163bj.com, Paul Schoonackers at schoonackers@itc.nl.

All Change in Enschede!

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Have you ever wondered what happened to the old "ITC Building"? Well, for quite a long time, the answer was "not very much".

However, all that has now changed and, as part of a huge redevelopment programme for the centre of Enschede, ITC's former home has been converted into a brand-new residential apartment block. The west tower (in which ITC occupied only a few of the lower floors) has been completely demolished to make way for further new development of the shopping centre.

Massive construction has also taken place on the H.J. van Heekplein, where the twice-weekly open market used to be held, and a huge casino and shopping centre has sprung up. The market stalls are now to be seen distributed around the old town centre.

The Vroom and Dreesman (V&D) department store has undergone a major refurbishment, with the addition of a new section on the northern side.

The old Klanderij complex has been demolished, and work is still in progress on a very large underground car park.

Whoever said "nothing ever changes in Enschede"?



The new casino and shopping centre on the western side of the H.J. van Heekplein



Former ITC building and the V&D department store



Construction of the underground car park to the north of V&D



Car park, shopping centre, and DISH Hotel in the background



The east tower in the process of refurbishment



Eighty-seven luxury apartments in the former ITC building

events

Opening Academic Year 2002-2003

ITC News

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The ambiance of the Grote Kerk formed a perfect background for professors in their official gown and the numerous students in their national dress at the opening of the new ITC academic year. In his opening speech Rector Martien Molenaar welcomed the many dignitaries present, the ITC Supervisory Board and staff and the key persons of the day, but his special word of welcome was to the new course participants.

Mr Francis Mwakapuja spoke on behalf of the ITC Student Association Board and advised students to look under the bed.

In her keynote address Professor Liu Chang, international authority in Global Change research, emphasized the need for communication and sharing information on a worldwide scale, as change here can cause unforeseen effects at our neighbours'. Communication was a keyword too in the speech of newly appointed fellow Professor Klaas Jan Beek, who dedicated his fellowship to the ITC alumni all over the world.

Fortunately Klaas Jan Beek Award winner Mr Setijadji also made it to Enschede, albeit only just because of visa problems. At the lively and well-attended reception that followed the official proceedings, ITC News had an interview with Mr Setijadji and four new ITC students.

Rector Martien Molenaar's opening speech

In his opening speech Professor Molenaar talked about a world in which our parents hardly ever left their village versus the world of today, the rapid depletion of natural resources and the competition between material developments and the need to preserve the earth for future generations.

In a smaller world where present generations are used to travel people need time to understand the history and characteristics of other societies. A world community develops slowly, whereas globalisation through modern technology grows fast. There are reasons to believe that the likelihood of violence and war is reduced by a better mutual understanding of people of different cultures. For ITC students it is therefore important to realize that the opportunity of making friends from different religious and cultural backgrounds is equally beneficial for creating a new world as is their official study.

Man's interaction with geographical processes have global effects, human activities all over the world affect system earth. For the first time in history we are able to observe these processes, but we can certainly not say yet that we understand them, nor is it possible to distinguish clearly between natural and man induced processes.

Uncertain scientific knowledge has to compete with the strong pressure of economic interest.

At the end of his address Professor Molenaar expresses the hope that although students will be absorbed by scientific and technical details during their course, they will also keep this larger image in mind. He advises students to participate in the seminars of the Institute and take time for informal contacts and with the words 'we hope that your stay here at ITC will be fruitful for your future' he opens the academic year.



Venue of the Opening of the Academic Year: the "Grote Kerk" in Enschede

Mr Francis Mwakapuja, acting president of the SAB, added to these words of welcome his personal congratulations to the students of having been chosen to be among the multi-cultural family of ITC. In his speech he reminds the students that they will be subjected to pressure, but that they will not be alone. They can be assured of the fact that this pressure is shared by ITC staff, and isn't it so that pressure shared is pressure halved? Mr Mwakapuja quoted a proverb in Swahili to give his audience heart to brave all the challenges, including the Dutch weather, that await them: 'Mtaka cha uvunguni sharti ainame' which translates to: 'When you need to pick up something from underneath the bed you must bend' meaning that you must sometimes bend in order to achieve something valuable.



Mr Francis Mwakapuja spoke on behalf of the students

Keynote address: Professor Liu Chuang

Geo-spatial Information: Active knowledge for Decision Making
Professor Liu Chuang is Director of the Global Change Information and Research Centre of the Institute of Geographical Science and Natural Resources Research of the Chinese Academy of Science and, as a leading scientist, is active at an international level.

At the moment she is involved in the preparation of the International congress of the International Society for Science and Technology Data (CO-DATA) 2002 in Montreal where she chairs the interdisciplinary section on earth sciences, biodiversity, environment and climate change. She lectured at many universities around the world and apart from having been project leader and principle investigator of a long list of international projects dealing with land use change and global change, she is a member of the Planning Committee of the World Data Centres System.

Three generations of geographers

It took Professor Liu Chuang ten years of study to be where she is now: four years for her bachelor degree, three years for her master degree and another three years for her PhD. She was lucky, after the Cultural Revolution, to have been one of the few that could go to university. She got her subject from her father, who is a geographer. He is university professor as well and teaches at Dalian University and is founder of the Department of Geography. Her father taught his children to love the environment and to realise that earth is our home, to tend and to preserve. When she reached the age of twenty no studies for her: because of the Cultural Revolution she had to work on the land. During the ten years of physical labour she managed to read and study in her own free time, but there were hardly enough books. Now she travels a lot. She tries to give people outside China some understanding of China and the Chinese more understanding of the rest of the world. Communication is the key word. In spite of her very busy life she also has a family. Her son is the third in line: he is a geographer too. He got his bachelor degree in computer information systems and now is a PhD candidate and his major is earth observation and computational science.

EOS a milestone in human history

In her keynote address Professor Liu Chuang wants to share her experience with the audience by giving the example of the Shenyang area in China, where the population rapidly increased over the period 1977-2000. The expansion of the city caused the wetlands in the area to be farmed to support the population. Cars, the construction of a super highway and many new buildings dramatically changed the land. Now the two lakes of the area, where there used to be plenty of water, are nearly completely dried up. Hilly grassland changed into a landscape of sandy dunes. The sandstorms came, in which people at two meters distance can't see each other. The sand is there, but who knows what element causes the wind? For all we know the wind may have originated in Europe.

'Although some may think that we are drowning in a sea of information, we need even more and on a global scale for our global change studies. Never did we make such a close examination of our planet before. We never looked into how the water supplies changed, how the spheres change.



Prof. Liu Chuang sharing her experience with the audience

In many cases we made the wrong conclusions and thought we were right. And this was often through lack of information to support our decision making.'

Professor Liu Chuang expressed the need for an earth observation system that investigates each element in the picture, the soil, the vegetation, the water and last but certainly not least, the human activities on earth. That is why the Earth Observation System (EOS) is a milestone in human history.

'Information changes quicker than the physical world. Data gathered by satellites needs to be interpreted and should be shared by scientists worldwide, because one scenario change will cause an effect in another part of the world. For this reason Geospatial information plays a critical role in decision making.'

Professor Liu Chuang 's final words were for the newly arrived ITC students:

'Do your best with knowledge, ability and enthusiasm and love not only your major today, your job tomorrow, but also your life forever!'



Keynote speaker Prof. Liu Chuang, Director of the Global Change Information and Research Centre of the Institute of Geographical Science and Natural Resource Research of the Chinese Academy of Science

Klaas Jan Beek dedicates Fellowship to the ITC alumni

In recognition of his accomplishments of exceptional merit both the Supervisory Board and the Scientific Council of ITC unanimously approved the appointment of Professor Dr. Ir. Klaas Jan Beek as Fellow of the Institute. In his speech of thanks Klaas Jan Beek expressed his gratitude, not only for the rector's kind words, but also for the support of the Board of Governors, allowing him to be his own man. He mentioned an other historical day:

'In this very church my father on an April Sunday in the year 1945 delivered a sermon, commemorating the liberation of Enschede by British troops. Although overjoyed by the fact of war being over, he quoted psalm 126:1 and wondered if the world order could ever be changed by tanks.

Schermerhorn, the founder of ITC, prime minister of the first cabinet to build on the rubble of war could never have thought that his Institute would play such a prominent part in the Enschede society of today and grow into a global network of thousands of loyal alumni doing excellent jobs for their countries.'

Professor Klaas Jan Beek continued his address with comments on the winds of change and the one thing that had not changed over the years; the students still come first in order to give them inspiration, self confidence and ambition for greater achievement.

'From the World Conferences on Sustainable Development we may conclude there is a strong need for education and research with a human face that can produce socially and environmentally responsible knowledge

and technology. This is where ITC staff, students and alumni contribute. The challenges are overwhelming. But let us not lose heart if we do not see results immediately. Remember what Chairman Mao said to Richard Nixon during his visit to China. Nixon asked what, in Mao's opinion, impact had had the French revolution on China? After some thought Chairman Mao answered: 'Well...Mr. president, I am afraid it is too early to tell'.

