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NEWSLETTER

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European Association of Remote Sensing Laboratories

Front Cover – Photos from the VIII EARSeL workshop on Forest Fire in Stresa (Italy), October 2011, and on Remote Sensing for Natural and Cultural Heritage in Poznan (Poland), September

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Editorial

Dear members,

Another year full of EARSeL events is ending.

First at all we would like to welcome to Greek Biotope/Wetland Centre as a new member of EARSeL family.

We would like to thank you very much for your participation and contributions to EARSeL activities, and invite you to participate in the next EARSeL events, work-shops and Symposium, join the presentations and discussions and be an active part of the EARSeL community.

In this context, we are inviting nominations for the four offices in the Bureau, who are willing to serve with their capacities the common interest of the Association, to bring new ideas within the team, to demonstrate management abilities, and to represent our Association.

We would also like to remind you to send your abstracts for contributions for the 32 Symposium which will take place in May 21 - 24, 2012. Mykonos Island, Greece, organized by University of Thessaly, Greece, and accompanied by: the 1st Workshop on Temporal Analysis of Satellite Image Data, and the 4th Workshop on Remote Sensing and Geology.

In this issue you will find:

- an extensive report of the VIII EARSeL Forest Fire SIG Workshop which was held in Stresa, Italy (20-21 October, 2010)
- an extensive report of the International aerial archaeology conference jointly organized by AARG and EARSeL titled: Ambitions and realities Remote Sensing for Archaeology, Research and Conservation, which was held in Poznan Poland (21-24 September 2011)
- annual national reports from Italy, French and Finland, and
- a report from the Annual Symposium of the Asian Association of Remote Sensing Laboratories (AARS)

Finally, there are News from EARSeL and from other remote sensing organisations, and there is the usual list of relevant meetings, conferences, symposia and workshops that you can attend in the near future.

We hope to meet you at the coming EARSeL events.

We would like to wish you, your families and all that are dear to you, a very merry Christmas and hope the new year will bring you health, happiness and scientific achievement.

Sincerely,

Editorial Team

News from EARSeL

Candidacy invitation for the next EARSeL Bureau

Message from the Secretary General to members of European Association of Remote Sensing Laboratories

Dear friends, dear colleagues,

EARSeL is seeking candidates to the four offices in the Bureau, who are willing to serve with their capacities the common interest of the Association, to bring new ideas within the team, to demonstrate management abilities, and to represent our Association.

According to the present EARSeL Statutes every two years the Bureau members need to receive approval to continue or the posts shall be filled with new persons originating from Member laboratories. In May 2012 the EARSeL Council of elected National Representatives shall vote during the Mykonos Annual Symposium on the offices of «Chairman», «Vice Chairman», «Secretary General», and «Treasurer».

The **Chairman** needs to have visions as to the future of the Association, and to see how it may adapt to changing circumstances. He is responsible for the coordination of SIGs. The chairman should be willing (and able) to make time for attending meetings organized under the EARSeL banner, or should designate another Bureau member to do so. The chairman should also be able to attend other important international meetings to "fly the flag" whenever time and finances permit. He shall maintain external contacts, especially to the sponsoring agencies in cooperation with the Bureau member for International Affairs. The chairman is also responsible for seeing that duties are done, and should be prepared to write a "Letter from the Chairman" in the Newsletter at least once or twice a year, if not in each issue.

The **Vice Chairman** should be able to deputize for the Chairman at various meetings, when the latter is unable to attend. He is responsible for the scientific level of meetings. Either the Chairman or Vice-Chairman should be on the Scientific Committee of meetings EARSeL is involved in to ensure as high a scientific level as possible. The Vice-Chairman should co-ordinate EARSeL's various publications, in particular the EARSeL Newsletter, and the EARSeL Symposium proceedings. Reviewed Workshop proceedings should be left to the local workshop organisers.

The **Secretary General** is in charge of the administration of the Association and is its "mouth-piece" or spokesman. He, too, should be willing to represent the Association at various meetings. He is responsible for drafting various information documents/reports/letters that the Association sends to its members and external contacts. Together with the Chairman and Treasurer, he is responsible for the drafting of the annual report. The Secretary General also looks out for any Invitation to Tender (ITT) or Announcement of Opportunities (AO) in which EARSeL might participate.

The **Treasurer** is responsible for keeping the finances of the Association healthy and preparing the report for the annual General Assembly. The day-to-day book-keeping is looked after by the EARSeL Secretary, but the Treasurer should oversee this from time to time. The Treasurer shall negotiate the budgets of Symposia and Workshops with their organizers in coordination with the other Bureau members.

We invite anyone interested to face the challenge and serve our Association to declare her/his **candidacy** per e-mail to the Secretary General (ioannis.manakos@earsel.org) and the Secretariat (secretariat@earsel.org) at the latest on **02.04.2012**.

Candidates are asked to submit the following information: (a) Current position and possible active services to the Association, (b) Personal data and academia, (c) the reason for joining the Bureau,

(d) Visions for the engagement in EARSeL, (e) Office preference, and (f) other information that may assist Council members to evaluate the application.

