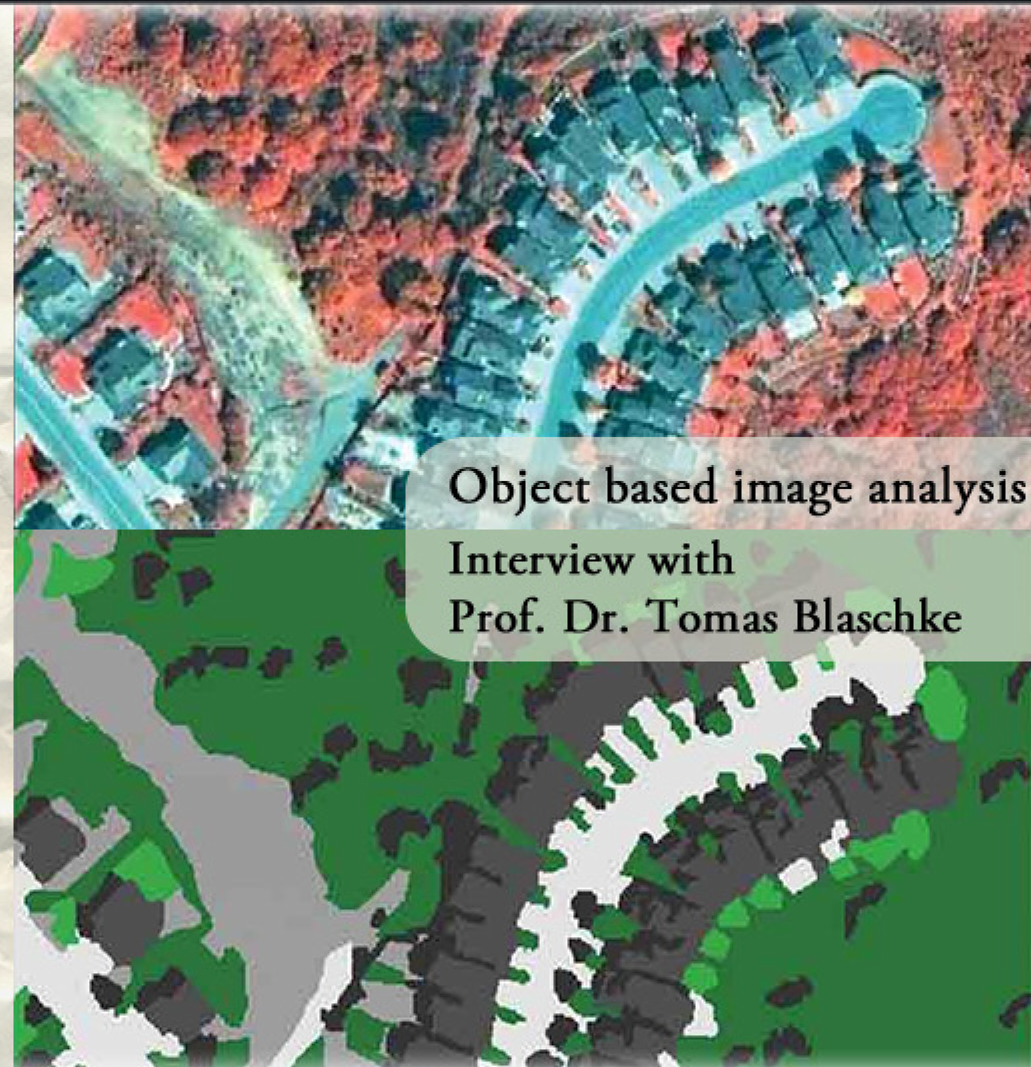
NewsLetter

ISPRS Student Consortium

Issue No.1, Vol. 5 - May 2011



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ISPRS SC NewsLetter

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To join our members area visit
www.isprs-studentconsortium.org

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information from imagery

* Frontpage illustration by GraphiteColours, images from 'Remote Sensing Letters'.

Would you like to join SC Newsletter team? Do you want to make a difference? Want to learn new skills?

SC Newsletter is at a stage where getting broader and better demands more people to be involved in the process of it's formation. That's why SC Newsletter team is looking for the following volunteers:

- More **people who would be willing to prepare articles** for existing or new rubrics,
- Designers of Newsletter,
- **English native speakers** for proof reading.

If you can help us with any of the above, please let us know!

info@isprs-studentconsortium.org

And also...
If you **would like to publish your research work** in the SC Newsletter send us your abstract on email written above. We will soon contact you for further information.

Dear Follower,

We are excited to organize two ISPRS international Summer Schools this year. The summer schools will be focusing on different topics in different places; one in USA and the other one in Taiwan.

Of course this would not be possible without the enthusiasm of national and local organizers, a knowledgebase of experiences of ISPRS TCVI/5 and Student Consortium and invited talented lecturers.

The international and regional society's support to the events is promising for the future of ISPRS SC and its activities. It also means a better integrated scientific world.

You can (should) discuss your expectations among with your peers and encourage national ISPRS member organizations for possible roles in your society. Who knows, you will become one of the organizers of the future summer schools.