Not tanks, but science and technology create a better world with less poverty, better governance and a sustainable management of our natural resources. That is why I dedicate my honorary fellowship to our ITC alumni.'

ITC 2002 MSc thesis award

The official programme of the afternoon proceeded with the rector Professor Molenaar presenting the Klaas Jan Beek Award to Mr Setijadji. 'This year four candidates have been nominated for this award and the winner is Mr. Lucas Donny Setijadji, from Indonesia. The title of his thesis is: Generating exploration criteria by modelling sediment-hosted disseminated gold mineralization in the Great Basin, southwestern USA. Mr. Setijadji had a very clear idea what was to be the topic of his MSc research and he proceeded in his research in a very independent manner.'

You will find the interview ITC News had with Mr Setijadji and four new ITC students on page 11-12.

Flowers, a certificate and applause for Mr Setijadji ended the official proceedings and all guests and students were invited to attend the reception at the Enschede theatre.



Former rector Prof. Dr Ir Klaas Jan Beek appointed Fellow of ITC



Prof. Beek presenting the Klaas Jan Beek Award to Mr. Lucas Donny Setijadji from Indonesia

Opening of the Academic Year: interviews with Klaas Jan Beek Award winner Mr Lucas Setijadji and four new ITC students

ITC News

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The objectives of Mr Setijadji's thesis were to build a generic model with exploration criteria that can be applied worldwide. This was achieved by an analysis of the spatial temporal relationships between gold mineralization and six thematic domains, i.e. various mineral deposit types, extension, magmatism, host lithology, structures and geochemistry.



Mr. Lucas Donny Setijadji, winner of the Klaas Jan Beek Award 2002

Mr Setijadji collected most of the required geochemical information from public domain files within the USGS Internet sites.

Why did you write a thesis about a phenomenon in south western USA?

All the conventional easy-to-find gold mines have already been discovered, so now it is a matter of looking harder. So far this deposit is only found in the USA. Many experts consider that this kind of deposit is nowhere else to be found. However, from other small discoveries I have developed the hypothesis that similar deposits can be found worldwide, also in Indonesia. It is a kind of deposit that is difficult to find, that is why it has not been found yet in the rest of the world. The data are from south western USA, but I wanted to extract the basic principles for this kind of deposit and draw conclusions that can be applied in other parts of the world as well.

Did you expect to win the prize?

No not really, because mineral exploration is not a very popular topic

today. It is an extractive process which may cause environmental damage. But I believe that many countries still rely on utilizing their own natural resources, especially developing countries like mine.

What are you doing at present in Indonesia?

I am teaching, but I also do projects related with mineral potential assessment. My clients are local governments. There has been a significant change of policy recently: central government is shifting in favour of local government. Local governments can make their own policy of maintaining their resources, including the environment. They are dealing with investors and require expert advice. They do not have geo-information of the area. We have to start by providing the basic information, such as geological maps and data, the known mineral resources and the potential of the next discoveries.

Thank you very much for the interview and congratulations with your award.

Introduction of four new ITC students

Catherine Zulu's native village is near Chipata in the Eastern Province of Zambia. Catherine went to Lusaka to study and there she stayed, working for the National Assembly of Zambia as an Assistant Research Officer.

She does research for members of parliament on various subjects and provides the background for them, mainly on environmental and natural resources topics.

A friend told her about ITC and she applied. She considers herself very lucky to be here, but being away from home is a very unfamiliar experience for her: normally she is always surrounded by her family. She would like to call them everyday.



Catherine Zulu from Zambia would like to call her family everyday

Susan Katantamalundu, also from Zambia, is a Police Officer in the Zambian Police Service. She is in charge of the research and planning unit and helps with the planning, especially in the field of crime prevention. Once you have geographical information about a particular area, you can decide what methods to use in controlling crime. Certain methods are only applicable in certain areas so instead of using one type of crime control method, you respond to specific

needs. In less densely populated built up areas you find for example that certain types of crime are prevalent, like aggravated robberies.

She may be a policewoman, but she majored in geography and hopes at ITC to acquire extra skill in urban planning and land administration.



Susan Katantamalundu hopes to acquire extra skills in Urban Planning and Land Administration

For **Tsolmongerel Orkhonselenge** a dream came true: to study at the ITC. After her bachelor degree in applied mathematics she came to work in the field of geo-informatics. The very sup-



Tsolmongerel Orkhonselenge misses the ever-sunny sky in Mongolia

portive staff at the government organization that employs her suggested ITC to her. The difficulties she had to overcome to be where she is now were innumerable. She studies on a fellowship from the Dutch government. Since there is no Dutch embassy in Mongolia, all the paperwork had to be done through the embassy in Peking, China, which required patience and endurance.

She shares accommodation at the Stadsweide with **Oyungerel Bayanjargal**, who has a bachelor degree in mathematics and geography. In Mongolia **Tsolmongerel Orkhonselenge** and **Oyungerel Bayanjargal** both worked for the same organization and at ITC they hope to learn more about mineral resource exploration. What they miss most here in the Netherlands? The ever-sunny sky of Mongolia!



Oyungerel Bayanjargal hopes to learn more about mineral resource exploration

staff news

New Visiting Scientists at ITC

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In the last months two new visiting scientists, Dr Seema M. Parihar and Dr Giovanni Labate, have made ITC their temporary home.

Dr Parihar, a reader at the Department of Geography, Kirori Mal College, University of Delhi, India, is spending a six-month period at ITC where she is developing and designing a web-based teaching course on Web Cartography.

Her work at ITC as a post-doctoral fellow focuses on using the World Wide Web as an interactive system based on existing infrastructure. In this way the need back in India to learn web cartography can be assessed and satisfied with an appropriate degree of quality.

As she explains, "In India the Web as a medium is so new that it has not yet found its way into the cartographic curriculum of many universities. The course design is structured to facilitate learning web tools and understanding a range of options open to carto-geographers but as yet constraining cartographic communication in other ways. Recognising the importance of a suitable interactive mechanism for the long-term dissemination of the course, an appropriate DLE will be conceived and selected.

"Two colleges, Kirori Mal College (North Campus) and Dayal Singh College (South Campus), both of Delhi University, have been selected as testing grounds. However, the course will be tested by instructors and other professionals at ITC before being finally implemented."

Dr Parihar's master's degree was on "*Women and Fuelwood Resources in a Himalayan Watershed*" and her PhD on "*Natural Resource Management in the Bhagirathi Basin*". Using the IRS data in her research coupled with intensive fieldwork, she felt the need for all geographers in India to be versed in the new technology of remote sensing and GIS.



Dr. Seema Parihar

For one month now Dott. Amb. Giovanni Labate, an environmental scientist, has been collaborating at ITC with Dr Hans ter Steege, Dr Rolf de By and José Santos (PhD researcher) on the construction of an Amazonian forestry inventory to evaluate biodiversity.

He has a master's degree in environmental sciences from the Ca' Foscari, University of Venice, where he specialised in soil and territorial planning.

His background includes periods of collaboration with the Experimental Institute for Soil Studies and Conservation in Florence (constructing a geographical database of Italian moisture regimes, sponsored by the Ministry of Agricultural and Forestry Politics) and the National Center of Soil Mapping, also in Florence (constructing a geographical database of Italian soils).

He is presently following a one-year professional course in geographical information systems and thematic cartography, jointly organised by the Department of Political and Cultural Formation of the Tuscany Region and Siena University.



Dott. Amb. Giovanni Labate

- four angle maps: solar & satellite zenith angle maps and solar & satellite azimuth angle maps.

Six thematic menus organise the outputs in AHAS. At present only five output menus are operational.

Software Availability and Courses

The software is now freeware and can be downloaded from <http://www.itc.nl/AHAS>. On the same website there are two PDF downloadable files:

the *User Guide*, with full explanations of each AHAS input and output the *Algorithm Guide*, featuring a detailed description of the methods used in the AHAS development.

