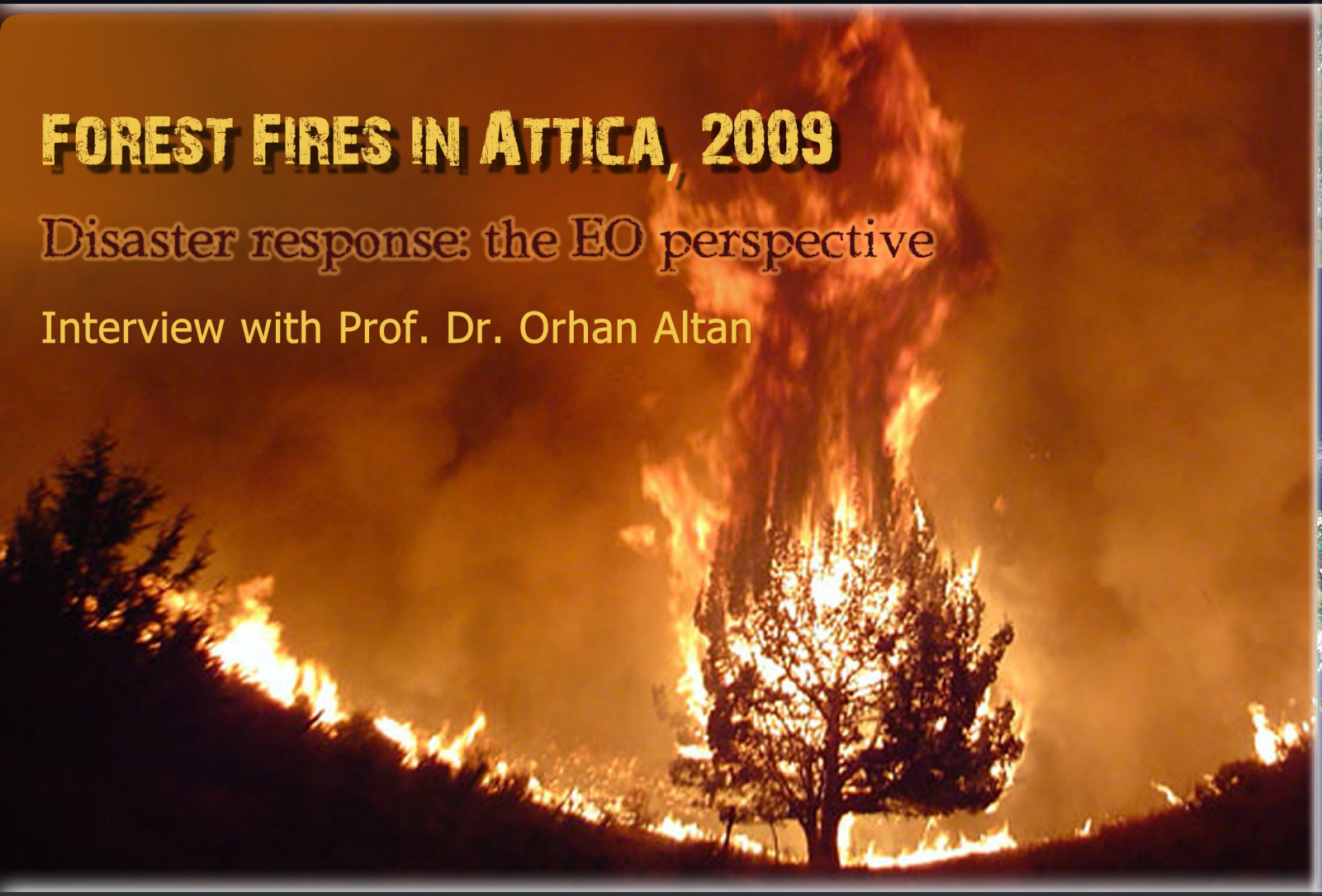
NewsLetter

ISPRS Student Consortium

Issue No.3, Vol. 3 – September 2009



Forest Fires in Attica, 2009

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isprs
information from imagery

ISPRS SC NewsLetter

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

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Frontpage designed by Ayda Aktaş
Front page image source

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ISPRS Student Consortium

Let's Come Together to Make The World Smaller and Smaller, While Enlarging and Powering Our Student Consortium Network!!