On Behalf of Student Consortium,
Cemal Özgür KIVILCIM
ISPRS SC Chair

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Interview
by Urša Kanjir

Professor Dr. Tomas Blaschke

Since we dedicated this issue to Object based image analysis, we were eager to get an interview with one of it's primer or main starters. And we got it - few of our questions were answered by prof. dr. Tomas Blaschke. He is a professor and deputy director of the Centre for Geoinformatics and head of the Research Studio iSPACE. His academic record yields more than 200 scientific publications including more than 40 journal publications. He is author, co-author or editor of 16 books on GIS, Remote Sensing and Landscape Ecology related topics which have been translated into several languages and he serves in many scientific editorial boards and committees.

Can you explain us what is your research field (what are you working on) at the moment?

As many experienced researchers – one may kindly say 'mid-career scientists' I underwent a certain development through time. My research experience over the last years can roughly be grouped in the following phases:

Phase I (to 1995): I summarize this as 'personal capacity building in GIS, spatial analysis and environmental applications'. It included development of analysis strategies for nature conservation areas, a nature conservation evaluation procedure for riparian forests, and the development of filter algorithms for DEMs for flow accumulation / direction analysis. The latter were the basis for his habitat zones modelling (e.g. for amphibian species).

Phase II (1996 to 1999) Extending knowledge of RS/GIS in local contexts: Focused on remote sensing and digital image processing techniques and methodologies. Kernel-based techniques were developed for terrain and image analysis. Working as a Marie Curie postdoctoral fellow in the UK I conducted a critical comparison of a common decision tool, namely ecological indices derived from remotely sensed and GIS data.

Phase III (1999 to 2004): I concentrated on theory, methodology, and integrated tools: Integrating image processing, remote sensing and GIS. Beyond a basic mapping, the methodology has matured to the point that the objects derived from the remotely-sensed data are now automatically archived in a spatial database, and analysis tools developed to address policy questions. Currently, I regard myself to be in a 'Phase IV': Sharing and further developing integrated tools in an international context. This implies much more of research management and supervision activities and – unfortunately – less own empirical work.

Why did you decide for this profession in the first place (maybe you can tell us something more about your first steps)?

The extensive answer to Question 1 makes it easy to answer this: My career was not really planned and I speculate that this holds true for many colleagues. Certainly, a major step is the PhD but then there seem to be an infinite number of possible ways to proceed and it may depend on coincidences along which path to travel.

What advices would you give to students and young professionals regarding successful career

Be patient in respect to reaping the rewards for what you have done. Beyond your direct working environment it will take a while until your work will be heard.

In your opinion how important is participation of young people to international professional events like Summer schools, Congresses, workshops, etc? What do you think are the benefits of such activities to youth and to profession?

Absolutely. Go whenever you can, particularly to summer schools. Here in Salzburg we have been running about 20 summer schools over the last 10 years or so and again and again I meet former attendees at conferences or I will even recognize them when they are applying for jobs. We had a recent advertisement of 10 fully funded PhD positions for our Doctoral Program in GIScience. We got about 300 applications and ended up knowing nearly have of the 18 shortlisted invitees for the hearing.

Which domain of object based image analysis will be in rise/progress in the coming years? Where are the missing fields in this method?

I am reluctant to name domains or application areas. But what we see is a demand of automated workflows for "rapid mapping". This may include disaster management applications, refugee camps, security applications, human activities mapping and much more. One of the main achievements of OBIA – I believe – is the higher potential of automating analysis processes as compared to per-pixel approaches.

Geoinformation Services against the Disaster on 11th March in Japan

by Hiroyuki Miyazaki
Center for Spatial Information Science, The University of Tokyo

On 11th March, the greatest earthquake, called East Japan Great Earthquake, attacked Tohoku region of Japan. Direct damages by the earthquake were enormous, but those of tsunami occurred by the earthquake were more serious. The tsunami washed out cities on coastal area (you can watch videos taken by victims on YouTube), and many people required urgent aid to survive. To support such aid, several information service, including geoinformation-related services, had been launched in a few hours after the earthquake. Although situation in Japan is getting to stage of recovery from stage of urgent rescue, such services are still being developed and supporting recovery of destroyed cities. In this article, I show quick overview on outstanding geoinformation services to support urgent aid and recovery. Note that following reports are based on only personal investigation by the author. Interviews to related persons will be described in the succeeding issues.

OpenStreetMap Japan -Crisis Mapping Project

OpenStreetMap is a project to create and provide geographic data free from technical and legal restriction. Their efforts have been regarded worthy in various crisis situations where freely available map data is important. Their method were applied to the disaster in a few hours after the earthquake occurred. Fortunately, Bing Maps had provided high-resolution aerial photos as a backdrop image for their mapping. Using the aerial photos, many persons traced roads, streets and paths intensively in disaster-affected region. Several days later, their task were shifted from mapping base map to mapping damages and important places (e.g. evacuation center) using satellite photos and geographical data provided by public and private agencies, including JAXA, DigitalGlobe, USGS, SPOT Image and UN-SPIDER. Their maps will be used for recovery and redevelopment of the cities, as realized in case of Haiti.