The Department of Water Resources has initiated an annual elective in which specific AHAS applications and Dr Ambro Gieske's SHEBA package for high-resolution images are taught by specialists. It is recommended that

Table 1: List of AHAS outputs

| Theme | Parameter | |
|-------------------------|--|--|
| Spectral Composites | False-colour composites | Daily net LW radiation Instantaneous LW incoming radiation Instantaneous LW outgoing radiation Instantaneous net radiation Daily net radiation Instantaneous soil heat flux Sensible heat flux |
| | Normalised difference vegetation Index | |
| | Soil-adjusted vegetation index | |
| | | |
| Biophysical Properties | Fractional vegetation cover | Water Characteristics Daily potential evapotranspiration Instantaneous water use Evaporative fraction Daily total evapotranspiration Soil moisture classes |
| | Leaf area index | |
| | Crop coefficients | |
| | Planetary albedo | |
| | Surface albedo | |
| | Broadband emissivity | |
| | Narrow-band emissivity | |
| | Surface temperature | |
| | Surface roughness | |
| | Displacement height | |
| Climate Characteristics | Fractional photosynthetic active radiation | Agro-ecology Photosynthetic active radiation Absorbed photosynthetic active radiation Accumulated absorbed Photosynthetic active radiation Accumulated biomass |
| | Transpiration coefficient | |
| | Daytime duration | |
| | Daily terrestrial SW radiation | |
| | Instantaneous terrestrial SW radiation | |
| | % of cloud cover | |
| | Ground daily SW radiation | |
| | Ground instantaneous SW radiation | |
| | | |
| | | |

the course be followed before using any of these techniques.

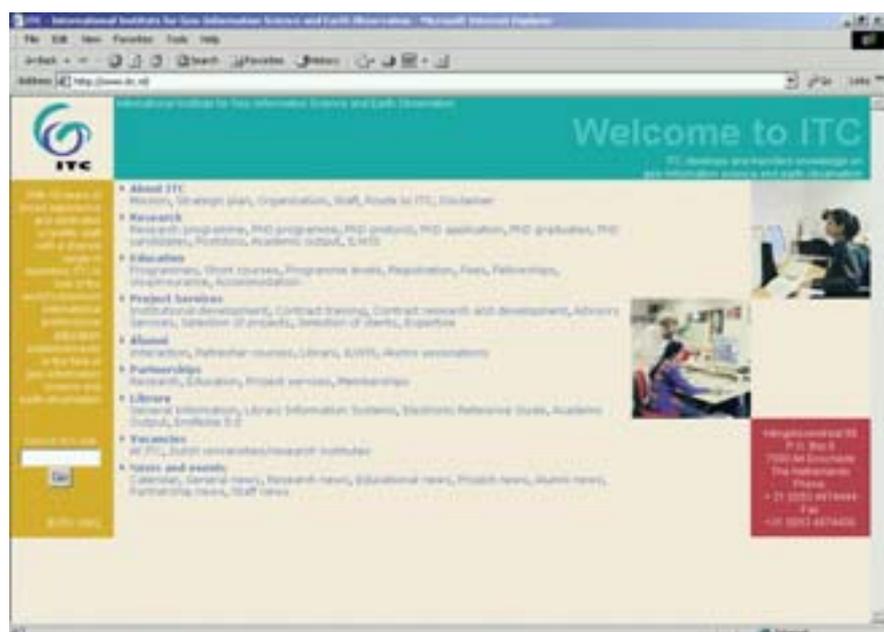
Revamped website launched

ITC News

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The reorganisation of ITC's scientific divisions into six larger scientific departments was more or less completed by 25 July. Yet this date is significant for another reason - it saw the launch of ITC's revamped home page. Long overdue but well worth the wait!

New and improved the site may be but the URL (<http://www.itc.nl>) remains the same. The design is simple and effective, keeping the use of graphics and animation to a minimum. This ensures ease of access and spares its main clientele in the developing world (client organisations, alumni, prospective and current students), who often lack high-powered facilities, frustrating delays.



New homepage

Attention is centred on providing transparent information on ITC's three core activities (research, education and project services) - information to serve as a means of both interaction and transaction. Moreover, two new entries have been introduced that reflect the importance that ITC attaches to its alumni and partners. Curious? Read on.

Alumni Pages

As you might expect, these pages provide information on services to alumni, refresher courses, alumni associations and news and events (including reports and photographs of alumni receptions). Eventually - and work is already in progress - ITC hopes to develop this page into an interactive network of information exchange between alumni and ITC and between the alumni themselves.

Partnership Pages

ITC operates as a node in an international knowledge network and has therefore entered into partnerships linked to the three core activities mentioned above. These partnership pages list and also provide links to the organisations and associations of which ITC is a member.

Soils Group Explores New Challenges in Thailand

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Staff members and PhD researchers of the Soils Group of the recently established Department of Earth Systems Analysis recently participated in the 17th World Congress of Soil Science (WCSS) organised in Bangkok.

More than 2,400 soil specialists from all over the world travelled to Thailand for this congress, which was held in Bangkok from 14 to 21 August. Every four years the global soil science community united in the International Union of Soil Sciences (IUSS) convenes for a congress of this dimension. It is a unique opportunity to meet a diverse group of soil professionals, to share ideas and to join in efforts to meet the global challenges facing soil science and determine the role of soils in sustaining society and the environment.

The scientific programme of the 17th WCSS consisted of a total of 65 parallel symposia. These included oral presentations and poster sessions dealing with a wide array of scientific subjects and soil-related issues, ranging from soil chemistry to the new field of "pedometrics" and from soil and terrain databases to land degradation and desertification. ITC staff and PhD researchers actively contributed with a number of oral presentations and posters, covering such topics as:

- Demand-driven land evaluation
- Sustainable use of deserts
- Remote sensing and modelling of topsoil properties for land degradation assessment
- Mapping soil properties using freely available ancillary data
- Soil geographical databases

- On-line soil resource inventories
- Hyperspectral imaging for land degradation assessment
- Effects of natural fallow on soil properties and crop yields
- Ethnopedology and sustainable land management

Our conference papers provided a good demonstration of the integration of soil expertise and geo-information processing that we emphasise in our education and training offerings, research activities and advisory services. In this sense the congress also provided us with an opportunity to make ourselves known as the *Soils Group* within the newly established ITC Department of Earth Systems Analysis.



More than 2400 soil scientists participated in the 17th World Congress of Soil Science



The city of Bangkok is famous for its Buddhist temples, such as the Wat Phra Kaew



ITC staff and Thai research partners inspect a salinity-prone spot

Moreover, the symposia, posters and the discussions with many people during the congress revealed a number of trends in soil science that are directly relevant to ITC. For example, increasingly reports are emerging on quantified approaches (to soil-landscape modelling, to soil degradation modelling, to land evaluation, etc.). Many initiatives are in progress to set up soil databases. Remote sensing (including reflectance spectrometry) and GIS technology are being introduced in more and more branches within soil science. Furthermore, land degradation remains an important societal issue, requiring the continuous input of soil expertise and soil information alike. These trends, together with our overall experience at the congress, encourage us to continue and further strengthen our main focus areas:

- Soil-landscape modelling and mapping
- Land degradation assessment and monitoring
- Soil information systems
- Application of soil geographical information

We certainly expect to contribute actively to scientific discussions at the following World Congress of Soils Science (the 18th WCSS), which will be held in 2006 in Philadelphia, USA.

Meeting ITC Alumni

During the congress period an informal dinner for Thai ITC alumni was organised by Mrs Parida Kuneepong and her team on 16 August in the Imperial Queens Park Hotel in Bangkok. Although the community able to come at such short notice was not large, about 20 alumni living and working in Bangkok did attend. It was a nice opportunity to exchange memories and ideas and many alumni now occupy key positions in governmental and academic organisations in Thailand. Among those present was a retired geologist, who had started his ITC course in Delft in 1962, when Prof. Schermerhorn was rector. Although not yet an alumnus, a soil specialist who had enrolled for the Natural Resources Management course starting in September 2002 also attended.

Soil Information Systems Unit of the Land Development Department

As a result of discussions during the congress symposium on Global and National Digital Databases, David Rossiter and Bart Krol, together with Dr Norman Bliss (new chairman of the international SOTER working group) and Mr Vincent van Engelen (ISRIC SOTER manager) visited the Soil Information Systems Unit of the Land Development Department (LDD)



Bart Krol's poster on soil geographical databases for multi-source data integration received a "best poster award" at the congress

of the Thai Ministry of Agriculture and Cooperatives in Bangkok. Our host was Dr Taweesak Vearasilp, who is in charge of this unit within the LDD Soil Survey and Land Classification Division. Dr Vearasilp gave an interesting overview of LDD's impressive project to put the existing 1:50,000 soil maps of the entire country onto a topographic base, and the 1:25,000 soil maps of selected areas onto an aerial photographic base. They are also developing a national soil profile database. More information on this Thai initiative in digital soil mapping and interpretation can be obtained from the LDD website: <http://www.ldd.go.th>.

Partners in Research Project on Land Degradation

After the conference, Abbas Farshad and Dhruva Shrestha spent one more week in Thailand at the request and cost of LDD. LDD and ITC are developing a joint research project on land degradation. To this end a Letter of Intent and a follow-up proposal were signed earlier this year by the deputy director of LDD and the rector of ITC. The project will be financed by LDD within the Thai Ministry of Agriculture and Cooperatives.