JOIN US!!!

NEWS FROM STUDENT CONSORTIUM

Dear Friends,

The 4th SC Summer School with theme of *observing the nature* was successfully organized in Warsaw. The interest and participation to the event showed how the next generation of Remote Sensing and Photogrammetry Society is eager to play roles for a sustainable World. Similar to the previous summer schools, young scholars found a great opportunity to meet and learn from well known lectures, experts and leading technologies. The positive feedback and suggestions from the participants motivated us to work harder and produce more. We are grateful to the local organizing committee and all volunteers for their work, event sponsors for their supports. Within the ISPRS family, the logo designed by SC for 100th year anniversary of ISPRS was appreciated a lot and became the official web logo of the 2010 ISPRS 100th year celebrations. More, the collaborations between SC with WGVI/5 and other ISPRS TCs-WGs are increasingly growing. We expect SC will have active roles in some of the TC Symposiums. We look forward to gaining more possibilities for our students and organize specific events in the Symposiums. I also would like to welcome the new comers within the recent months and thank to the ones who also started to take responsibilities in the SC activities.

With my Best Regards,
Cemal Özgür KIVILCIM
SC Chair

SPOTLIGHTS

Interview with Prof. Dr. Orhan Altan

by Urša Kanjir

Because the centenary of the ISPRS society is approaching very fast, in this issue we took the opportunity to interview the current president of the ISPRS, prof. dr. Orhan Altan. He has been head of Division of Photogrammetry at the Technical University of Istanbul, Turkey, since 1989, and works as professor at the Department of Geodesy and Photogrammetry of Istanbul. He is actively involved in many national and international organizations, and was elected president of the ISPRS organisation in 2008, in Beijing, China.

Click here to read the entire interview.

WEBSITE BULLETIN

by Mete Ercan Pakdil and Ahmet Şengül

Board members of ISPRS SC had fruitful discussions during the last ISPRS Summer School in Warsaw. Very nice ideas and comments about the website emerged. The Web Team decided to change the ISPRS SC Web page and started with the renewal straight away. First, an update plan was prepared based on the decisions taken during the meeting. The Webmaster, Mete Ercan Pakdil, followed the report while he was programming the new version. In the new version, the structure is much more efficient and user-friendly. Visitors of the page can easily reach the announcements in their interest. This upgraded version is facilitated with usage statistics of the website. One of the major differences from the previous versions is the drop menu for the main sections. With these properties, navigation through the web site is more effective. Another new option is the sub-directory of the related topics and will appear in a click drop down menu. Webmaster also designed the new outlook of the gallery and events section. Lastly, we want to bring your attention to the fact that members can add new events under the "Events" page. On the "Message Board", you are able to both send and read messages about scholarships, job opportunities, and interesting announcements related to ISPRS issues. The best feature is that you are now able to discuss ongoing topics with ISPRS SC members from all over the world.

Please visit our SC webpage and share your ideas and interests with other members and visitors.

How Remote Sensing techniques applied in fire management?

by Thanasis Moysiadis (University of Thessaly)

Greece is mainly a mountainous country with a wide climatic range from subtropical to alpine. However, the country is less forested than it used to be. This is mainly due to intensive cultivation and forest fires that occur across the country. Unfortunately, that was the case in the prefecture of Attica this August. Several forest fires occurred in the northern-east part of the prefecture and more than 16 000 hectares of land have been burned.