Visit http://wiki.openstreetmap.org/wiki/2011_Sendai_earthquake_and_tsunami for detail.

sinsai.info

sinsai.info is a crowd-sourcing platform built with Ushahidi (http://www.ushahidi.com/) to collect and moderate reports on disaster-affected areas sent via website, emails, and twitters. It started very quickly by volunteers only in seven hours after the earthquake. Since the launch, it have supported communicating emergent information while telephone line and mobile phone were hanged up due to too much calls. Strong feature of sinsai.info is not only listing information but also mapping and visualize information with geographical names or coordinates. Owing to such representation preferable to people, sinsai.info have been presented on TV programs of NHK (Japan Broadcasting Corporation) and BBC (http://news.bbc.co.uk/2/hi/programmes/click_online/9429529.stm). Even after urgent stage had gone, sinsai.info still collect and provides useful information for recovery of damaged cities (e.g. state of lifeline, calling for on-site volunteers).

Visit http://www.sinsai.info/ushahidi/page/index/4#english for detail.

GEO Grid ad-hoc activity for disaster management

Global Earth Observation Grid (GEO Grid) is a project aiming at providing an E-Science infrastructure for worldwide Earth Sciences community. It has powerful computation infrastructure in National Institute of Advanced Industrial and Science Technology in Tsukuba, Japan. Although almost all of the computing infrastructure have been stopped due to several affection caused by the earthquake, they are still deriving scientific information and maps regarding the disaster from satellite data (e.g. ASTER and PALSAR) and simulation calculation (e.g. QuiQuake). Their product are openly available via Google Earth (kmz format) and WMS viewer (http://ghz201103.geogrid.org/viewer/).

Visit http://disaster.geogrid.org/ for detail.

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Emergency Mapping Team

Emergency Mapping Team have been organized by people among government, industry and academia with interests and aspirations on supporting disaster management by mapping disaster damages and people's activities. They are operating mashup system, which creates new information by combining existing information services. They collect information from Internet and local public sector of disaster-affected region, and publish the information as maps through ArcGIS online. The maps are available to be overlaid with the other maps on ArcGIS, the most popular commercial GIS software.

Visit http://www.drs.dpri.kyoto-u.ac.jp/emt/en/ for detail.

ALL311

Against the disaster, Internet is working as a powerful communication tools by information services like those mentioned above. But so many information services have launched that users would be confused which one they should refer. For necessary information to be accessed easily, National Research Institute for Earth Science and Disaster Prevention have launched ALL311, a website for organizing reliable information and website regarding the disaster published by public office, private company and individuals. It organizes especially geographically associcated information and website, which are considerably required for disaster-affected region. Some of the information are represented as maps using their web mapping platform, called e-community platform.

Visit http://all311.ecom-plat.jp for detail.

As shown above, people in Japan are tackling to the disaster using geographic information tools. I believe such efforts will be a frontier contribution to disaster management based on geographic information technologies.

Organizing diverse and dispersed information on the endangered cultural properties by a voluntary initiative: consortium for the earthquake-damaged cultural heritage (CEDACH)

Yu Fujimoto[1], Yasuhisa Kondo[2], Akihiro Kaneda[3], Yoichi Seino[4], Hiroshi Yamaguchi[5], and Tomokatsu Uozu[6]

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* Japan Society for the Promotion of Science (Research Fellow)

The earthquake and tsunami on March 11, 2011 caused immense damage to the residents, social infrastructure, and cultural heritage in East Japan. It should be noted that cultural properties might be destroyed when debris is removed.

In order to document and protect the endangered cultural properties, motivated archaeologists, historians, and CRM officers voluntarily established a "Consortium for Earthquake-Damaged Cultural Heritage" (CEDACH). The consortium organized a task force for "Cultural Properties Damaged by the Earthquake and Tsunami" (CUPDET). This task force comprises a data management team to create a web-based geospatial database system for the compilation, management, and analysis of information on CUPDET, and an on-site technical support team to provide local cultural resource management (CRM) officers with a guideline for the documentation and conservation of CUPDET. The action plan of the data management team has mostly been designed, and it is presented in this letter.

To read the whole article follow: http://www.isprs-sc.org/newsletter_files/vol5no1/cedach_jp.pdf

Lessons from the Disaster of East Japan Great Earthquake and Tsunami 311

by Shunji Murai
Professor Emeritus, University of Tokyo, Japan

The report summarizes what we have learnt from the disaster of the East Japan Great Earthquake and Tsunami which occurred on March 11, 2011 over a wide area of East Japan. It includes descriptions of the losses due to the disaster, lessons from the past and present disasters with focus on what was done correctly and what went wrong, the accident at Fukushima Nuclear Power Station (NPS) and my views.

To read the whole article by ISPRS Hononary Member Prof. Emer. Shunji Murai follow the links:

- Article
- Figures

Object-Based Image Analysis, overview of basic principles

by Urša Kanjir, Institute of Anthropological and Spatial Studies, SRC SASA, Slovenia

Introduction

The demand to automate image analysis in operationalenvironments is constantly growing. Object based imageanalysis (OBIA), which became an area of increasing research interest inthe late 1990s offers an effective method for a goodunderstanding of the Earth's surface, especially on the highresolution (HR) images. With increasing spatial resolution, pixel-based classification methods become less effective, since the relationship between the size of observed unit and the dimension of observed objects on the Earth's surface has significantly changed.Due to the occurrence of a largenumber of small objects all creating high contrast on HRimagery pixel based change metrics fail to operate successfully(taken from Wulder et. al, 2008, Im and Jensen 2005,Niemeyer and Canty, 2003).Aslong as pixel sizes remained typically coarser than, or at the best, similar in size to the objects of interest,emphasis was placed on per-pixel analysis, or even sub-pixel analysis for this conversion, but withincreasing spatial resolutions alternative paths have been followed, aimed at deriving objects that are made up of several pixels (Blaschke, 2010). Using image-objects as basic units reduces computational classifier loads by orders of magnitude, and at the same time enables the user totake advantage of more complex techniques.