Thai alumni and ITC staff shared memories and exchanged ideas at an ITC reunion in Bangkok

Land degradation has been found to be seriously hampering further development in certain parts of Thailand. Examples include Chanthaburi province with its problems related to landslides, Korat with its soil salinity problems, Petchabun province with its soil erosion and flooding, Had Jai in southern Thailand also with problems related to flooding, and Phrae, which is facing mass movement problems induced by land use.

Together with an LDD team headed by Mrs Parida Kuneepong (an ITC alumna), various regions in Thailand

were visited to select pilot areas for this project. A watershed facing soil erosion and flooding in Petchabun province and a salinity-prone area in Korat have been selected as first-priority areas. At this moment the final proposal for the research project, which has a duration of four years, is being prepared by the LDD-ITC team. Dr Dhruva Shrestha, Dr Abbas Farshad and Dr Herman Huizing are representing ITC, while the LDD team is headed by Mr Ard Somrang; coordination is in the hands of Mrs Parida Kuneepong.

Additional Information

- More information on the 17th WCSS can be found at www.17wcsc.ku.ac.th.
- A CD-ROM with the congress proceedings can be accessed via the ITC library.
- Conference papers and posters of the Soils Group can be accessed via the ITC website at www.itc.nl.
- More information about the Land Development Department in Thailand can be obtained at www.ldd.go.th.

ITC's First Graduate to Carry Out an ESRI Internship

Victor Cuadrado

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My stay as an intern at the Environmental Systems Research Institute in Redlands, California, turned out to be an unforgettable experience. I learned a significant amount about the GIS industry and about entrepreneurship in general, and had the privilege of carrying out research using ESRI state-of-the-art training facilities. I left Redlands equipped to:

- work with extensive spatial databases
- customise, program and maximise the performance, security and reliability of Internet mapping sites, using ArIMS, ArcXML, HTML and Java
- administrate system architecture (servers, computers and software) for the optimal storage and retrieval of geographical data, using

ArcSDE software tools

- deal with extended coverage data models and advanced cartography, using table relationships and working with imagery and raster data with advanced ArcInfo commands and ArcGIS Spatial Analyst extensions

I also had the opportunity to attend the 22nd ESRI 2002 User Conference in San Diego, where ITC was represented by Mark Noort, Rolf de By and Lyande Eelderink in the Exhibitor Pavilion. I participated in the conference seminars and met people from all over the world (including a good number of former ITC students) with a vast range of GIS experience and from a wide variety of educational backgrounds. The networks and connections I built up as an intern are still

with me. The internship has provided me with an invaluable resource, opening up great job opportunities that I would never have had before. My experience this summer at ESRI Redlands has given me every reason for optimism.



Alumni and future ITC students meet at ESRI 2002 User Conference



San Diego: venue of the 22nd ESRI 2002 User Conference



ITC alumnus Pedro Buitrago and Lyande Eelderink at the Education Expo in San Diego

visiting itc

New ESA Chairman Visits ITC

John Horn

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Following the retirement of ITC Fellow Eng. Mosaad Ibrahim in September 2001, General Eng. Hisham Nasr (an ITC alumnus and graduate from the Photogrammetry course in 1979) has taken over as chairman and chief executive of the Egyptian Survey Authority (ESA).

After a distinguished career at the Egyptian Military Survey Department, General Nasr is moving over to head Egypt's civil mapping agency at a critical moment in its history. Issues of cost recovery, modern information technology and "customer orientation" are becoming the key focus of its charter today. Since 1998, ITC has been running a



The visiting ESA team led by General Eng. Hisham Nasr, with members of the ITC-ESA project support team



General Eng. Hisham Nasr presenting a gift to ITC Rector Prof. Dr Ir Martien Molenaar during the visit

major institutional support project at ESA, which is funded by the Netherlands Embassy, Cairo.

Headed by ITC's Dr Mostafa Radwan, the five-year project entitled "Training Programme for the Development of Managers and Supervisors for the National Cadastre at the Egyptian General Survey Authority" aims to develop and transfer a number of special programmes in geographical information management to Egypt.

As part of the project, a small group of ESA senior managers take part in a short study programme in the Netherlands and Germany each year. During a one-week visit in June this year General Nasr, accompanied by five of his senior regional managers,

attended a seminar at ITC and visited the Netherlands Kadaster, as well as the Landesvermessungsamt Nordrhein Westfalen in Bad Goddesberg, Germany.

Jointly developed and organised by ITC and ESA, a 10-month modular diploma programme in the Management of Geo-information is now successfully running at ESA's Cairo headquarters. It is also envisaged that course modules will be run at other locations in Egypt next year. Several case studies are being developed to pave the way for creating the ESA Information System in order to improve performance and quality of service.

Deputy Director General SBSM China Visits ITC

Paul Schoonackers

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On 1 July 2002, ITC welcomed Mr. Chang Zhihai, the new deputy director general of the Chinese State Bureau of Surveying and Mapping (SBSM). He was leading a six-strong delegation on a study tour through Europe. His predecessor, Prof. Yang Kai, retired recently. During the visit, a Memorandum of Understanding in respect to closer cooperation was signed. One of the first activities under this new MoU will be the organisation by ITC of a study tour for directors of provincial mapping bureaux.



Prof. Molenaar and Mr. Chang Zhihai

Tools and Techniques for Ugandan Urban Managers

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As part of the six-week programme being run by the Institute for Housing and Urban Development Studies (IHS) in Rotterdam, ITC was recently pleased to host a two-day seminar on "Tools and Techniques for Urban Managers" for a group of nine senior managerial staff from Uganda.

Coordinated by Drs Paul Hofstee of ITC's Department of Urban and Regional Planning and Geo-information Management, the seminar concentrated on recent advances in the fields of geo-information management, geographical information systems, remote sensing, aerial photography and map-making.



Members of the visiting Ugandan group with ITC's Paul Hofstee and Peter Slits of the Institute for Housing and Urban Development Studies (IHS)

project news

New IIRS Course Programmes in Geoinformatics and Geoinformatics for Environmental Assessment and Disaster Management

P.L.N.Raju and Minakshi Kumar

Indian Institute of Remote Sensing (IIRS) - 4 Kalidas Road, Dehradun, India.

Geoinformatics is a powerful tool for creating maps, integrating information, visualising scenarios, solving complicated problems, presenting powerful ideas and developing effective solutions. The geoinformatics technology is especially relevant where sensitive decisions are to be taken on issues such as natural resources assessment, surveying, monitoring and more importantly the protection of the natural environment, which includes disaster reduction and mitigation.

Realising the tremendous potential of the emerging geoinformatics technology to meet the challenges of sustainable development and disaster management, IIRS, in collaboration with ITC, the International Institute for Infrastructural, Hydraulic and Environmental Engineering (IHE) and Wageningen University in the Netherlands, initiated the following programmes on 1 July 2002:

- MSc Geoinformatics (duration 18 months)
- Postgraduate Diploma in Geoinformatics (duration 10 months)
- Postgraduate Diploma in Geoinformatics for Environmental Assessment and Disaster Management (duration 10 months)
- Certificate Course on Geoinformatics for Environmental Assessment and Disaster Management (duration 4 months)
- Awareness Course on Geoinformatics for Environmental Assessment and Disaster Management (duration 15 days)

The course curricula were designed and developed by IIRS and the collaborating institutes and were approved by the Indian Advisory Committee set up by the director of the National Remote Sensing Agency (NRSA) of India.

The official inauguration took place on 1 July 2002. In his welcome address Dr P.S. Roy emphasised the role IIRS had been playing in generating manpower trained in the application of this technology. Associate Director Prof. S.K. Bhan delivered a keynote address on *Remote Sensing in Disaster Management*. Dr Yola Georgiadou, associate professor at ITC and advisor to the IIRS MSc Geoinformatics programme spoke on

the Role of ITC in Geoinformatics Training and Education.

Shri P.L.N. Raju, course coordinator of the MSc Geoinformatics programme, gave a detailed description of both the MSc and the Postgraduate Diploma programme in Geoinformatics. As he explained, the courses are modular in structure, each module being of three weeks' duration. The first nine modules are identical for the MSc and postgraduate courses but with module 10 the two courses diverge. The postgraduate course will continue with project work for three months (four modules). The MSc course will have a further six teaching modules dealing with subjects in advanced geoinformatics, before embarking on a six-month period of research. The total duration of the postgraduate course will be 10 months and that of the MSc course will be 18 months.

Dr P.K. Champati Ray presented a detailed description of the Postgraduate Diploma course in Geoinformatics for Environmental Assessment and Disaster Management, also modular



(L-R) Dr P.S. Roy and Prof. S.K. Bhan (IIRS) and, Dr Yola Georgiadou (ITC)



Shri P.L.N. Raju



Dr P.K. Champati Ray (IIRS)

in structure. The course that commenced on 1 July 2002 is the second. The first course, which ended on 17 May 2002, was highly successful.

To close the proceedings Mrs Minakshi Kumar proposed a vote of thanks to all those involved in the courses. She also reiterated the importance of the day for IIRS - a milestone that will go down in IIRS history.