Best regards,

Ioannis Manakos, Secretary General of EARSeL
01 December 2011

Workshops in the framework of the EARSeL Symposium 2011

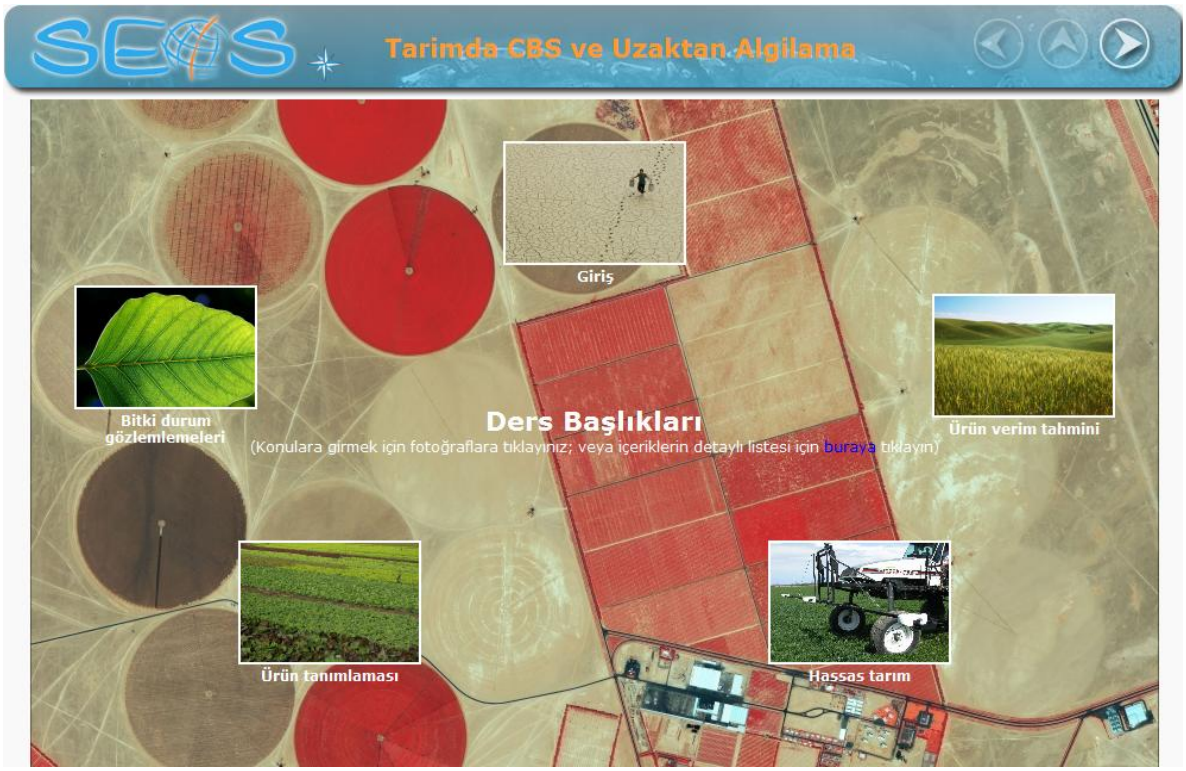
The chairmen of the Special Interest Groups on *3D Remote Sensing*, *Radar Remote Sensing* and *Urban Remote Sensing* postponed the Joint Workshop on *Feature and 3D Object Extraction from High Resolution Radar and Optical Images* to 2013. It was planned to be held on 24-25 May 2011 in Mykonos.

Preparations for the SIG Workshop on *Geological Applications of Remote Sensing*, chaired by Kostantinos Nikolakopoulos, are well underway. A Call for Papers is available at http://www.earsel.org/SIG/Geology/

The SIG *Temporal Analysis of Image Data*, chaired by Eberhard Parlow (Basel) and Yifang Ban (Stockholm) is preparing for a Workshop on *Timeseries Analysis of Satellite Images*, to be organised on 25 May 2011. A Call for Papers will be sent to EARSeL members and published on the internet by end of December.

SEOS Tutorial in Turkish Language

EARSeL's eLearning tutorials created in the *Science Education through Earth Observation for High Schools* (SEOS) project are available in English, French and German language, and partly also in Arabic, Dutch, and Greek. Ekin Ulaş Karaata, student at the Uludag University, Agriculture Faculty in Bursa, Turkey, translated the tutorial on *Remote Sensing and Geo-Information Technologies in Agriculture* into Turkish. Other tutorials will follow. SEOS on the internet: http://lms.seos-project.eu.



Greek Biotope/Wetland Centre – a new EARSeL member

THE GOULANDRIS NATURAL HISTORY MUSEUM
GREEK BIOTOPE/WETLAND CENTRE

Brief Portrait

The Greek Biotope/Wetland Centre (or EKBY by its Greek initials) has its roots in the Goulandris Natural History Museum. The Museum was established in Athens in 1964 as a non-profit institute for research, public awareness, information, and education in the conservation of the natural environment. EKBY was established in 1991 by the Museum and is based at Thermi close to the city of Thessaloniki.

EKBY's overall objective is to promote the sustainability of renewable natural resources in Greece and in the rest of Europe and the Mediterranean region. It is actively involved in ecosystem and biodiversity conservation and sustainable management.

EKBY collaborates with several research institutes in Greece and abroad. It has been appointed by the Greek Ministry of Environment as the EEA's National Reference Centre for Biodiversity. It has been participating in European research projects on biodiversity and ecosystem issues.

EKBY operates, since June 2003, a Quality Management System (QMS) according to the International Standard ISO 9001:2000. The Greek Organization for Standardization has certified the QMS of EKBY (ΕΛΟΤ EN ISO 9001:2000, certificate number 02.35.05/851).

Examples of EKBY's work related to Wetlands and Remote Sensing

The centre

- is member of the Scientific and Technical Team of the Mediterranean Wetland Initiative (MedWet). MedWet, was founded in 1991 with the main goal to contribute to the conservation and wise use of Mediterranean wetlands. In 1997, MedWet became the first regional initiative under the umbrella of the Ramsar Convention. MedWet, amongst others, is promoting a standard and systematic methodology for wetland inventory, which includes an information system for data management. In this context EKBY tracks down the advancements of EO research in Europe and elsewhere.
- cooperates with the mechanisms of the Ramsar Convention in conserving Mediterranean wetlands. As a partner in the GlobWetland II (GW II) project, it contributes in its endeavor for the creation of the Global Wetland Observation System. GW II project is funded by ESA; it is developing a pilot observing system for coastal wetlands for the south part of the Mediterranean basin, extended from Morocco to Turkey.
- has contributed, as wetland expert, in the development of the "High Resolution layer wetland and relevant change detection procedure" of the geoland2 project (towards an operational GMES Land Monitoring Core Service) and is currently participating in its scientific review.
- is partner in the new launched FP7 project MS.MONINA (Multi-scale Service for Monitoring NATURA 2000 Habitats of European Community Interest) acting as the main user-partner with focus on wetland mapping at EU and state level.
- conducted the first nationwide census to identify the wetlands of Greece (1996). It used the experience acquired to inventory wetlands in other regions of the Mediterranean (Albania, Serbia, Cyprus), incorporating Earth Observation techniques and methods for collecting, processing and interpreting data. It has carried out several mapping projects of Greek wetlands. It is currently doing the assessment of changes in wetland area of a Greek wetland, with the use of Landsat imagery.
- has leaded the establishment of the NATURA 2000 sites in Greece, providing data and scientific and technical support to the Ministry; it also coordinated the mapping of the habitats in these areas (amongst them the Ramsar sites and other significant Greek wetlands).