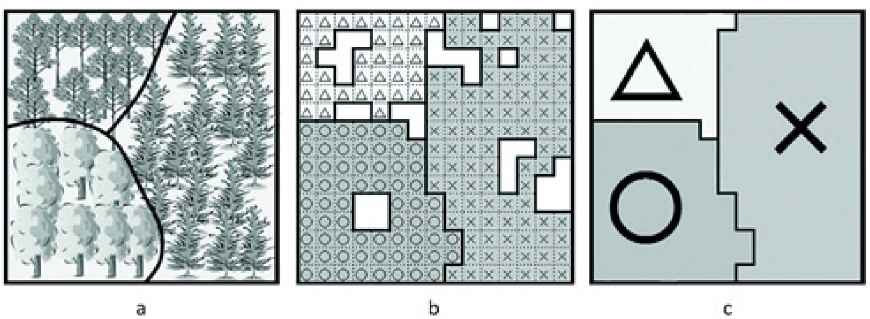


Image 1: Different approaches of the classification. Visual interpretation (a), pixel-based classification (b) and object-based classification (c). (Blaschke et al., 2008).

Segmentation

Object based image analysisconsist of two stages: contextual segmentation, where segments(image-objects) that have information related to shape, size and spatialrelation (context) of the objects of the scene are created, andclassification, where all created objects are analyzed andclassified to the most representative class of land use/cover.This means that, the created objects influence the classification result to alarge extent although they might not represent the final objects of interest(i.e. single buildings, trees, etc.) already.Image segmentation is the most complicated and fundamental step in the OBIA procedure and is, from an algorithmic perspective, generally divided into four categories: (a) point-based, (b) edge-based, (c) region-based and (d) combined (Schiewe, 2001).Partitioning an image into objects is akin to the way humansconceptually organize the landscape to comprehend it.

Segments are homogeneous and semantically significant regions with additional spectral information compared to single pixels (e.g. mean values per band,and also median values, minimum and maximum values, mean ratios, variance etc.) but of even greater advantage is the additional spatial information for objects (Blaschke and Strobl, 2001; Darwish et al., 2003; Flanders et al., 2003; Benz et al., 2004; van der Werff and van der Meer, 2008; Hay and Castilla, 2008).The size of the objects are set with the segmentation parameters defined by the analyst. It isimportant to explain here that with object oriented classificationwe are dealing with two concepts of objects: an image-objectthat is a discrete region of a digital image that is internallycoherent and different from their surroundings, and thatpotentially represents – alone or in assemblage with otherneighbours – a geo-object (Castilla and Hay, 2008).

OBIA deals with two-side problem; over- and under-segmentation. Over-segmentation produces large number and smaller size of image objects (or segments) than those of manually interpreted geographical objects. Under-segmentation generates the smaller number of image objects with larger average size compared with manual interpretation. Optimal segmentation can practicaly never be reached, since each of the required objects will be defined correctly at some scale. However, best segmentation is the one in between of both possibilities and is dependent from the analyst's experiences.

When image objects are once created they are classified using different classification techniques into most resembling classes that are object of interest. In the process of semantical classification a number of spectral and textural features are considered while classifying segments into classes as well as shape and connection between the segments itself.Obtained objects can be later exported in vector format and manipulated using different GIS tools. Later on also accuracy assesement using error matrices and specific assessment values is used for evaluating theprobability of correct class assignments and the overall quality or reliabilityof a classification result.

See more on next page

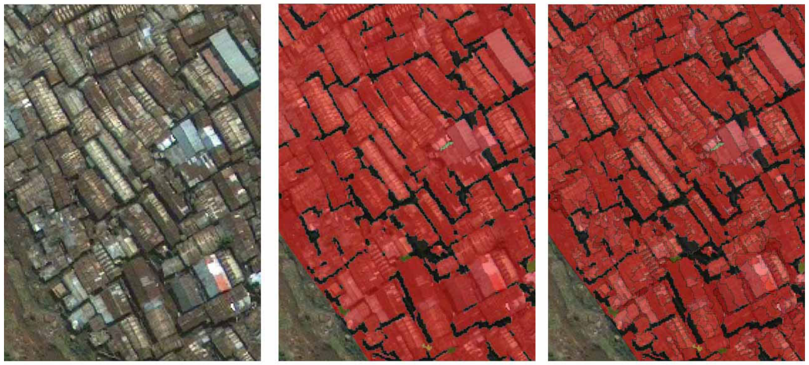


Image 2: Original image (a), classified image (b) and classified image with segments (c). Study area over slum Kibera in Nairobi, Kenya.