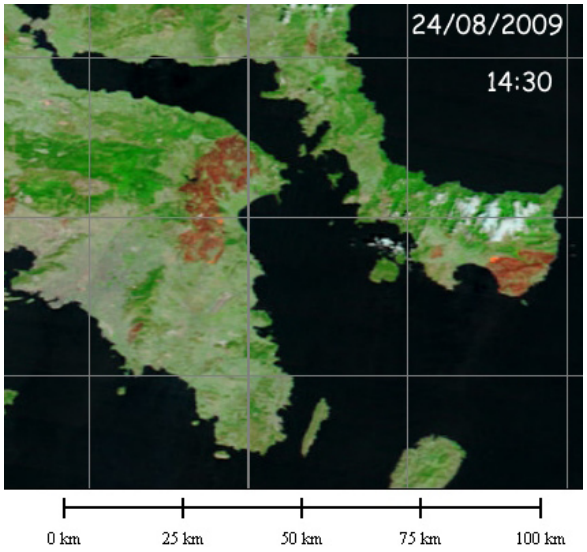
Remote sensing contributes in fire management in all phases, from risk estimation, (before the fire) to detection (during the fire) and assessment (after the fire). Earth observation satellites applied to detect and map burned areas by means of images coming from different sensors of different spatial, radiometric, spectral and temporal resolution. The use of visible part of electromagnetic spectrum and thermal infrared imagery giving the differences in temperature can be used. The use of near infrared with high reflectance of vegetation pinpointing the differences between healthy and diseased vegetation and calculation of vegetation indices giving the amount of vegetation can be applied also.

Source: http://en.wikipedia.org/wiki/2009_Greek_forest_fires

Even if high spatial resolution images is more appropriate for detail vegetation mapping (SPOT, IKONOS, Quickbird, WorldView), the use of medium resolution images (NOAA, MODIS, Landsat) with high temporal resolution, acquired at no cost, are implemented at fire management. For forest fire monitoring, detection and analysis AATSR and MERIS data can be used. For burned area estimation ASAR and MERIS data and existing land cover information such as CORINE land cover 2000 and Globcover, ESA, MERIS product, freely available, quantify the amount of burned areas.

In the website http://miliaresis.tripod.com/attiki.htm Dr. George Miliaresis presents the monitoring and impact assessment of the forest fires of Attica, using NOAA-AVHRR, Aqua/Terra-MODIS imagery, Global Landcover & SRTM DEMs.

The (GMES) Global Monitoring for the Environment and Security, the European Initiative for the establishment of a European capacity for Earth Observation, is to deliver information collected from spaceborne, airborne platforms on environment and security which correspond to identify user needs and produce output information in the form of maps, datasets, reports, targeted alerts, etc. For the case of Attica, several maps have been created using IKONOS, SPOT, MODIS data to assess the burned areas.



Source: http://miliaresis.tripod.com/attiki.htm

ITHACA (Information Technology for Humanitarian Assistance, Cooperation and Action) is another association with the main goal of conducting operational and research activities in the field of geomatics for analysis, evaluation and mitigation of natural and manmade hazards. The project has been developed within an association founded by Politecnico di Torino and SiTI (Istituto Superiore sui Sistemi Territoriali per l'Innovazione) in cooperation with WFP (World Food Programme), the largest UN operational Agency and some private and public organisms. Different initiatives are started both in the field of the realization of thematic and utility maps for emergency management and in the prototyping of a small UAV (Unmanned Aerial Vehicle) suitable for environmental applications.

The "Center for Satellite Based Crisis Information" (ZKI) is a service of DLR's German Remote Sensing Data Center (DFD). Its functions are the rapid acquisition, processing and analysis of satellite data and the provision of satellite-based information products on natural and environmental disasters, for humanitarian relief activities. The analyses are tailored to meet the specific requirements of national and international political bodies as well as humanitarian relief organizations.

Source: ESA

In summary, remotely sensed data combined with reference data show a high potential to provide reasonably accurate information of remote forest areas for forest fire management.

FOREST FIRES IN ATTICA, 2009

Related Links:

GMES (Global Monitoring for the Environment and Security), European Commission, http://ec.europa.eu/gmes/index_en.htm

Center for Satellite Based Crisis Information" (ZKI) by DLR's German Remote Sensing Data Center, http://www.zki.dlr.de/zki_intro_en.html

ITHACA Information Technology for Humanitarian Assistance, Cooperation and Action, http://www.ithaca.polito.it/index.php

Related Conferences:

International Conference on Geo-Spatial Solutions for Emergency Management, September 14 – 16, 2009, Beijing, CHINA.
http://www.gsem2009.org