The Greek Biotope/Wetland Centre on the internet: http://www.ekby.gr/

GIM Interview with the Chairman

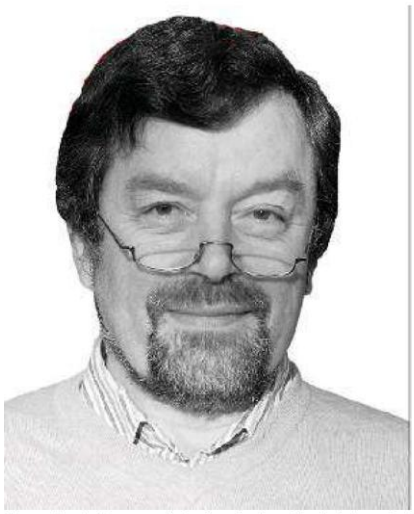
Reprint from GIM International, Vol. 25, No. 10, October 2011; with permission from Geomares Publishing, Lemmer, The Netherlands.

Ever-increasing Role for Remote Sensing 21/09/2011

GIM International Interviews Rainer Reuter

If we can succeed in putting remote sensing on the agenda as a useful tool for monitoring climate change, I will be happy, says Rainer Reuter, head of Marine Physics at the Institute for Physics, Carl von Ossietzky University of Oldenburg, Germany. Also president of the European Association of Remote Sensing Laboratories (EARSeL), Reuter is a strong advocate of a greater role for remote sensing in environmental monitoring in order to prevent global warming. GIM International talks to Reuter about the challenges in the field of remote sensing and about the mission of the association he presides over.

Durk Haarsma, publishing director, GIM International



For those of us who don't know EARSeL, can you tell us a little more about it?
EARSeL is a membership-based network comprising research institutes and companies who are working together to promote the use of remote sensing data and images to the public, to stakeholders, to governmental administrations and to other policymakers. In addition, the association is a fertile breeding ground for new ideas and provides a good opportunity for networking in the field of remote sensing, not only at our meetings throughout the year but also during the joint projects our members are involved in.

What is the biggest project EARSeL is currently involved in?
We recently completed a large educational project in which EARSeL was the co-ordinating partner, called Science Education through Earth Observation for High Schools (SEOS). The idea behind the project was to provide experiences that allowed high school students to discover how fascinating remote sensing can be and hence attract them to the field. It is a well-known fact that many university physics faculties are suffering declining student numbers, which we believe is due to physics lessons in schools not being as exciting as they could be. The concept of the project was to provide e-learning tutorials for use in the classroom filled with content stemming from real results from our members' laboratories. We produced a total of sixteen tutorials within the project. Funding for the project ended one year ago, but since the tutorials are embedded in an internet-based learning management system, we can still update them for future use.

In which countries has the method been used so far?
The e-learning tutorials are currently being used in high schools in the United Kingdom, France, Germany and The Netherlands. This international level of success has been helped by the fact that we received contributions from member laboratories from various countries, as well as from UNESCO and the European Space Agency, who provided most of the imagery we are using. The tutorials are available in many different languages: English, German, French and Dutch as well as in Greek. We already carry the method in Arabic - it is the only internet-based collection of e-learning tutorials available so far in that language - and we are working on translations into Czech and Turkish.

Have you already seen a positive effect on student numbers, maybe even at your own university in Oldenburg?
This is not a project that is likely to have a short-term impact, so we are not expecting to see an immediate effect. However, environmental and climate-change issues have become more important in the last few years and remote sensing techniques can play an effective role in tackling such issues. We have tried to highlight these possibilities within the e-learning tutorials, which should result in a greater long-term interest in remote sensing-related courses of study.

What would you like to achieve during your presidency of EARSeL?
Let me explain that with an example. EARSeL is currently involved as a partner in an ongoing ESA project with the satellite mission Proba-2. Proba-2 is a new satellite that will start to collect data series in order to survey vegetation on a global scale. Our goal is to demonstrate the usefulness of this instrument, for instance, in European forestry, and to promote and disseminate the results it obtains. This project demonstrates that EARSeL believes in the ever-increasing role of remote sensing in environmental monitoring in order to prevent global warming. If we can succeed in putting remote sensing firmly on the agenda as a useful method of observing Earth, I will be happy.

What is the next big step in the development of remote sensing techniques?
Since we are already fairly advanced in terms of having developed effective remote sensing techniques, I think that one of the next big steps will be in terms of learning to combine techniques. The use of a combination of different sensors - or even different satellites - at the same time, which is a big constraint right now, could be one the biggest challenges for our field's short-term future. Such combinations will provide us with completely new insights.

Is there more to be done?
Yes, in terms of analysing and processing older data that is currently just lying on the shelf. Only 10 to 15 per cent of remote sensing data acquired in the past has been analysed and there's a wealth of information coming from data mining that is especially useful for monitoring global change - this should be a much more important issue. Also, by re-analysing and re-processing older data we can nowadays extract new information which could be extremely useful in many applications. So in my view, the focus should not merely be on new techniques, but also on obtaining more information from both new and existing data.

Are there other fields in which remote sensing and photogrammetry will grow in importance?
One very important field in which remote sensing already plays a major role but which will gain even more relevance in the future is precision agriculture: the effective and efficient use of land. This is crucial in times of an expanding world population, a growing demand for food and increasing land scarcity as we are facing now. In that sense, precision agriculture is part of a much bigger issue, maybe even extending to the world economy and the welfare of humankind.

Finally, is there any message you would like to give to our readers?
Well, we should not forget to inform the general public about the results of our remote sensing research. We should always demonstrate how the information obtained from satellites can be directly relevant to everyone's lives and continue to emphasise how important it is to be aware of the environment.

Biography of Interviewee(s)

Dr. Rainer Reuter is head of the Marine Physics Group at the Institute of Physics, Carl von Ossietzky University of Oldenburg, Germany. He has been a board member of the European Association of Remote Sensing Laboratories (EARSeL) since 2002 and EARSeL chairman since 2009. He has also been chairman of the EARSeL Special Interest Groups on Remote Sensing of the Coastal Zones since 1992 and on Education and Training since 2008. Rainer Reuter graduated in Physics in 1975 and obtained a PhD in Applied Physics in 1997 at Kiel University. In 2006 he obtained his habilitation in Applied Physics at the University of Oldenburg. His expertise is in Marine Optics, Laser Remote Sensing, Coastal Oceanography and related sensor development, and in science education.