Mrs. Minakshi Kumar, (IIRS)

Agreements Signed for ITC-LDD Cooperation

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In May 2002 a delegation from Thailand, headed by Deputy Director General Ard Somrang of the Land Development Department (LDD) of the Thai Ministry of Agriculture and Cooperatives, visited ITC. During the visit two agreements were signed relating to LDD-ITC cooperation.

- The first agreement concerns cooperation in joint research on developing methodologies for land degradation assessment and land use planning in Thailand.
- The second agreement relates to LDD human resource development.

LDD has already cooperated with ITC for a long period. Since 1987, LDD

has provided essential support to field training for large groups of ITC students in Thailand. Over the last 30 years, more than 40 LDD staff members have been educated at ITC. From 1988 onwards, LDD and ITC have cooperated in developing an integrated information system for land use planning. LDD has also hosted several ITC short courses. In 1988 ITC organised a three-month training course on soil survey for 15 LDD staff. In 1997 and 1999, LDD hosted ITC refresher courses entitled "Land Use Planning for Sub-watersheds: New Approaches and Information Management Tools". ITC alumni from India, Pakistan, Nepal, Bangladesh, Vietnam,

Malaysia, Indonesia, the Philippines, Myanmar and Thailand participated in both courses. The refresher courses were successfully completed with support from LDD, the Department of Fishery and the ITC Alumni network in Thailand.

The agreement concerning cooperation in joint research on developing methodologies for land degradation assessment and land use planning is of prime importance for LDD. Proper land use plans can be made and implemented once degradation issues are well understood. Land degradation is a worldwide issue, in which Thailand is not alone. Biophysical



Deputy Director General Ard Somrang of LDD and Prof. Molenaar signing the agreement



Refresher course participants and staff

problems such as deforestation, shifting cultivation, and inappropriate land use practices in combination with steep slopes have led to soil fertility depletion, reduced crop yields and soil losses from agricultural fields - resulting in overall land degradation. To make the conservation plans most effective, it is necessary to analyse the causal factors and assess the degree of degradation. The proposed cooperation in joint research aims at developing methods for land degradation analysis and degradation assessment in Thailand, with the objective of supporting alternative land use planning activities. Funding for the research will come from the Thai Ministry of Agriculture and Cooperatives.

The ITC staff members to be involved in the project are: Dr Abbas Farshad, Dr Dhruva Shrestha and Dr Herman Huizing. In August the pilot areas for the research were selected by Dhruva and Abbas in consultation with colleagues from LDD. The project started in September 2002. To support the research project, three ITC MSc students with thesis subjects related to soil degradation will do their fieldwork in Thailand this year. We hope to have more MSc studies in subjects related to land degradation in the project area since we consider that this type of input, through data collection and research results, will be of tremendous value for the project as a whole.

To support human resource development, an agreement on a 50:50 basis was reached. LDD will financially support one of their staff members to be trained at ITC, and in return ITC will provide one fellowship - so two LDD staff members can be trained at MSc level at ITC. The agreement initially covers two in-takes, starting in 2003.



Chinese Delegation on Study Tour of the Netherlands

Jan Turkstra

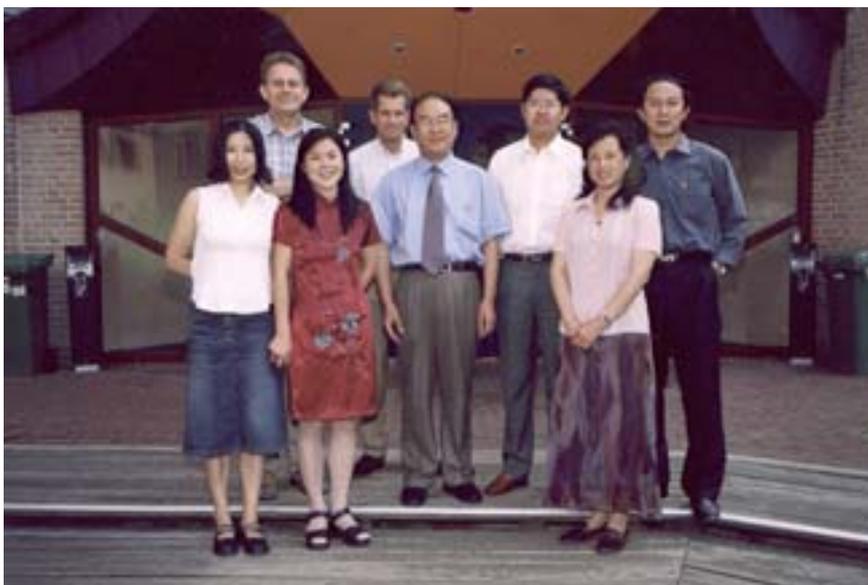
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In Beijing on 26 July 1999 a Memorandum of Understanding was signed between the Ministry of Land and Resources (MLR), Beijing, PR China, and the International Institute for Geo-Information

Science and Earth Observation (ITC), Enschede, The Netherlands, concerning cooperation in education and training, research and advisory services. This was the basic reason behind the study tour undertaken by

a six-strong delegation from the Land Surveying and Planning Institute (CLSPI) in the period 25 to 31 August 2002.

The delegation consisted of Mr Xie, CLSPI vice general director, who is in charge of scientific projects; Ms Xu Jianxin, director of the Land Resource Investigation Division and in charge of the project "Investigation into Land Resources" funded by the Ministry of Land and Resources; Mr Zheng Weiyuan, director of the Land Use Division and an expert in land use planning; Ms Feng Wenli, senior engineer in charge of international cooperation in science and technology; Mr Yang Jihong, a senior engineer in GIS and remote sensing; and last but not least Ms Qiao Hangping, vice-director of the General Office.



The CLSPI delegation with ITC staff members Erik de Man and Jan Turkstra

REVIGIS Project Passes EU Mid-Term Review

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On 13 and 14 June ITC played host to the official evaluation meeting of the REVIGIS-II research project funded by the European Union.

REVIGIS is a project that deals with uncertain knowledge maintenance and revision in geographical information systems. It involves advanced geo-information centres at universities throughout Western Europe and at the Université de Laval in Quebec, Canada.

The partners in the project are Leicester University (Peter Fisher), the University of Vienna (Andrew Frank), the University of Keele (Michael Worboys, who is now at the University of Maine, USA) and the University of Pisa (Chiara Renso). Most of the participants were present at the meeting.

The overall project coordinator is Robert Jeansoulin of the Université de Provence in Marseille, while the ITC contribution is led by Prof. Alfred Stein. The project funds two full-time PhD researchers, Daniel van de Vlag and Arta Dilo. In addition, Arko

Lucieer (researcher) and John Horn (project administrator) also contribute.

Three reviewers on behalf of the European Union, Kostas Glinos, Gil Denis and Josep Blat, evaluated the project. Brief presentations on the achievements to date were given by the theme leaders, which generated some lengthy discussions.

At the conclusion of the review, the evaluators announced they were satisfied not only with the results and current progress but also with the direction into which the project was now moving. The single point that deserves particular attention during the coming year is enhanced collaboration between the different institutes.

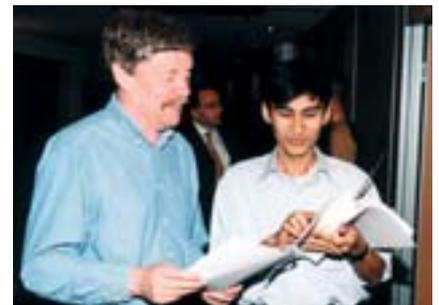
Exchange visits are being scheduled between ITC and the Université de Provence, the Université de Toulon and Leicester University.

While the senior members of the consortium were participating in the review meeting, a parallel session for

the various PhD researchers was also being held at ITC. This afforded the researchers the opportunity to exchange information, as well as to get to know one another socially.



Yvan Bedard and Robert Jeansoulin



Mike Worboys and Pham Thuc Trung



Geoffrey Edwards, Mike Worboys and Odile Papini



Group photo of visitors and ITC staff

NRM 8 Course Geo-informatics and GIS Modelling

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Following an initial general enquiry via the ITC website, ITC was delighted to set up a two-week (26 August to 6 September) tailor-made course in geo-informatics and GIS modelling for 20 Thai participants. The participants, all professors and lecturers at various universities across the country, work in the field of GIS and remote sensing for different applications, such as geography, engineering, the environment and natural resources. The course was specially designed according to the wishes of the group, four of whom were ITC alumni from the 1980s.

The first week of the course comprised aerial photo interpretation, fieldwork, image processing, accuracy assessment and digital cartography, while the second week covered environmental GIS modelling, including yield gap analysis, flood modelling, land cover change detection, forest fragmentation and park encroachment for fuelwood collection.