OBIA weaknesses

Although object based approach offers good final results with its fast, consistent and less subjective monitoring it still presentssome disadvantages, especially in the stage of segmentation where creating correct shape of the image-object is desirable.One problem with object based classification is that there are noreal objects recognised, but image objects, which can bespectrally confused. It is important to note that the accuracy andthe significance of the final measurements, numbers andstatistics directly and actually critically depend on the quality ofsegmentation (Baatz et al., 2008). Considering the large numberof existing segmentation algorithms and their versatility (e.g.Guigues et al. 2006; Baatz and Schäpe 2000; Jung 2007; Hay etal. 2003; Pal and Pal 1993, Zhang 1997), the choice of anappropriate segmentation algorithm must rely on objectivemethods to assess segmentation quality (Radoux and Defourny,2008).When segmenting and thus creating object shapes it is importantto consider two aspects: 1) the appropriateness of an object'sdelineation (match of extend and shape with real situation) and2) the precision of boundary delineation (match with scaleapplied) (Lang, 2008).

Segmentation can be especially problematic in areas with lowcontrast or where different appearance does not imply differentmeaning. In this case the outcomes are represented as wronglydelineated image objects. Therefore, legend may include classeswhose instances can barely be differentiated from each other inthe image. The possibility exists that the boundaries of theclassified image objects do not lead to an agreeablerepresentation of real objects. This implies that there will besome classified image objects that need to be split or reshapedin part of their perimeter – the less clear the relation betweentwo similarities, the more likely the possibility (Castilla andHay, 2008).

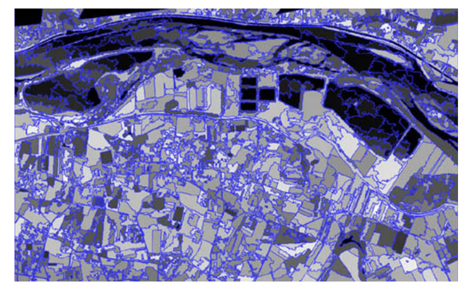
Conclusion

Until today OBIA has been successfully applied for the results of different approaches such as landcover/landuse mapping, change detection, forestry, urban studies, vegetation structures, landscape management, disaster assessements, etc. The latest phase of OBIA research (since 2005) is directed more towards the automation of image processing. As a consequenceof the rapidly increasing proliferation of high-resolution imagery and improved access to this imagery, more and more articlesare discussing automatic object delineation. Automated object recognition is certainly an end goal, but realistically it is atpresent mainly achieved in a stepwise manner, either with strongly interlinked procedures building workflows or with clear breaks inthese workflows (Blaschke, 2010).

References

Example

France, River Loire: intensity data is the basis for classification



France, River Loire: the image is segmented into spectrally homogenous objects

France, River Loire: classification result (water, vegetation and buildings)

Errors and Accuracy Considerations in the Measurement and the Analysis Process

by Thanasis Moysiadis (University of Thessaly)

Measurements, either taken from a theodolite in surveying or from images in photogrammetric processing, rarely are correct and their true value is unknown. This is unavoidable and gives rise to errors which are small deviations of measurements from their true value. These deviations arise due to instrument imperfections, wrong observations, environmental conditions such as atmospheric refraction or observer deficiencies. The aim is to keep errors as small as possible or implement ways of reducing them in order to have the best estimates of the true values. There are different types of errors divided into:

a. Mistakes (gross errors or blunders)

b. Systematic errors

c. Random errors

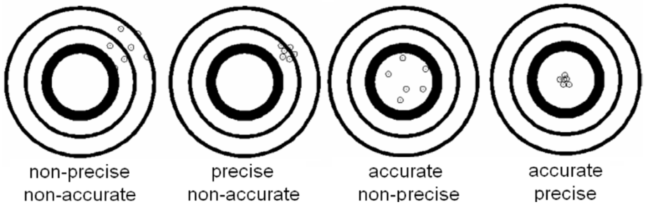
a. Mistakes, also called gross errors or blunders, are caused by some failure while measuring. They are easily detected and avoided, since it is in the user's ability to check them, provided that more attention is needed during the measurements. Two examples are bad use of the hardware or software and non-repeatability of the measurements.

b. Systematic errors follow a definite pattern caused by some particular physical effect, the observer, the instruments implemented or the natural environment. For example, an electronic distance meter may give readings consistently too low or high, when the incorrect frequency has been applied. The temperature, humidity, and atmospheric pressure cause systematic errors when electromagnetic measurements are made. Even though systematic errors are not directly related to human cause, they are identified by making measurements using a different instrument and are largely eliminated with appropriate mathematical modelling. The mathematical model itself may be another source of systematic errors, when for example, a plane is used to simulate several kilometres of the earth surface rather than the ellipsoid.

c. Even though measurements are free from mistakes or systematic errors, some variations still exist, called random errors. These are small positive or negative variations in the value of a measurement repeated many times. This is a natural physical effect, beyond the control of the user, which cannot be completely eliminated by using a different measuring system. This is due to the non-systematic pattern of random errors; therefore they are not described using mathematical modelling. A common practice to eliminate these errors is to have a larger number of measurements than actually needed.

A qualitative analysis of a series of measurements is described by the internal and the external accuracy. Internal accuracy or precision is the closeness of measurements to each other, dependent on the amount of random errors. Measurements with low spread of values show high precision whereas measurements with high spread of values show low precision. Precision is estimated by the standard deviation (σ), the measure of dispersion of the probability distribution. The smallest the standard deviation is, the narrower from the mean is the measurements distribution. High precision measurements are made using appropriate checked instruments and the attention of the observer. Repeatability is another term for precision which refers to a complete measuring process under the same conditions using the same instrument within a short period of time.