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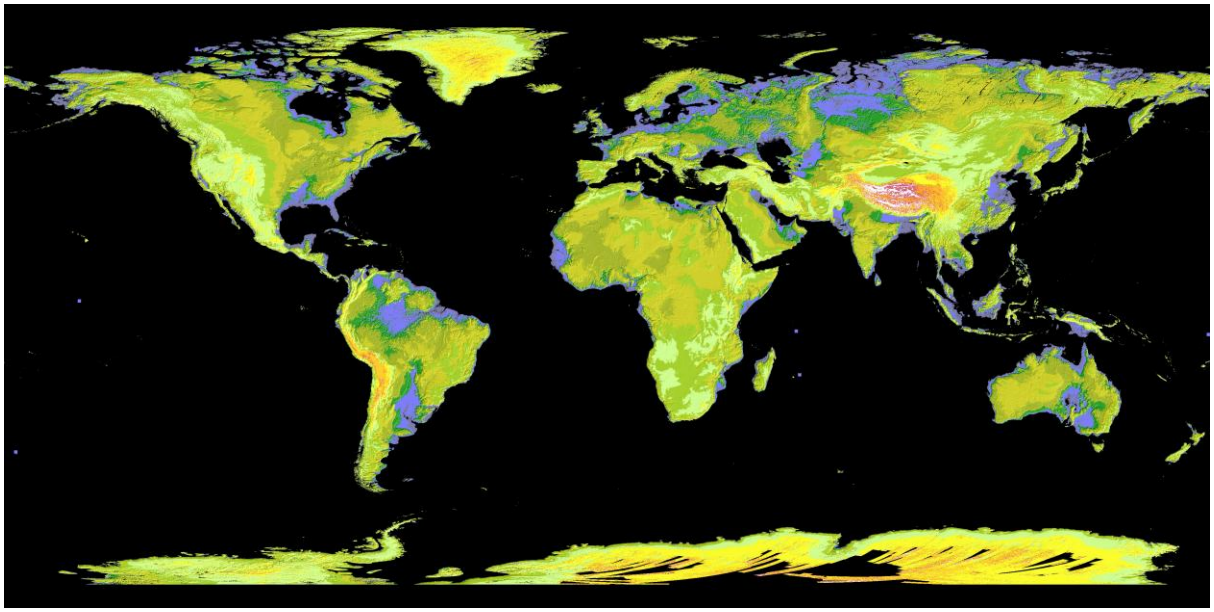
References

http://www.earsel.org

News from other organisations

Topographic Map from ASTER imagery

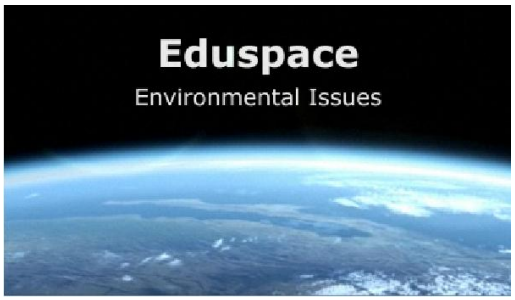
NASA released an update of the Global Digital Elevation Map, a digital topographic map of Earth. It is based on imagery from Japan's *Advanced Spaceborne Thermal Emission and Reflection Radiometer* (ASTER) instrument aboard the Terra satellite. Compared with the first issue released in June 2009, additional 260.000 stereo-pairs were used to achieve enhanced spatial resolution and accuracy. ASTER GDEM coverage spans from 83°N latitude to 83°S, encompassing 99% of Earth's landmass.



Example of a GDEM V1 colorized map. Courtesy: NASA Jet Propulsion Laboratory, Pasadena, USA.

The Global Digital Elevation Map on the internet: http://asterweb.jpl.nasa.gov/gdem.asp

ESA's Eduspace tutorials expanded and extended to Greece



For many years, ESA's Eduspace website has been a window on the world for secondary students and teachers, providing an invaluable introduction to Earth observation and its applications. The site has now been updated and improved with new case studies and a Greek version

ESA Eduspace on the internet:
http://www.esa.int/SPECIALS/Eduspace_EN/

Working with 15 years of SPOT-VEGETATION – A PhD Thesis topic

The SPOT/VEGETATION programme is the result of a space collaboration between various European partners: Belgium, France, Italy, Sweden and the European Commission. The programme consists of two optical multispectral instruments in orbit, VEGETATION 1 and VEGETATION 2, respectively launched in 1998 and 2002, as well as the necessary ground infrastructures.

In 2013 the Flemish Institute for Technological Research (VITO), will have been hosting the user segment of both SPOT-VEGETATION instruments uninterruptedly for 15 years. This activity includes the

continuous processing, correction, archiving and distribution of the VEGETATION data and added-value products to scientific and commercial customers.

Obviously we will not let the occasion of this 15th anniversary pass unnoticed …. We will, amongst other activities, organize a contest to employ a PhD student at our Institute to work on the extensive VEGETATION (VGT)-archive for a 4-year period. Since VITO, as part of an industrial consortium, is developing the user segment of the ESA PROBA VEGETATION (PROBA-V) mission, methods or improved products based on PROBA-V can also be part of the PhD research. The PROBA-V context is however not a prerequisite. The PhD candidate selected in this contest will be fully funded by VITO. The research will be conducted in close cooperation with a University, which will also act as promotor of the PhD thesis, whereas the Scientific Coordinator of the Remote Sensing Unit (TAP) at VITO will act as co-promotor. Please find more information, as well as a link to the application form, at: www.spot-vegetation.com

A tentative timeline for the contest described is as follows:

- September 2011: Publication of the announcement of opportunity
- December 2011: Deadline for proposal submission
- March 2012: Contractual issues and start of the PhD activities at VITO
- By mutual arrangement: start of the PhD

Taking part in this contest is exclusively possible via the VGT website. The process is self-explanatory, but if in doubt, please contact the VGT helpdesk at helpdesk@vgt.vito.be

Satellites respond to humanitarian needs

A review of crisis response using Earth observation techniques is now available online. The Respond Atlas outlines global events where remote sensing assisted in preparing for and responding to disasters and humanitarian crises. The project began in 2004 as a Global Monitoring for Environment and Security (GMES) initiative.