ITC's ILWIS software package for GIS and remote sensing was used extensively during the programme, which achieved a balance between theoretical and practical topics.



Members of the Thai group and ITC staff during the training programme

It is hoped that this short course will be the start of a close working relationship with the various members of the group, and there are already plans for future cooperation in establishing and upgrading GIS application programmes at the different universities in Thailand.

research news

Dynamic Earth Website Makes an Impact

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In many disciplines the map base is static. For earth science, however, the rocks and mineral endowment we explore today are the result of thousands of millions of years of relentless mobility of the earth's crust, which still remains to be fully unravelled.

For the southern continents, the last 5 percent of earth history (since about 200 million years ago) is the story of the dispersal of the present continent-sized fragments from the "supercontinent" of Gondwana, which existed as an entity for several hundred million years before then. It follows that understanding the geology and resources of Africa, for example, cannot be logically separated from managing the continent's geo-data in association with that of South America, India, Australia and Antarctica and making the connections between them. With its GIS expertise and its students or professional contacts in all these places, ITC is an ideal centre for such intercontinental studies.

A means of resolving some remaining uncertainties in the sequence of disruption and dispersal of Gondwana came in 1997 with the release of satellite altimeter data that mapped the topography of the world's ocean floor at the resolution of a 5 km pixel. A study of the Indian Ocean conducted jointly by ITC and the University of Cape Town (Reeves, C.V., and de Wit, M., 2000. Making ends meet in Gondwana: retracing the transforms of the Indian Ocean and reconnecting continental shear zones. *Terra Nova*, 12, 272-280.) resulted in an accurate animation of

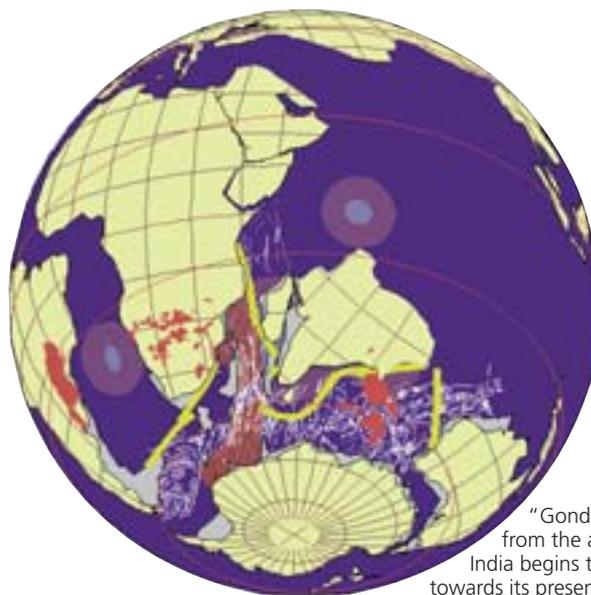
Gondwana dispersal, which was first placed on an ITC website in March/April 2000 (<http://kartoweb.itc.nl/gondwana/index.asp>). This has proved popular not only for scientific research but also as an educational tool - a few minutes spent watching an animation is a more effective means of communication than any amount of static pictures and verbal description. Take a look and see what we mean!

At the end of March 2002, the site had attracted over 49,000 visits; of these nearly 10,000 individuals spent an average of over six minutes viewing and downloading the animation for future use. Permission has been granted to use the animation in a permanent display at the new Australian National Museum and at the Columbia Earth Science Distance Education Facility in the USA. It is also known to be used in several geology

courses at universities around the world. The cheers that greeted India's rapid northward movement when one of us (CVR) had the chance to show the animation to an audience of 1,200 schoolchildren in India is a memory to treasure.

It is planned to produce a second edition of the animation, incorporating refinements worked out over the last two years, in time for launch at the 11th international meeting of Gondwana scientists at Gateway Antarctica, Christchurch, New Zealand, in August 2002.

That earth scientists can gain enormous benefits from embracing GIS for systematic management, display and communication of map data in digital format is, of course, central to present educational programmes in earth science at ITC and deep-rooted in our ongoing research.



"Gondwana": a scene from the animation as India begins to head north towards its present position on the globe

Obituary

Allan Brown 1943 - 2002

Menno-Jan Kraak

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August 17, 2002, will be marked as a sad day on the ITC calendar. It is the day our good friend, our dedicated colleague, and beloved teacher passed away. He was always ready to assist or advise but while doing so he never pushed himself to the forefront. Allan was also a dedicated teacher and in his capacity as programme director he assisted the students far beyond the problems related to the course content. It is obvious that he left us much too early.

For most of us at ITC Allan has always been here. It is where he started to work in 1973. But he had also been active long before his ITC period began. He was born in Scotland and, although he made a real effort and managed to integrate into Dutch society, Allan made sure that we did not forget where he came from. He studied geography and cartography at the universities of Edinburgh and Glasgow. After his studies, he worked for a short period as a map editor at Fairey Survey in England, but later returned to the University of Glasgow to teach for four years. From there he moved to ITC.

At ITC Allan's official position was assistant professor. In his CV he described himself as an "Academic geographer and cartographer with teaching experience since 1969". However, it is his ties with the students that are the hallmark of his ITC career.

Allan lectured and also assisted the students during many practicals on topics spanning the whole cartographic discipline. Allan was a good all-rounder. But he also had many educational management responsibilities. He was director of studies for

several courses. Today's students will best remember him as the GFM (Geoinformatics) programme director. From an organisational perspective – in the widest sense of the word – he guided the students throughout their stay at ITC. And it was Allan who would hand out the diplomas come graduation day.

But it was not all serious work. Students and teachers alike do have some time for important social activities. And Allan would always be there. Not only active in the classroom, he also guided many students, and not just ITC students, through fieldwork trips and excursions. Moreover, when it came to the commercial courses in which ITC participated, he was a regular teacher.

These experiences introduced Allan to the Netherlands Cartographic Society, where he was active many years on their Commission on Education and Research. The last couple of years he was the Dutch representative in the International Cartographic Association's Commission on Education.

Work at ITC is diverse. It is not simply teaching; there are projects abroad. And there too Allan played his part, visiting Nigeria in particular, and at the beginning of the eighties spending several years in Indonesia. He often recounted his experiences at Bakosurtanal and the Gadjah Mada University in Yogyakarta.

In 1998 he celebrated 25 years at ITC, and throughout those years he put a great deal of energy into the organisational side of ITC. For instance he was vice-chairman of the Employees' Council and member of departmental boards. In these tasks



Allan showed himself to be loyal and reliable, an ITC'er with a great sense of justice and considerable commitment towards the students and his colleagues. He was always ready to listen and, if necessary, stand up for us.

If we take a look at Allan's scientific career a couple of keywords immediately spring to mind: colour and generalisation. He published more than 30 articles related to these topics. Both keywords give us an insight into his scientific approach. On one hand Allan was very pragmatic. His colour chart design is a case in point: which colour to select? On the other hand, his activities and publications on generalisation reveal his theoretical side - although pragmatism did not entirely disappear from view. Generalisation activities were also carried out in the International Cartographic Association's Commission on Generalisation, Allan being the Dutch representative.

Allan was also known as an expert on geographical names. It was his repu-

tation that provoked the United Nations to select ITC to give a course on this topic. This course took place during the summer of 2002, and Allan was meant to play a prominent role.

As mentioned before, Allan never forgot his origins, and throughout his professional career he maintained his links with Britain. He was a member of the British Cartographic Society and active as regional editor of the Cartographic Journal. Allan was a productive writer; few authors are capable of publishing two books on two different topics in two years. In

2000 he produced – together with his cartography colleagues – a book on web cartography. And also working with a colleague, he produced a book on his favourite topic - colour. Sad to say, he will never see it published; it will be on the market in a month's time. But this book, among many others, will keep the memories of Allan alive.

Allan Brown guided the students throughout their stay at ITC. And it was Allen who would hand out the diploma's come graduation day



Obituary

Theo Rijnberg (1940-2002)

Fred Paats

paats@itc.nl

On 12 January 2001 the ITC community bade farewell to Theo Rijnberg after 32 years of service. I had the privilege to speak on behalf of the ITC staff and students, and I wished him and his wife Annet a long life together with their children and grandchildren after so many years of faithful service at the Institute.

Over the course of these long years the former merchant navy and Royal Navy officer Theo Rijnberg took on many responsibilities on behalf of the Institute, in Delft, in Enschede and abroad. The first 12 years were spent with the ITC-UNESCO Centre for Integrated Surveys. During this period he was also deeply involved in organising ITC's move from Delft to Enschede in 1971.

The end of 1981 saw him charged with setting up a project bureau within the Institute. He himself managed this bureau till the beginning of 1986, when he left for Indonesia - which by the way was his country of birth. His first post in Indonesia was in his birthplace Malang, the seat of the Kali Konto project. Within a year he was transferred to Bogor. He returned to Enschede in early 1992 to take up the post of education coordinator, first in one of the scientific departments, later in the Department of Education Affairs.