External accuracy or simply accuracy is the closeness of measurements to the true value, so accuracy not only reflects the effect of random errors during measurements but also the systematic errors effect. The presence of a systematic error (b) shows a difference from the mean to the true value. The mean square error ($m^2 = \sigma^2 + b^2$) shows that high precision (*small* σ) does not necessarily mean high accuracy (m). If (σ) is small and (b) is large, the measurements have high precision but low accuracy. If (b) equals to 0, the mean square error equals to the standard deviation (σ), therefore the measure of accuracy is the measure of precision. Consequently, the reduction or the elimination of systematic errors plays a very important role in the accurate result estimation of the measurements.



Credit: Moysiadis, 2010

Resolution is a term to describe the fineness to which an instrument or an observer can operate. In surveying, resolution refers to the smallest distance defined between two objects, while in photogrammetry it is the ability to distinguish two point sources of light on a black background. Resolution is related to the accuracy and precision and should be higher than the expected measurement accuracy.

A distinction of the different errors which are unavoidable during the measuring process is fairly important and influences the accuracy and precision of the final results from a simple practical to a scientific research work.

References

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ISRSE 34 at Sydney, Australia

by Elena Lobo

The 34th ISRSE Symposium took place from April 5th to 10th at Sydney, Australia. This event was marked by an outstanding scientific program, with topics ranging from the latest advances in remote sensing technologies and data processing to application for a variety of environmental issues such as carbon forest mapping or disaster monitoring and prevention. The sessions included oral sessions and electronic presentations, which replaced the traditional poster format. The electronic presentations were certainly an interesting innovation and they were available throughout the conference for any participant to look at. The exhibition area had booths with representatives from international and local organizations and companies, which provided a very appropriate setting for identifying job opportunities and interacting with other participants.

The symposium was remarkably well organized, and I'd like to acknowledge here the efforts of Dr. John Trinder, and the organizing committee, which allowed for such a phenomenal event. The days flew by from the opening ceremony to the closing one, thanks to the variety of scientific and technical sessions the social activities and the beautiful location of the symposium, Harbour Bay, which allowed the participants to use our lunch breaks to walk around and marvel at the beauty of Sydney.

Sydney Convention Center

Sdyney Opera House

Also noteworthy was the presence of the ISPRS Student Consortium at the event. This was only possible thanks to the support provided by the ISPRS Foundation, which allowed one of our regional representatives to attend. The symposium was great opportunity to interact with local and international students and young professionals and encourage them to join the Consortium. Additionally, the words on the Student Consortium from Mr. Chen Hu, IPSRS Secretary General, at the closing ceremony did hopefully get the attention of professors and other professionals that can pass on this information to their students.

Last, but not least important, this is also the perfect timing to encourage attendance to the XXII ISPRS Congress in Melbourne, 2012 and to the ISPRS Summer School, which will accompany the Congress. There is great interest from the organizing committee in encouraging and aiding students and young professionals' participation and we are certain this will be an event not to miss, so mark your calendars!

7th International Symposium on Mobile Mapping Technology 'State of the Art & Trends in Airborne & Land Mobile Mapping Technology'
Cracow, Poland, 13-16 June 2011
For more info visit: http://www.mmtcracow2011.pl

WG IV/2 Workshop 'High Resolution Earth Imaging for Geospatial Information'
Hannover, Germany, 14-17 June 2011
For more info visit: http://www.commission4.isprs.org/wg2/

Joint ISPRS Workshop on 3D City Modeling & Applications and the 6th 3D GeoInfo
Wuhan, China, 26-27 June 2011
For more info visit: http://www.lmars.whu.edu.cn/3DCMA2011/

WG II/3 International Symposium of Spatio-Temporal Analysis & Data Mining
London, UK, 18-20 July 2011
For more info visit: http://standard.cege.ucl.ac.uk/workshops/STDM2011/

6th ISPRS Student Consortium and WG VI/5 Summer School. ADVANCED LIDAR DATA PROCESSING AND APPLICATIONS
North Carolina, USA, 30 July - 6 August 2011
For more info visit: http://usa2011.isprs-sc.org/index.html

WG VII/6 International Symposium on Image & Data Fusion
Yunnan Province, China, 9-11 August 2011
For more info visit: http://isidf2011.casm.ac.cn/

WG IV/5 2nd International Workshop on Pervasive Web Mapping, Geoprocessing & Services, in conjunction with 4th ICA Workshop on Geospatial Analysis & Modeling (ICA GAM 2011)
Burnaby, Canada, 10-12 August 2011
For more info visit: www.sfu.ca/dragicevic/workshops2011/

ISPRS Workshop Laser Scanning 2011
Calgary, Canada, 29-31 August 2011
For more info visit: http://www.ucalgary.ca/laserscanning2011/

53rd Photogrammetric Week 2011
Stuttgart, Germany, 5-9 September
For more info visit: www.ifp.uni-stuttgart.de/phowo/index.en.html

This column serves as a guide for the students who are thinking or are willing to go studying or doing practical work abroad. We have searched for new opportunities in different faculties, schools and other learning programs all over the world in order to encourage as many students as possible to take new steps towards new horizons.