Respond Atlas on the internet:
http://esamultimedia.esa.int/multimedia/publications/RespondAtlas/pageflip.html

EARSC position paper on GMES data policy

From Mónica Miguel-Lago, EARSC Secretariat, 3 November 2011:

"In March 2011, the European Association of Remote Sensing Companies (EARSC) published a position paper that provided views on how the European EO Services industry could support and benefit from a publicly-owned GMES infrastructure; the goal being to maximise the overall economic return from the substantial pubic-sector investment. One of the main conclusions and recommendations from that paper concerned the need to establish a suitable policy for the data generated by the GMES space component and the information products generated by the GMES Services.

EARSC
European Association of Remote Sensing Companies

The European Commission will shortly prepare legislation to define the GMES Data Policy. EARSC, as the organisation that represents the EO geo-information services industry in Europe, puts forward the views of its members on some details concerning such a data policy.

We would welcome comments on our views concerning the important issues raised in this paper. We shall be continuing to work on achieving our objectives as stated and look forward to discussing with you in the future."

The position paper:
http://www.earsc.eu/file_download/89/Exploiting+GMES+Operational+Services+FINAL.pdf
For further information or discussion contact secretariat@earsc.org.
EARSC on the Internet: http://www.earsc.eu

New Turkish satellite

RASAT, the first Turkish remote sensing satellite developed by the Scientific and Technological Research Council of Turkey (TÜBITAK) has been put into operation on 17. August. Its optical radiometer has a multispectral ground resolution of 15 m (channels at 0.42-0-55 µm, 0.55-0.58 µm, and 0.58-0.73 m), and 7.5 m in the panchromatic (0.42-0.73 µm) mode. RASAT will be a cornerstone for Turkish space projects in the future, TÜBITAK officials said.

RASAT on the internet:
http://www.uzay.tubitak.gov.tr/tubitakUzay/en/projects/spaceApplications.php#rasat

RASAT image if Izmir, Turkey. Courtesy: TÜBITAK, RASAT Image Gallery

EARSeL Workshop Reports

8th Workshop on Forest Fire Management

The 8th International Workshop on Advances in Remote Sensing and GIS Applications in Forest Fire Management was organised by the Joint Research Centre of the European Commission in collaboration with the Laboratory of Forest Management and Remote Sensing, Faculty of Forestry and Natural Environment, Aristotle University of Thessaloniki.

The Stresa workshop is the most recent of a series of meetings that were organised by the EARSeL SIG on Forest Fires after its foundation in 1995. The previous meetings were held in Alcalá de Henares (1995), Luso (1998), Paris (2001), Ghent (2003), Zaragoza (2005), Thessaloniki (2007) and Matera (2009).

The focus of the workshop was on local, regional, national and global applications of remote sensing in forest fire management. More specifically the aim was to identify requirements for the use of remote sensing at different scales ranging from local to global. As a result, a large number of paper contributions were related to the pre-fire planning and management, the real-time detection and monitoring of active fires, as well as the evaluation of the effects of forest fires.

The workshop was attended by 60 participants from 14 different countries. The majority of the participants originated from European Mediterranean countries, with a smaller number of attendants coming from other European countries such as Belgium, Bulgaria, the Czech Republic, Germany, and the U.K. Also, a small number of participants originated from non-European countries such as Australia, Canada, Mexico, and the USA. It should be noted that the final session was attended by 15 students of the local high school as part of their 'Science' class.

Before the workshop, two relevant events were organized at the same location, namely, the Fire CCI Workshop (October 17th 9:00 am - October 18th 12.30 pm) and the GOFC-GOLD Fire IT meeting (October 18th 2:30 pm - October 19th 6:00 pm).

Impressions from the Forest Fires Workshop. Courtesy: V. Ambrosia (left), F. Alonso (right)

The main activities of the Workshop included 4 keynote lectures given by invited speakers, and 4 poster sessions. The different activities of the Workshop are presented, in more detail, below:

KEYNOTE LECTURES

The invited lectures focused on the following topics:

- Estimation of Fuel Moisture Content for fire danger assessment: turning potential into reality? by Marta Yebra, (Environmental Earth Observation, CSIRO Land and Water, Canberra, Australia),
- Assessing Fire Severity in the Tropical Savanna of Northern Australia by Stefan Maier (Research Institute for the Environment and Livelihoods, Charles Darwin University, Darwin, Australia),
- Integrating geospatial information into global fire risk assessment by Emilio Chuvieco (Geography Department, Universidad de Alcalá, Spain),

- The Role of Forests in the Global Carbon Cycle by Denis Loustau (Institut National de la Recherche Agronomique, EPHYSE, Bordeaux-Aquitaine, France)

POSTER SESSIONS

The poster sessions focused on four topics, namely, 'Pre-fire Planning and Management at local to regional level' (1st session), 'Fire effects assessment: burned land mapping, fire severity determination and vegetation recovery assessment at local to regional level' (2nd session) 'Pre-fire Planning and Management at national to global level' (3rd session), and 'Fire effects assessment: burned land mapping, fire severity determination and vegetation recovery assessment at national to global level' (4th session).

During the first session 10 posters were presented focusing on fuel type mapping and fire risk modelling at local level.

During the second poster session 15 posters were presented, focusing on burned area mapping and post-fire assessment at local level.

During the third poster session 10 posters were presented focusing on fuel type mapping and fire risk modelling at national to global level.

Finally, during the fourth and last poster session 11 posters were presented in relation to burned area mapping, fire severity mapping, post-fire mapping and monitoring, and post-fire vegetation recovery assessment.

It should be noted that the poster sessions included short presentations of the works, as well as one-to-one discussions with the authors.

WORKSHOP CONCLUSIONS

At the end of the workshop the following conclusions were made:

- A number of mature applications of remote sensing in different parts of forest fire management were presented in the workshop.
- There was a smaller number of contributions dealing with remote sensing applications at continental to global scale. There is an opportunity for European researchers to collaborate in order to jointly work more at these scales.
- Apart from the advancements in methods and techniques, also data availability has improved in recent years. In fact, data from US agencies are already available, while data from European agencies are becoming more easily accessible (e.g. ESA).
- Although some applications of remote sensing related to forest fires are matured enough to be used operationally (e.g. burned area mapping), others (e.g. fuel type mapping, fire severity mapping) require further research and development.
- Product validation and model 'sensitivity analysis' are currently hot topics of research.
- The FFSIG members should be prepared to deal with forthcoming sensors (e.g. SENTINEL) and huge datasets that soon will be available.