His principal duties were those of fellowship and marketing officer and coordinator of alumni affairs. That's how many ITC alumni came to know Theo and his handwriting so well - from his signature at the bottom of fellowship contracts and from personal contacts during education fairs and alumni activities.



For years Theo was active on the home front too, in the ITC Staff Association (*Personeelsvereniging*) and the ITC Staff Fund (*Personeelsfonds*).

Besides his work at ITC, Theo was involved in many social and community affairs in a leading capacity, both in Enschede and farther afield. In recognition of these services, the Queen made him a Knight of the Order of Orange Nassau - a proud occasion indeed!

Unfortunately a long life after the ITC years was not to be. Soon after his move to a new home in Losser he fell ill - with an illness that proved to be fatal.

What kind of a man was Theo Rijnberg and how will we remember him? Theo was honest and forthright. His word was his bond. If he agreed with you, he would be with you all the way. Theo was a loyal and faithful staff member of ITC, although at times he could be a bit difficult too. He would voice his criticism loudly

and did not always conceal his displeasure, but - and this is a big *but* - always out of concern for the Institute. Even after retirement his interest in ITC was as strong as ever. For instance, just four days before his untimely death he attended the Opening of the Academic Year 2002-2003.

ITC has lost a faithful (retired) staff member, a remarkable colleague and a good friend.

Obituary

Chief (Dr.) Roland Oluwole Coker (1924 - 2002)

ITC News

itcnews@itc.nl

Chief R. Oluwole Coker, Honorary Fellow of ITC passed away on 3 September 2002 at the age of 78.

Chief Coker was appointed Fellow of ITC on 17 December 1976 on the occasion of ITC's 25th anniversary. Chief Coker was the first indigenous director of surveys in Nigeria, and served in this capacity from 1963 till 1978. The Federal Survey Department of which Chief Coker was Director, supported the realisation of ITC's sister institute in Ile Ife, Nigeria, the Regional Centre for Training in Aerospace Surveys (RECTAS) established in 1972 as a regional institution under the auspices of the United Nations Economic Commission for Africa (ECA).

Since the inception of RECTAS, Chief Coker has served in various capacities. The latest role he played was serving as a member of the Standing Committee on RECTAS (SCR) where he contributed immensely to the de-

liberations of the Committee for the progress of the RECTAS. He also attended and played an active role at the last Governing council meeting of RECTAS in July 2002, which he attended as an observer.

It was only in April of this year that ITC's Rector and Director External Affairs met Chief Coker in Nigeria.

He was interned on October 3rd 2002 in Lagos. May he rest in peace.



On 17 December 1974 Chief Coker was appointed Fellow of ITC

Obituary

Anneke Koese-Tammeling 1913-2002

Edith Howard

ehoward@itc.nl

Mrs Anneke Koese-Tammeling died, unexpectedly, on 7 August 2002, just three days short of her 89th birthday.

Mrs Koese had been involved with ITC since the time it moved from Delft to Enschede. Together with Mrs Vleer, Mrs Visser, Mrs Elias and Mrs v.d. Waag, she formed the International Neighbour Group (ING) in Enschede, its main task being to help the wives of ITC students to adjust to and learn more about life in the Netherlands. They organised weekly coffee mornings and various excursions, and many ITC student families will have very happy memories of these activities and particularly the visits to Anneke's house.

On 6 May 1993 she was made an honorable member of the ING by Prof. Klaas Jan Beek, then rector of ITC.

Her specialties were handicraft and needlework and she wrote various books on these subjects. Many wives of ITC students acquired a love for handicraft and embroidery through her teaching.

Anneke was a faithful guest at the Dies Natalis and will be missed by those of the ITC community who knew her and by those for whom she did so much.

Her sincerity and genuine interest in people will long be remembered.



staff news

Welcome to ITC

Dr. Norman Kerle

Assistant Professor, department of Earth Observation Science (per 14 June 2002), e-mail: kerle@itc.nl

Marina van Doorn

Employee Service desk, Facility Management department (per 8 July 2002), e-mail: vandoorn@itc.nl

Kenneth Hiwat

Employee, Financial and Economic Affairs department (per 1 August 2002), e-mail: hiwat@itc.nl

Maura Gebaska

Student Assistant, Geo-Information Management programme (per 23 September 2002), e-mail: gebaska@itc.nl

Staff leaving

Dr. Anupma Prakash

Lecturer, (former) Geological Survey division (per 30 April 2002)

Ir. Jan Veenstra

Lecturer, (former) Social Sciences division (per 31 August 2002)

Dr. Hans ter Steege

Associate Professor, (former) Forest Sciences division (per 30 September 2002)

Tonnie van der Jest-Visscher

Housekeeping, Facility Management department (per 9 October 2002)

Dr. Christine Pohl

Associate Professor, department of Earth Observation Science (per 31 October 2002)

Krijn Vermaas

Maintenance Photogrammetric Instruments, (former) Geoinformatics and Spatial Data Acquisition division (per 31 October 2002)

Robert Albricht, MSc

Lecturer, department of Natural Resources (per 17 November 2002)



Alumni associations

Listing of all Netherlands and ITC alumni associations

The mission of the Netherlands Alumni Associations (NAAs) and the ITC alumni associations is to enable people all over the world who have studied in the Netherlands or at ITC in particular to build personal networks and share knowledge, ideas and experience with one another and their Dutch counterparts. Alumni who would like to set up similar associations in their own country can contact ITC.

ARGENTINA

Asociación Cultural Argentino-Neerlandesa de Ex-Becarios (ACANEB)
c/o Royal Netherlands Embassy
Avda. de Mayo 701, Piso 19
1084 Buenos Aires
President: Ing. Pablo Bereciartua
Phone/fax: +54.11.4345.4399
E-mail: info@acaneb.org.ar
Website: http://www.acaneb.org.ar

BANGLADESH

Netherlands Alumni Association of Bangladesh
Mr Qazi H. Kabir, Secretary General
42/7 Block F, Babar Road
Mohammadpur, Dhaka 1207
Phone: +880.2.323855

BULGARIA

Bulgarian-Dutch Alumni Association
P.O. Box 1196, Sofia – 1000
President: Dr Tihomir B. Mustakov
Phone: +359.2.769230
Fax: +359.2.518601

BURKINA FASO

Netherlands Alumni Associations of Burkina Faso
A.D.Z.A.
01 BP 1255, Ouagadougou 01
President: Kiemtoré Moustapha
Phone: +226.31.81.56

CHILE

Corporación Cultural Chileno-Holandesa:
José Miguel Infante 146
Providencia, Santiago de Chile
Chairman: Mr. Enrique Román.
Phone: +56.2.2641700
Fax: +56-2-2642763
E-mail: eroman@cepri.cl
Website: http://www.ccchh.cl

EGYPT

Netherlands Alumni Association in Egypt
54, Sheikh Ahmed El Sawy Street
Makram Ebeid, Nasr City
Contact: Dr. Wadid Fawzy Erian,
Board of Directors Secretary
Phone: +20.2.2746513
Fax: +20.2.746327
E-mail: erian@link.net

GHANA

Ghana Netherlands Alumni Association (GNAA)
P.O. Box 8148, Accra-North
Interim President: Mr S.A. Amoah
Phone: +233.21.773664
Fax: +233.21.773655

INDIA

Netherlands Alumni Association of India
Prof. C.P. Tewari
K-10/19 Phoaase II, D.L.F. City
Gurgaon - 122002, Haryana
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+91-11-06198615 (office)
+91-124-388657 (res)
Fax: +91-11-6196571

INDONESIA

IKANED Netherlands Alumni Association
c/o Erasmushuis
Jalan H.R. Rasuna Said-Kavel S 3
Kuniga, Jakarta 12950
Chairman: Mr Adnan Ganto
Executive Chairman: Mr Chandra Soemitro
E-mail: cw3@indosat.net.id
Phone: +62.21.5241079
Fax: +62.21.5700734

KOREA

Korea Netherlands Alumni Association (KNAA)
College of Education, Seoul National University
San 56-2, Shinrim-dong, Kwanak-gu
Seoul
President: Prof. SON Bong Ho
E-mail: bongsonnl@yahoo.com
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Fax: +82.2.871.0635

MALAYSIA

c/o Royal Netherlands Embassy
7th Floor, the AmpWalk (South Block)
218 Jalan Ampang
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Fax: +60.3.26948268
President: Ir Dato' Hj. Keizrul bin Abdullah
Secretary: Mr Tan Teow Soon
E-mail: jps28@pop.moa.my

MALAWI

Netherlands Alumni Association of Malawi (NAAM)
P.O. Box 349, Blantyre
Chairman: S.B. Lumwira
Phone: +265.621619
Fax: +265.634034