1) The "Centre de Recherche Public Gabriel Lippmann" in Luxembourg is seeking a researcher in remote sensing and environmental modelling. The researcher will develop a methodology to evaluate the state of energy crops using a combination of ground based and airborne hyperspectral measurements and a crop growth modelling approach. At the end a multi-scale approach for the assessment of energy crops in Luxembourg will be established, which includes a synthesis of in-situ, remote sensing and modelling data and approaches. Applications should be received by June 30th, 2011. Read full announcement at: http://ec.europa.eu/euraxess/index.cfm/jobs/jobDetails/33662861

2) ESA's postdoctoral research fellowship programme aim to offer young scientists and engineers the possibility of carrying out research in a variety of disciplines related to space science, space applications or space technology. The Agency has an internal and an external fellowship programme, both for two years, with no possibility of an extension. Applicants must have recently attained their doctorate or be close to successfully completing studies in space science, space applications or techniques, or other fields closely connected to space activities. ESA fellowships are open to nationals of its Member States and Cooperating States: Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, Canada, Hungary, Romania, Poland, Estonia and Slovenia. There is no specific closing date and applications may be submitted at any time during the year. More info about ESA's postdoctoral research fellowship programme at: http://www.esa.int/esaMI/Careers_at_ESA/SEM19DXO4HD_0.html

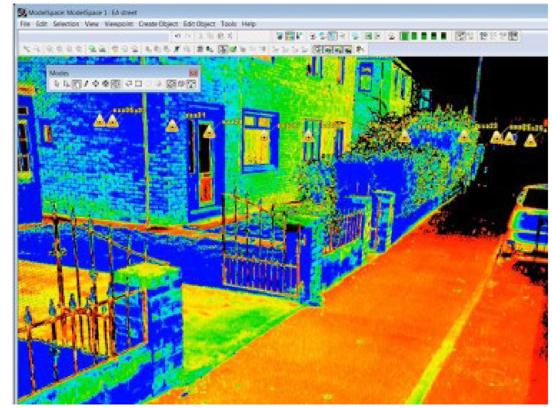
3) The Erasmus Mundus joint European Master of Science (MSc) Course in Geo-information Science and Earth Observation for Environmental Modelling and Management (GEM) has a duration of 22 months and is taught by world class faculties in five countries: Iceland, UK, Sweden, Poland and The Netherlands.
Self funded candidates who wish to apply for 2011 edition can submit their applications until 1 July 2011. More info about this Master at: http://www.gem-msc.org/

See more on next page

4) The graduate research school GEOSIM (Explorative Simulation in Earth-Sciences) is a collaborative effort of researchers in departments of Earth and Mathematical Sciences at the German Research Centre for Geosciences (GFZ Potsdam), Potsdam University and Freie Universität Berlin. GEOSIM is inviting applications for 10 PhD fellowships in the field of simulation of Earth System processes (solid earth dynamics and earthquakes, atmosphere-hydrosphere dynamics and climate, and hydrological flow and transport processes). These subjects will be studied by integrating techniques such as data exploration, assimilation, and model selection and validation; analysis of scaling properties of geo-processes; explorative simulation and computer-aided modelling of incompletely known systems. Applications should be received by May 25th, 2011. Read full announcement at: http://www.earthworks-jobs.com/geoscience/gfz11032.html

5) The Erasmus Mundus Programme in Flood Risk Management: Global Change, Hydroinformatics and Planning (FLOODRisk) focuses on integrated flood risk management. It is a two-year world-class integrated course aimed at qualifying graduates to deal with the enormous challenges in Flood Risk Management. Regarding 2011 edition, applications deadlines from prospective self funded candidates are May 31st 2011 for all applicants who need a visa to come to Germany and July 15th 2011 for everyone else. More info about this Master at: http://www.unesco-ihe.org/Erasmus-Mundus-Programme-in-Flood-Risk-Management

Leica's HDS Software Family



The HDS (High Definition Surveying) Software Family, comprised of Cyclone, CloudWorx, and TruView software, cover the application-specific tasks in handling and viewing high-definition point clouds effectively and aiding in the speedy extraction of deliverables.

Cyclone is standalone point cloud processing software. It is extremely powerful in handling large scan data sets and extremely comprehensive in its tool set for managing and processing point clouds into final deliverables.

CloudWorx is CAD plug-in software. There are specific variants of Cloud Worx for each major CAD application, e.g. CloudWorx for Auto-CAD, CloudWorx for Mi cro Station, etc. It lets users work easily with large data sets inside their favourite CAD application.