PUBLICATION

Selected papers will be included in a special issue of the International Journal of Wildland Fire which will be published in 2012 while abstracts of the presented lectures and extended abstracts of the presented posters were included in the following recently published volume:

San-Miguel-Ayanz J., Gitas I., Camia A., Oliveira S. (Editors) (2011) Advances in Remote Sensing and GIS applications in Forest Fire Management: from local to global assessments. Proceedings of the 8th International Workshop of the EARSeL Special Interest Group on Forest Fire. JRC Scientific and Technical Report (EUR 24941 EN), 287 pp., doi: 10.2788/66489. The Proceedings can be downloaded on the EARSeL homepage: http://www.earsel.org/workshops/ForestFires2011/Proceedings.pdf MB)

The SIG Forest Fires on the internet: http://earsel-ffsig.web.auth.gr/

Aerial Archaeology Conference AARG/EARSeL

AMBITIONS AND REALITIES - Remote Sensing for Archaeology, Research and Conservation

The International aerial archaeology conference was jointly organised by the Aerial Archaeology Research Group, the European Association of Remote Sensing Laboratories and Institute of Prehistory Adam Mickiewicz University in Poznań from 21 to 24 September 2011.

The Poznan Conference is the most recent of a series of technical meetings that were organised by the EARSeL SIG on Cultural and Natural Heritage after its foundation in 2007. The previous meetings were held in Rome (2008), and during the EARSeL Smposium in Chania (2009) UNESCO Paris 2010, and Praga (2011).

focus of the Poznan Conference was on : (i) the new challenges to be addressed in order to documenting , understanding and mapping ancient landscapes as well as (ii) on integrated strategic use of traditional approach and more recent available technologies (iii) Remote sensing applications in infrastructure and development projects – for conservation, management and risk monitoring of local, regional, national and global applications of remote sensing in natural and cultural heritage management and vaporization

The Conference was attended by more than 100 participants from 21 different countries. The majority of the participants originated from European countries, with a smaller number of attendants coming from non-European countries such as Australia.

Pictures from the International aerial archaeology conference AARG/EARSeL (Courtesy: Lidka Zuk)

The main - but not exclusive - theme of this conference was the exploration of objectives and challenges in the effective use of remote sensing techniques in archaeological and landscape studies, not only for research but also for the promotion of conservation and public understanding.

Session topics

The sessions focused on the following topics:

- Flights into the past: from photo-interpretation to LiDAR elaboration and Virtual reconstruction
- Aerial Archaeology and Remote Sensing in Poland
- News and and views from around Europe
- Remote sensing applications in infrastructure and development projects – for conservation, management and risk monitoring
- Working with LiDAR – new challenges, projects and results
- Mapping sites and landscapes
- Documenting and understanding landscape

Poster session

During the poster session 17 posters were presented and discussed. It should be noted that the poster sessions included short presentations of the works, as well as one-to-one discussions with the authors.

Publication

It is not planned to produce a published conference proceedings from AARG/EARSeL 2011, but authors of presentations - oral and posters - are encouraged to consider the following avenues for publishing their work.

AARGnews: http://www.univie.ac.at/aarg/php/cms/AARG-News/

This is the electronic newsletter of the Aerial Archaeology Research Group and is published twice-yearly. The last two editions are available to members only, but after a year they are available free to download from the AARG website. The editor, Rog Palmer, will be at the conference and will be happy to discuss potential contributions.

EARSeL eProceedings: http://www.eproceedings.org/

This is the Open Access remote sensing Journal published by the European Association of Remote Sensing Laboratories, and devoted to refereed scientific publications in all fields of Earth observation and remote sensing. *EARSeL eProceedings* aims for rapid publication no later than six months after submission, and are available free online without subscription.

Archaeological Prospection: http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1099-0763

Archaeological Prospection is an interdisciplinary peer-reviewed journal.

Photointerpretation

It may be possible to organise a special edition of this hard copy journal comprising invited papers. The conference organising committee will review this at the conference and comment from delegates is welcome.

Internet Archaeology: http://intarch.ac.uk

This is a non-profit, peer-reviewed academic e-journal for archaeology. It is highly regarded in the field of electronic publication for its innovative use of the medium, such as integrating data, visualisations and interactive mapping. Issues are published twice a year. The contents of the journal are archived with the Archaeology Data Service, the UK's digital archive for archaeology, whose remit is the long-term preservation of digital research materials.:

National Reports

Remote Sensing Activities in Finland 2011

The RAD Remote Sensing Group participated over a period of several years in the development of European Space Agency's (ESA) SMOS satellite mission, which was launched in November 2009. In 2011, SMOS technical activities of RAD have concentrated on the monitoring and optimization of the performance of the reference radiometers of SMOS, since RAD initially contributed substantially to the design of these radiometers in the early 2000's. Currently, the main areas of research are the long term temporal and thermal stability of these instruments.

Related to SMOS, RAD pursues studies of sea surface salinity retrieval and sea emission modeling. Especially, the influence of sea roughness is studied by means of a new concept based on GPS reflectometry. In this frame, RAD has organized two airborne experiments with ESA and the Spanish IEEC research institute using RAD's research aircraft Skyvan Short SC-7. The results demonstrate the feasibility of the new technique for both altimetric and radiometric purposes.

In the frame of developing Soil Moisture retrieval algorithms especially for northern latitudes, RAD has examined the performance of the SMOS soil moisture processor by comparing its output to Finnish soil moisture models and data from ground stations, provided by Finnish Meteorological Institute (FMI) and Finnish Environment Institute (SYKE), respectively. RAD has used its HUT-2D airborne interferometric radiometer to study L-band emission from forests and bogs to determine their effect to soil moisture retrieval. Effects of soil freezing and snowfall have also been examined in co-operation with FMI.