MEXICO

Asociación Mexicano-Holandesa de Exalumnos de Instituciones Académicas, A.C.
Embajada del Reino de los Países Bajos
Edificio Calakmul
Avenida Vasco de Quiroga 3000 - 7 piso
Colnia Santa Fe, 01210 México D.F.
President: Sr. Héctor Ramírez Reyes
E-mail: hrr1@prodigy.net.mx
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degeus@nlgovmex.com
Phone: +52.5.2589921 (ext. 221)
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NEPAL

Netherlands Alumni Association of Nepal
C/o SNV Nepal
P.O. Box 1966, Kathmandu
Phone: +977.1.522915

NEPAL

ITC Alumni Association of Nepal
C/o GPO Box 9046, Kathmandu
Phone: +977.1.482903 / 499092
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NIGERIA

Netherlands Alumni Association in Nigeria
No 23 Opebi Road
P.O. Box 55279
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PAKISTAN

Netherlands Alumni Association of Pakistan
Pakistan
53, Plaza, Fazalul Haq Road
Adjacent PIA Building, Blue Area
Islamabad
President: Mr. Syed Waqua Haider,
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PERU

Asociación de Ex-Becarios
Calle La Higuera 229
Santa Felicia la Molina, Lima 12
President: Herminio Porras
E-mail: minio7@hotmail.com
Hermi@terra.com.pe

PHILIPPINES

Netherlands Fellowship Foundation of the Philippines inc. (NFFPI)
Land Geology Division
Mines and Geoscience Bureau
North Avenue, Diliman, Quezon City
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Fax: +63.2.9288544

SINGAPORE

Netherlands Alumni Association of Singapore (NAAS)
C/o Plant Health Centre SFES
Lorong chencharu
Singapore 769194
Vice President: Mr Soon See Cheong
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SRI LANKA

Netherlands Alumni Association of Lanka (NAAL)
95, Prince Street, Colombo 11
President: S.P.C. Kumarasinghe
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THAILAND

Netherlands Alumni Association of Thailand (NAAT)
Chief, Foreign Relations Sub-Division
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Rama 6 Road
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UGANDA

ITC Alumni Association of Uganda
Dept. of Forest Products Engineering
Fac. of Forestry and Nature Conservation
Makerere University
P.O. Box 7062, Kampala
Phone: +256.41.543647/543648
Fax: +256.41.533574

VIETNAM

Vietnam-Netherlands Alumni Club (VNAC)
105A Quan Thanh Street
Hanoi
Chairman: Prof. Pham Huy Dung
Phone: +84.4.08044057
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E-mail: vnac@fpt.vn

NEW PUBLICATION

Colour Basics for GIS Users

Allan Brown
Wim Feringa

SEE IT IN CONTEXT

Colour Basics for GIS Users is an accessible and comprehensive text that brings together all aspects of colour science and technology, relevant to GIS and cartography.

SEE IT IN FOCUS

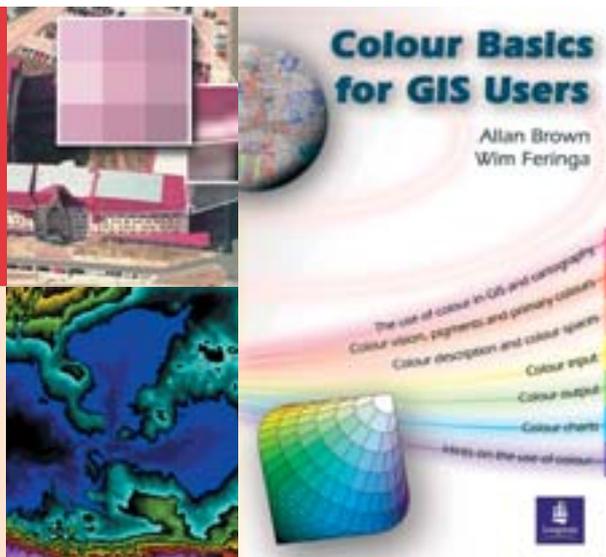
As the study of colour is a very wide subject, the main aim of the authors is to bring the subject together and give it a focus suitable for GIS users, thus avoiding what would otherwise require the study of many different sources.

SEE IT IN CLARITY

GIS users frequently wrestle with the problem of how to make clear, attractive visualisations of the results of complex analyses. Having finally produced something that looks acceptable on the computer screen, it is surprising when others do not understand these colour schemes, or there is disappointment when the printed result has a totally different colour balance. This book has been written and designed to help overcome these difficulties.

FEATURES

- Comprehensive through bringing together all aspects of colour relevant to GIS users
- Vividly explains the differences among the different colour spaces in common use and illustrate the most important of these
- Up to date, contains much new material, especially in the chapters on colour charts and colour use
- Contains brief, well-illustrated descriptions of how input and output devices deal with colour



- Succinctly explains the construction and use of colour charts
- Highlights examples of good and bad colour use in GIS and cartography

A companion website supports the text with links to other sites and with demonstrations of colour on monitors to compare with the printed versions in the book.

Published by:
Pearson Education (www.pearsoneduc.com)
ISBN 0-130-33343-3
Price: £ 16.99

CONFERENCE CALENDAR

IST 2002

04/11/02 - 06/11/02
Denmark, Copenhagen

http://europa.eu.int/information_society/programmes/research/list_event_2002/index_en.htm

e-mail info-ist2002conf@cec.eu.int

Space Applications for Heritage Conservation

05/11/02 - 08/11/02
France, Strasbourg

<http://www.eurisy.asso.fr>

e-mail eurisy@micronet.fr

ITC attendance: Robert Hack

International Conference de SADAOC

09/11/02 - 11/11/02
Mali, Bamako

e-mail Dadaoc.se@fasonet.bf

European Research 2002

11/11/02 - 13/11/02
Belgium, Brussels

<http://europa.eu.int/comm/research/conferences/2002/>

e-mail rtd-conference2002@cec.eu.int

GIS Day 2002

20/11/02 - 20/11/02
Events will be held worldwide

<http://www.gisday.com>

e-mail gisdayinfo@gisday.com

From Conflict to Cooperation in International Water Resources

22/11/02 - 22/11/02
Netherlands, Delft

<http://www.unesco.org/water/wwap/pccp>

e-mail pccp@ihe.nl

ITC attendance: Jeroen Verplanke

ACRS 2002

25/11/02 - 29/11/02
Nepal, Kathmandu

<http://www.acrs2002kathmandu.gov.np/>

e-mail info@acrs2002kathmandu.gov.np

ITC attendance: Sjaak Beerens, Robert Hack, Marco Huisman, Martien Molenaar, Dhruva Shrestha, Siefko Slob, Paul Schoonackers, Jeroen van den Worm

ISPRS Commission VII Symposium

03/12/02 - 06/12/02
India, Hyderabad

<http://www.commission7.isprs.org>

e-mail isprstcvii@nrca.gov.in

ITC attendance: Sjaak Beerens, Kees de Bie, Iris van Duren, Jelle Ferwerda, Yola Georgiadou, Martien Molenaar

NGMSO Congress

04/12/02 - 04/12/02
Netherlands, Amsterdam

e-mail <http://www.ngmso.nl>

ngmso@geo.vu.nl

International Conference on Water and Waste Water

11/12/02 - 13/12/02
India, New Delhi

<http://www.iitd.ac.in/wapdec>

e-mail wapdec2002@yahoo.com

Map India 2003

28/01/03 - 31/01/03
India, New Delhi

<http://www.mapindia.org>

e-mail info@mapindia.org

Geomatic Week #5

11/02/03 - 14/02/03
Spain, Barcelona

<http://setmanageomatica.ideg.es>

e-mail infosg@ideg.es

GNSS 2003

22/04/03 - 25/04/03
Austria, Graz

[http://www.teleconsult-](http://www.teleconsult-austria.at/gnss2003/index.html)

[austria.at/gnss2003/index.html](http://www.teleconsult-austria.at/gnss2003/index.html)

e-mail office@gnss2003.com

ASPRS 2003

03/05/03 - 09/05/03
USA, Alaska, Anchorage

<http://www.asprs.org/alaska2003/index.html>

teidel@gci.net

Hutton Symposium on the Origin of Granites and Related Rocks #5

02/09/03 - 06/09/03
Japan, Toyohashi

<http://www.gsj.jp/Info/event/hutton>

e-mail Hutton-V@m.aist.go.jp

ISPRS WG VI/3

15/10/03 - 18/10/03
Croatia, Zagreb

<http://www.isprs.org>

e-mail ljerka.rasic@dgu.tel.hr

ISPRS Congress #20

12/07/04 - 23/07/04
Turkey, Istanbul

<http://www.isprs2004-istanbul.com>

e-mail oaltan@srv.ins.itu.edu.tr

ITALIA 2004, International Geological Congress # 32

20/08/04 - 28/08/04
Italy, Florence

<http://www.32igc.org>