6th Gi4DM Conference on Geomatics for Crisis Management, February 2-4, 2010, Torino, ITALY.
http://www.gi4dm-2010.org

DISASTER RESPONSE

The EO perspective (part I)

By Vasileios Kalogirou (RSAC c/o ESA)

My previous article slightly touched some important issues relevant to the need of real operational products and services from Earth Observation (EO) data (see previous ISPRS SC Newsletter). Products and services, however, means that EO data acquisition and provision is ensured and also that standardised processes exist to enable a continuous data flow, which (after the essential processing) will lead to a final product/service to an end user. Then we could think of an imaginary operational chain as follows:

i) an end user exists and has a need that EO can fulfil,

ii) appropriate EO data can be acquired and provided on demand,

iii) processing methodologies can turn the EO data into information (e.g. maps) which the end user needs; therefore everyone is happy. Nevertheless, in the case of **disaster response** the aforementioned chain has to be adapted in the very specific needs of disaster management, which is quite particular: The end user exists (e.g. a Civil Protection Agency) but needs **information** right here - right now and EO **data** can be acquired under specific time, atmospheric and operational limitations. Needless to say that after the **programming** and **acquisition**, the data has to be **downlinked** to one of the ground stations, where some **pre-processing** will take place. Then, as soon as the data will be available for download, someone (who?) has to quickly extract the information needed, possibly **create a map** and provide it directly to the end user. Last but not least, any programmed satellite acquisition uses some of the resources of a space agency (or company) and every image has a cost.

The considerations above indicate that disaster response is a domain where EO reaches its 'response time limits'; but what is really obvious is that there should be a link between all the different parties, a link which will convey all those actions and will act according to a specific standardised process. So finally everything ends up to: link the different parties, and provide a framework of actions from the point when an end user will need immediate help (e.g. in a flood event or in a forest fire etc.) to the point that information will be provided **on time** for **crisis management**. With a couple of paragraphs we have now summarised the main functions of EO disaster response initiatives. Keep it simple: It's all about getting some space agencies together to sign an agreement to commit some of their resources for data provision in the case of a disaster, and then establish a framework of actions and roles in order to be as quick and effective as possible. It sounds process-driven and actually this is exactly what it is. In a crisis event there is no time for research on which kind of data should be used, or which algorithm works better; those questions should be already answered by predefined scenarios. When someone starts to think about those issues, then the concept of EO-based disaster services becomes more complicated: Who will manage the chain of actions? Who can request this service? What is actually a disaster?

In the next Newsletter we will clarify those issues, with the description of the International Charter for Space & Major Disasters, which will soon complete **10 years of end-to-end EO-based disaster services** to the users.

Collaboration for Simultaneous Lidar Acquisition at Two Research Stations in Panama and Costa Rica

by Elena Lobo and Carlomagno Soto

Lidar is quickly growing a user base but still is a rather expensive technology that has amazing capabilities for studying forest ecosystems. Specifically, small footprint Lidar with its extremely high spatial resolution and coverage of large areas (from landscape to regional scales) offers a unique opportunity to improve the understanding of tropical forest ecosystems, where extensive fieldwork is limited.

Plane ready to start a flight

Over the last few months, an effort has been developed for simultaneous Lidar data acquisition at two important Research Stations in Central America, namely, Barro Colorado National Monument in Panama and La Selva Biological Station in Costa Rica. This coordinated effort succeeded and small footprint Lidar data are currently being acquired at these sites. Success was made possible through collaboration between numerous partners and Institutions, such as the Smithsonian Tropical Research Institute, the Organization for Tropical Studies, Conservation International, NASA, University of Illinois, UCLA, Princeton University and Stanford University of California amongst others.

Coordination between collaborators proved a challenging but feasible process and this initiative can serve as an example of how combined efforts and multiple funding sources can succeed where single partner initiatives fail. An important contribution to this coordination was made by a graduate student by establishing contacts with the different partners when attending symposiums and Lidar workshops in the region with support from ISPRS. This successful initiative should encourage young professionals to establish contacts and participate in initiatives with partners at multiple institutions and countries.