Early data from SMOS revealed numerous man-made Radio Frequency Interference (RFI) sources within the protected 1.4 GHz band. RAD studies the detection, mitigation, and influence of these RFI to the scientific products of SMOS. Especially, the existence of RFI sources in Finland and their influence on SMOS data over Finnish study sites in southern and northern Finland is examined using satellite data from SMOS and airborne data from our HUT-2D radiometer.

A consortium led by FMI is developing an advanced high frequency (14-96 GHz) radar system for operation in various application areas. The development is carried out in the framework of the Strategic Centres for Science, Technology and Innovation (SHOK), a Finnish cooperation program for industry and the research sector. RAD is a consortium member along with the University of Helsinki, DA-Design Oy, Aerial Oy, Harp Technologies Ltd., Vaisala, Eigenor Corporation, and Space Systems Finland. The development is currently in the system design phase. The main aim is to demonstrate new radar technology using cost-effective solid state components.

In the coming years the Finnish weather radar network will be updated with dual-polarimetric radars offering more information on the precipitation forms and for the identification of other objects like birds and insects. Numerical methods in electromagnetic scattering theory are exploited in the development of detection algorithms. The scientific work is conducted in collaboration with FMI and University of Helsinki.

One of our SAR projects focuses on coherent change detection in repeat pass interferometric images. Combined with traditional change detection, interferometric coherence provides means for detecting changes not detectable by any other means. In another project a time series of TanDEM-X satellite data is analyzed in order to relate seasonal forest changes to interferometric parameters. The same interferometric dataset is also used to test a forest canopy height measurement algorithm employing, additionally, a ground elevation model. The method has been previously demonstrated by using airborne SAR measurements.

FMI and RAD are collaborating in generating an operational and multi-source ice product for the Arctic Sea region. This product is based on several satellite data sets like C-band SAR images and scatterometer, radiometer, and spectrometer data together with a thermodynamical model, and it will provide information on sea ice types, level ice thickness and snow depth on sea ice.

The Aalto-1 nanosatellite project is led by RAD. Aalto-1 is a multi-payload Earth Observation satellite, currently under development in collaboration with major Finnish Universities and research institutes. The satellite's main payload is a miniature imaging spectrometer for remote sensing. The platform of the satellite is designed and built mainly by Aalto University students. The satellite project has successfully finished the Preliminary Design Phase with Preliminary Design Review and has proceeded to the Detailed Design phase. The satellite is scheduled for launch in the end of 2013.

RAD organizes on 25-26 November 2011 the Finnish Remote Sensing Days (http://www.kaukokartoituskerho.fi/2011/programme).

VTT Technical Research Centre of Finland (VTT)

The remote sensing activities concentrated in three strategic application areas: forest and renewable resources, sea navigation support and civil security. Additionally, an environment information system and environment data market place were developed in a large and multi-year project under the domain of the Strategic Centres for Science, Technology and Innovation (SHOK) which is a Finnish cooperation program with industry and the research sector.

VTT coordinates project Recover to support REDD (Reduction of Emissions from Deforestation and Forest Degradation) in the tropical countries. Recover is funded by the Theme Space of the Framework Program 7 (FP7) of the European Commission. The project has nine partners from seven countries and five target countries. A sample of very high resolution data is combined with wall to wall optical or SAR data by applying a statistical framework to compute the predictions of forest cover variables. The services begun late 2011 and the first results on forest change were computed. The project ends in 2013.

Participation in the European FP7 Geoland2 project continued. The research focused on the development of methods for the prediction of forest crown cover from mid-resolution (Spot, IRS, Landsat) satellite data. The estimation was supported by very high resolution optical imagery. Forest services for industry using space-borne SAR were developed with study areas in Spain and Russia.

In The Social Forest Planning project reference data from the cell phone pictures are extracted for the analysis of satellite images. The forest variables are predicted from very high resolution satellite (VHR) data and the predictions are input to a computation engine that outputs a forest management plan. Social forest planning utilizes results of the completed Newforest project in which principal methods for forest variable estimation from VHR images were developed. Comparison of the results with airborne laser scanner plus aerial photo data showed that the tree-wise growing stock volume could be estimated with a similar accuracy from the VHR satellite data but the total growing stock volume estimate at stand level was poorer than that with the lidar based method.

Textural interpretation of ALOS PalSAR data in Africa gave good initial results for the mapping of forest degradation. The project for ESA continues in 2012. Volume scattering modeling was developed with ALOS PalSAR data in boreal forest conditions. The results were published in IEEE TGRS journal.

VTT contributes to the IceMar project for the DG Enterprise on the building GMES ice services. VTT work for a solution that can be used for the monitoring of ice onboard vessels in the Arctic and Baltic Sea areas. Methods to support flood monitoring and forecasting through snow mapping were developed with space-borne polarimetric SAR data in northern Finland. A user portal was developed to visualize the combination of earth observation data and hydrologic models. A system to create digital landscapes for the navigation of automatic vehicles for border control was developed in an FP7 project Talos.

Geological Survey of Finland

Geological Survey of Finland has developed an application of imaging spectroscopy which can be used to spatially estimate the site suitability for artificial regeneration to Scots pine (Pinus sylvestris). With the method the success rate of Scots pine can be improved by including a soil water content (SWC) based assessment of site suitability in the reforestation planning process. Geological Survey of Finland continues developing laboratory remote detection methods for rock and

soil mineralogy and chemistry. Methodology development for peatland classification from airborne hyperspectral imagery are on the way. Geological Survey of Finland is involved in international projects applying satellite imagery and teaching remote sensing.

University of Turku, Laboratory of Computer Cartography (UTU-LCC)

The laboratory produced a large amount of GIS models for describing the abiotic conditions of the Finnish coastline and marine environments as part of the Finmarinet-project.

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Remote Sensing Activities in Italy 2011

A very active and rigorous activity has been carried on by the Italian Space community in 2011. Some of these projects are briefly reported in the following paragraphs.

European Journal of Remote Sensing

The official issue of he Italian Remote Sensing Society (AIT), the peer reviewed European Journal of Remote Sensing, is now available on-line (www.aitjournal.con) in a open access format.

In 2011 the Journal have been indexed (including all issues published since 2008) in: the Directory of Open Access Journals (DOAJ), Thomson Reuters Web of Science, SCOPUS, Google Scholar.

In the same year the Journal have been granted by an Impact Factor of 0.241 for the period 2008-2010, ranked 21st in remote sensing category, in the Journal Citation Report.