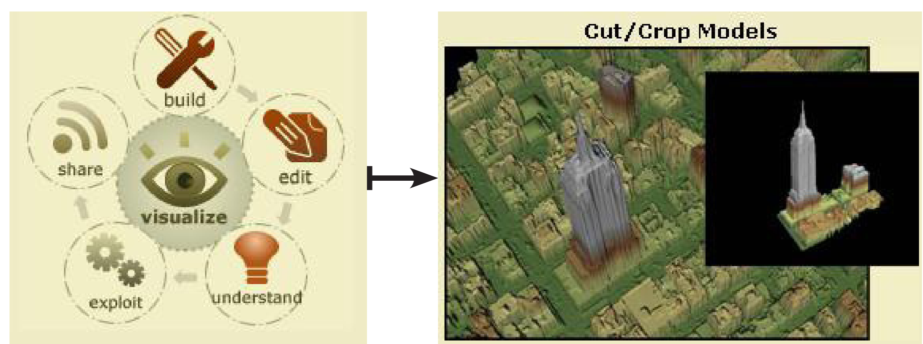
TruView is breakthrough software for the surveying profession and their clients. It lets anyone view, measure and mark-up point clouds. TruView is free and it can even be used over the internet.

Source: http://www.leica-geosystems.com/en/HDS-Software_3490.htm

Quick Terrain Modeler Version 7.1.3.

Applied Imagery realized 3D point cloud and terrain visualization software package named Quick terrain Modeler Version 7.1.3.Quick Terrain Modeler is an intuitive software tool that allows the user the ability to see, edit, understand, exploit, and share 3D data.It is designed for use with LiDAR, enough to accommodate other 3D data sources. Quick terrain Modeler has many advantages that allow users to work with significantly more data, render larger models, analyze data faster, and export a variety of products. These benefits enable very powerful, yet simple and intuitive, terrain exploitation.

Source: http://www.appliedimagery.com/qtmmain.htm



German Space Agency Records Spectrum of New GLONASS L3 Signal

The German Aerospace Centre's Institute of Communications and Navigation has recorded the spectrum of the new GLONASS L3 code-division-multiple-access signal transmitted by the GLONASS-K1 satellite launched on February 26, 2011. The spectrum was captured using a 25-meter dish antenna at the Raisting Satellite Earth Station near Munich. (Read more)

OGC Announces XML Encoding Standard for Observations and Measurements

The Open Geospatial Consortium (OGC®) membership has voted to adopt the OGC Observations and Measurements (O&M) XML Encoding Standard as an official OGC standard. (Read more)

Satellite Data to Improve Flood Forecasting

As the residents of Queensland, Australia, turn to the mammoth task of cleaning up after the devastating floods over the last weeks, data from ESA's Earth observation satellites are showing potential for delivering more timely warnings. Through a project funded by ESA's Data User Element, observations from the Advanced Synthetic Aperture Radar (ASAR) on Envisat are now used to increase the reliability of information that is fed into models for monitoring and forecasting floods. (Read more)

Second Edition of Google Earth and Maps for Companies Seminar

In the seminar "Google Earth and Maps for Companies", that will be held during MundoGEO#Connect in São Paulo(SP), Brazil, from June 14 to June 16, Google and local partners will introduce innovations related to solutions for companies which have applications in the areas of geographic analysis and Location Based Services (LBS). The event will also count on mini-courses, workshops, users meetings and a fair with more than 30 exhibitors that will gather about 3 thousand participants. (Read more)

DigitalGlobe and Extreme Ice Survey Partner to Monitor World's Glaciers

DigitalGlobe, a global provider of high-resolution earth imagery solutions, has partnered with Extreme Ice Survey (EIS) to combine on-the-ground photography with satellite imagery to monitor the state of the world's glaciers. The organizations have also issued a first report, "Worldwide Glacier Monitoring Report," which includes black and white and natural color satellite images from the last three years to show how three glaciers have changed over time: Khumbu Glacier at Mt. Everest, the Ilulissat Glacier in Greenland and the Breidamerkurjökull Glacier in Iceland. (Read more)

Advanced Land Observing Satellite 'DAICHI' (ALOS) Power Generation Anomaly

The Japan Aerospace Exploration Agency (JAXA) has been operating the Advanced Land Observing Satellite 'DAICHI" (ALOS), which has exceeded its design life of three years and its target life of five years. However, at around 7:30 a.m. on April 22, we found that the satellite had shifted its operation mode to the low load mode (*1) and all the onboard observation devices were turned off due to power generation reduction. The anomaly was detected through relayed data via the Data Relay Test Satellite "KODAMA." Since then, the power generation has been rapidly deteriorating, and we currently cannot confirm power generation. The DAICHI was launched on January 24, 2006.

*1: Low generation mode: the mode to save power consumption to maintain the minimum function of the satellite. (Read more)

LiDAR News
http://www.lidarnews.com/

RPLS.COM
http://www.rpls.com/

RESOURCES

GISCafe – Resources
http://www10.giscafe.com/resource/

EDUCATION

ELO-Geo (An e-Learning Framework for using Geospatial Open Data, Open Source and Open Standards)
http://cgs.nottingham.ac.uk/~elogeo/

FREE SOFTWARE

SPRING is now an Open Source GIS/RS software
http://www.dpi.inpe.br/spring/

gvSIG Desktop 1.11
http://www.gvsig.org/web/projects/gvsig-desktop/official/gvsig-1.11/downloads

JOBS, CAREER OPPORTUNITIES

Dice.com
http://www.dice.com/

GIS Jobs Clearinghouse
http://www.gjc.org/

JOURNALS

Global Croplands
http://www.mdpi.com/journal/remotesensing/special_issues/croplands/

RELATED ORGANIZATIONS, ASSOCIATIONS

ASPRS - American Society for Photogrammetry and Remote Sensing
http://www.asprs.org/