Lidar sensor front
(Optech © ALTM 3100EA)

Lidar sensor back
(Optech © ALTM 3100EA)

On this note, we would like to encourage you to attend a Lidar workshop that will take place on October 19th and 20th in Venezuela.
More info at: http://www.fii.org/fii/html/jornadas.html#

ALOS Satellite Images Compliance with GCPs Database

by Kyaw Sann Oo, Mitsuhiro Kojima and Masataka Takagi
Takagi Laboratory, Department of Infrastructure Systems Engineering, Kochi University of Technology, JAPAN

Precise Ground Control Points (GCPs) are an important requirement in satellite image registration. However, there are many precise geodetic survey points in Japan; the points are difficult to identify in satellite images. Therefore, we developed a web-based GCP database (**figure 1**) available to users free of charge.

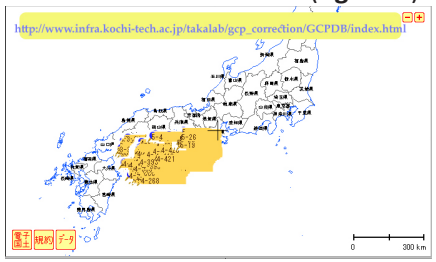


Figure 1: GCPs on island Shikoku (orange area)

Nowadays, many improvements have been made in advanced survey technology; one of the improvements in geoinformatics is the development of VRS-GPS technology. This kinematic technology uses the telecommunication network as a Virtual Reference Station for the Global Positioning System. VRS-GPS can use the collection of GCP in a short time (about 2 minutes for one GCP) compared to the Static Differential GPS (about 60 minutes). We used a VRS-GPS system to collect GCP in this project.

We chose points which are visible in PRISM and AVNIR-2 images before we surveyed on that location. Thus, the title of this article becomes "ALOS Satellite images compliance with GCP Database". Regardless of the ALOS compliance; this GCP can be used for many other satellite images. Recently, 444 GCPs have been observed for the forth island (SHIKOKU) of JAPAN. However, we collected GCPs mainly with VRS-GPS; sometimes we had to use static Differential GPS survey (when VRS network failed to receive the telecommunication signal). Our GCP database covered the whole area of Shikoku (18,803 km2) island, and the island is a hilly remote area of Japan. Collected GCPs are distributed widely. GCP page (**figure 2**) is composed of three main parts: GCP meta data (X, Y, Z, Lat, Long, observation date, feature name, etc…), photographs (taken from different directions), and location of satellite images (PRISM or/and AVNIR-2). Using these three pieces of information, users can understand the location and can easily identify the location on satellite images.

Figure 2

Reference:

Kojima et al., 2009. Establishment of Ground Control Points Database for Satellite Remote Sensing and the Evaluation, 30th Asian Conference on Remote Sensing 2009, 18-23 October 2009, Beijing, CHINA.

4th ISPRS WG VI/5 and Student Consortium Summer School

by Krzysztof Stereńczak and Krzysztof Będkowski
photo by Piotr Tompalski

The Student Consortium (SC) and the WG VI/5 (Promotion of the Profession to Students) organized together the 4th ISPRS Summer School which took place in Warsaw, Poland, between 13th and 18th of July, 2009. Three previous Summer Schools have already taken place in Istanbul (2005), Ljubljana (2007) and Nanjing (2008). This year's main topic was "**Natural Environment Management, Monitoring and Conservation**", as it was decided during ISPRS Congress in Beijing, 2008.
The Summer School was hosted by Warsaw University of Life Sciences (SGGW), the oldest agricultural academic school in Poland; its history dates back to 1816. At present, the university consists of 12 faculties and 6 interfaculty units; there are 25,000 students enrolled. The organization of the Summer School was entrusted to the Faculty of Forestry and Joint Division of Spatial Economics. More than 20 student voluntaries from Forestry Students' Research Association, Student Association of Spatial Management and Student Association of Environment Protection join organization comity. The main coordinators of local organization were Krzysztof Stereńczak (ISPRS SC Co-Chair) and Prof. Krzysztof Będkowski.
A large number of participants attended the event – there were 57 international participants from 15 different countries, and around 30 domestic participants (students, faculty teaching staff, representatives from sponsors). Counting all participants this Summer School was a big success!

Read more...

Asian Conference on Remote Sensing (ACRS) 2009
Beijing, China, 18 - 23 October 2009
For more info visit: http://www.aars-acrs.org/acrs/

AfricaGIS 2009
Kampala, Uganda, 26 - 30 October 2009
For more info visit: http://www.africagis2009.org/

ISPRS Workshop on Data Management
Cologne, Germany, 29 - 30 October 2009
For more info visit:
http://www.tr32db.uni-koeln.de/workshop/workshop09.php

EGU Topical Conference on Earth Observation & Water Cycle Science
Frascati, Italy, 18 - 20 November 2009
For more info visit: http://www.congrex.nl/09C16/

4th International Conference
"Earth from Space – The Most Effective Solutions"
Moscow, Russia, 1 - 3 December 2009
For more info visit:
http://www.transparentworld.ru/conference/2009/en/

WG II/2+3+4 Workshop on Quality, Scale & Analysis Aspects of Urban City Models
Lund, Sweden, 3 - 4 December 2009
For more info visit: http://www.commission2.isprs.org/wg2/

International Conference on Science and Engineering (ICSE) 2009
Yangon, Myanmar, 4 - 6 December 2009
For more info visit: http://icse2009.most.gov.mm/

MatGeoS'09 | Geosciences – from Earth to Space
Freiberg, Germany, 7 - 8 December 2009
For more info visit: http://www.iamg.tu-freiberg.de/matgeos09

International Workshop ''Impact of Climate Change on Agriculture''
Ahmedabad, India, 17 - 18 December 2009
For more info visit: http://www.commission8.isprs.org/wg6/

WebMathematica 3

Wolfram Research has launched webMathematica 3, a new version of its technology for adding dynamic content to the web. webMathematica 3 features innovative new performance and development capabilities, which allow users to build and deploy websites with interactive calculations and visualisations at a faster pace and lower cost than before.

WebMathematica 3 is the chosen deployment technology for Wolfram|Alpha, the web's only computational knowledge engine. The application makes the calculations performed by Wolfram|Alpha possible by allowing users to tap into Mathematica's computational and graphic abilities without having Mathematica experience or installing it locally. Performance and development features of webMathematica 3 include:

- Expression language and custom tags.
- Queuing system.
- Support for Wolfram Workbench, providing a significant number of features that help to accelerate the development of webMathematica content.
- WebMathematica 3 enables users to write REST and SOAP web services that use Mathematica.
- A new, configurable logging system helps to track different types of errors and to identify problems so that they can be resolved easily.
- Improved kernel monitor. The kernel monitor has new code for monitoring memory usage, running time, concurrent requests, and Java objects, which helps to improve the reliability of the server. It allows starting and stopping of individual kernel pools, canceling individual computations, and monitoring of queued jobs for progress and errors.
- Improved kernel interaction. webMathematica 3 launches kernels as soon as the server starts and launches all kernels in parallel, which helps to improve the startup time for the server. It also has a number of new configuration tools, which limit the use of time and memory by the kernel; this helps to improve the reliability of the server. Kernels are automatically restarted in the background, so service remains uninterrupted.

For more info visit: http://www.wolfram.com/webmathematica

Accuracy Analyst Software

Accuracy Analyst, a software solution to determine locational accuracy of the image data used to produce maps, is available. Staff can be productive using the software after 30 minutes of training, saving 80% of the time needed for traditional accuracy assessment.

With Accuracy Analyst, data providers will differentiate their products, benefiting of rapid data assurance, customer acceptance of data, and payment for delivered image data products exceeding customer requirements and product specifications. Data providers and customers alike will appreciate the use of Accuracy Analyst to assure and communicate the quality of new photo map data and the ability to distinguish the quality of new data from old products so that maps may be updated using new images without uncertainty or delays.

For more info visit: http://www.maris.state.ms.us/

eoPortal
The eoPortal aims to open the door to the world of Earth Observation resources.
More info here

EDUCATION

PhD Studentships - Hyperinet Network
More info here

Geo Education
More info here

RESOURCES

Dictionary Of Abbreviations And Acronyms In Geographic Information Systems, Carto, And Remote Sensing
More info here

GeoDesign: A Bibliography
More info here

JOURNALS

Scientic Journal on GI
More info here

FREE SOFTWARE

Modelling Software, from Visual Computing Lab - CNR Pisa
More info here

RELATED ORGANIZATIONS

International Spatial Accuracy Research Association (ISARA)
More info here

TUTORIALS

Theory and Application of Laser Scanning
More info here

STUDIES AND PRACTICAL WORK

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.

The Department of Geosciences and Geography of the **University of Helsinki, Finland**, host two 4-year **PhD student positions** in **Airborne Imaging Spectroscopy Application and Research on Earth Sciences** (AISARES) in 2010 - 2014. The students will work with AISA airborne imaging spectroscopy data, which will be made available by the collaboration partners. Deadline is until **October 16th**, so hurry up with the applications!
More info here

There are **two open position** at **Kayser-Threde, Munich, Germany**, working on high-technology solutions for the industrial, aerospace and scientific sectors. Applications are invited for the following **early stage researcher** (ESR) position within the framework of the European Marie Curie Research and Training Network Hyper-I-NET at Kayser-Threde GmbH (KT) in cooperation with University of Zürich (UZH) and the German Aerospace Center (DLR), Oberpfaffenhofen Germany. One agreement is on theme **Hyperspectral sensor calibration algorithms** and another on **Hyperspectral sensor modelling and stimulation**.
More info here

European Commision Joint Research Centre, **Institute for Environment and Sustainability, Ispra, Italy**, offers positions for three types of trainings: **training related to the preparation of a thesis** for a university degree, **training after university education** and **industrial placement**. The minimum duration is three months and the maximum is twelve months.
Offers are constantly changing at this web page.

Applications are invited for a **PhD position** to work within an exciting new EPSRC-funded collaboration between **Heriot-Watt, Durham and Glasgow Universities from United Kingdom** to develop new techniques for multi-object spectrometry and its applications in microscopy, bio-imaging and remote sensing. The scholarship is £13,29.
More info here

OTHER INFO

Terrasolid releases new versions of the worldleading software suite for handling of airborne and mobile scanned laser point clouds

Helsinki, Finland—September 21, 2009 — Terrasolid Ltd.(www.terrasolid.fi), the world-leading developer of software solutions for handling of airborne and mobile scanned laser point clouds has relased new versions of TerraScan, TerraMatch and TerraPhoto.
Read more...

Geological map of Arctic in final stages

16 September 2009 - Canadian scientists are putting the finishing touches on the world's first detailed geological map of the Arctic. The Geological Survey of Canada already published a preliminary map late in 2008, but a final copy will be released next year.
Read more...

New GNSS/GIS Range from Leica Geosystems

Leica Geosystems has released a complete new series of GNSS/GIS products within the Leica Viva family targeting the data collection market. The Leica Zeno GIS offers professionals and newcomers a multi-functional and easy GNSS/GIS solution with superior performance. The device provides a one-click automated workflow between the field and office.
Read more...

GIS Market to Grow by 50% Over the Next Five Years

A market study by the ARC Advisory Group predicts that the geospatial industry will grow by 50% over the next five years.
Read more...

iPhone Geographic Information System (GIS) application released for Washington and Oregon

Oakland, CA September 18, 2009 -- Integrity Logic today announced the release of Geology WA, the latest version of the GIS (Geographic Information System) for the iPhone/iPod platform, covering Washington state and Oregon.
Read more...

Intergraph(R) Approved to Deliver Data Fusion for the EU Emergency Support System

HUNTSVILLE, Ala., Sept. 22 /PRNewswire/ -- Intergraph((R)), a world leader in public safety and security, has been named a member of the Emergency Support System (ESS) Consortium approved by the European Commission to begin research and development of a portable emergency command and control system that incorporates real-time data collection technologies. The system will provide actionable intelligence to managers during crisis events and will be used as a framework for future crisis management systems.
Read more...