In the period 2008-2011, 116 scientific contributions have been published.

Since March 2011 the Journal web site tracked almost 20 000 contacts and more than 6000 papers have been downloaded in PDF format.

SPIN-IT Space Innovation in Italy

The National Technological Platform SPIN-IT was created to promote the innovation and strengthen the participation of Italian Space Community into International and European applied research programs.

The Platform has been created by the Italian Ministry of the Research and University (MIUR) with the contribution of the Confindustria, representing large private companies in Italy, the Federation of Aerospace Enterprises for defense and security (AIAD) and the Association for Innovation Communication Technology in space (ASAS).

SPIN-IT is an advanced synergic tool among Industry, Research and Universities and the Italian Space Agency (ASI).

Chairman of the platform is Claudio Comparini (Thales Alenia Spazio).

ASI Cosmo Skymed in 2011

The satellite system of the Italian Space Agency (ASI) COSMO-SkyMed is a constellation of four sensors equipped with SAR X-band sensors. The four satellites were launched between 2007 and the end of 2010 and the constellation is now fully operational. The system provides: global coverage with an all weather capability, high spatial resolution (up to 1 m) and in a multi-mode way. COSMO-SkyMed is the first space programme based on “dual use”: civil and military, allowing higher capacity acquisition, rapid response and high frequency (up to 6 h, considering the whole constellation).

Storage, processing and data delivery are performed in Matera ground station located in the southern part of Italy. ASI has therefore formed with Telespazio the company e-GEOS for commercial distribution of COSMO-SkyMed data and products.

To promote the National technological excellence, particularly for global civil protection emergencies (earthquakes, floods, marine pollution, vessel tracking, etc.), the Italian Geomatics community highlights these topics at the consolidate ASITA Conference, Federation that collects Institutions, National Research Centers, Universities, professional and industrial operators since 15 years.

The public Remote Sensing projects for Agriculture in Italy

The EU CAP (Common Agricultural Policy) rules, for distributing and controlling the large amount of the annual subsidies to European farmers asks for a complete managing and controlling GIS System by all 27 Member States.

To allow the subsidy controls in an objective way, JRC Mars Unit has been managing since 2003 a wide project based on VHR and HR satellite data provision to all the EU Member States on selected territorial samples.

The Italian AGEA (Agency for Payments in Agriculture) and the related new public-private Company SIN spa, have been creating a large scale National Agricultural System and GIS, continuously updated, aiming at enhancing the complete agronomic and territorial monitoring.

Typical Agency duty is based on managing its own aerial Remote Sensing Systems (optical and SAR), cadastral and topographic maps, ortho airborne and satellite, ground surveys, DSM, thematic layers at national/local level to maintain and develop a sustainable agro-environment.

Particularly Italy, through AGEA, currently manages a 3 years complete updating of 0,5 m digital air imagery and the corresponding updating of the whole Italian Land Parcel Identification System- LPIS, a wall to wall land cover/use map at reference scale of 1:10.000, but at the real thematic scale of 1:5.000.

This large scale GIS system includes for all Administrative levels: current and historical airborne and satellite ortho-imagery, the whole cadastral, the entire land cover/use, DSM, 30 years climate, digital agro-environmental parameters (landscape features), risk maps, hierarchical hydrologic network, forestry information, etc.

In addition, a unique national Oracle based Geodatawarehouse has already been starting to manage the entire system for the immediate decision making, up to each territorial parcel level.

ITHACA

ITHACA is a non-profit association, founded in November 2006 by the Politecnico di Torino and the Higher Institute on Innovation Territorial Systems (Si.T.I.). With a view to cooperate with the UN-WFP (United Nations World Food Programme), ITHACA continues to carry out applied research activities mainly focused on the use of geomatics techniques to support emergency preparedness and response initiatives. The main activities carried out during 2011 are briefly listed below

EC funded project – GMES RDA Lot 2

The EC funded three-year project focused on the development of a GMES service for geospatial reference data access (RDA) covering areas outside Europe ended its 2nd year. One of the three demonstrators is tailored on emergency response requirements (WB-GFDRR is the end user) and internal tests on a GeoNode based WebGIS application are under development.

GIS and Remote Sensing Technical Training in Myanmar

The mission was arranged by the UN WFP Country Director in Yangon, with the goal to help the government and NGO partners in Myanmar to use the latest technology in the field to map situations such as the cyclone devastation caused by Nargis in 2008.

Global Flood Monitoring and Forecasting

ITHACA participated at the first International Workshop on Global Flood Monitoring and Forecasting, which gathered 20 scientific experts, 4 humanitarian organizations and 2 insurance groups to discuss the state of the art in this new and multi-disciplinary field. ITHACA presented two global monitoring systems: the Extreme Rainfall Detection System and the automatic water bodies classification and analysis based on MODIS data processing, considering some recent flood events as test cases: Pakistan (July/August 2010), SE Brazil (January 2011) and Namibia (2011).

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Remote Sensing Activities in France 2011

Introduction: Funding and supporting Earth Observation research and technology

CNESs, the French Space Agency, develops most of its remote sensing programme in bilateral and multilateral cooperation, giving top priority to programmes developed within the ESA Convention framework. France has reaffirmed its proactive policy and intention to sustain its pivotal role in European space Earth Observation activities. France is and plans to remain ESA's first contributor, strenthening national and European capacities in Remote Sensing space and ground systems, research and applications.

In CNES vision, our planet has to be understood, studied, observed and managed as an integrated Earth system. IN that respect, there are no basic reasons to separate "traditional" remote sensing products like optical and microwave bidimensional observations from other space information systems related to land, ocean, atmosphere or some specific parameters as geomagnetism and gravity, even if these disciplines are addressed by other associations than EARSeL. So, the traditional yearly French report to EARSeL addresses the ongoing Earth Observation systems and their scientific results as a whole.

The Lisbon Treaty and on the technical side GMES and Galileo made the European Commission a major European actor of space activities in Europe, which is taken in due account by Cnes. In particular, EC-ESA management of GMES is perceived as a key issue in EO development.

In the fist decade of the millennium, the Cnes financial figures have been more or less similar from one year to another. Cnes grants a national budget that exceeds some 200 million Euros.(some 20 to 25% of its budget) to sustainable development programmes and to the Earth science sectors, which are directly relevant to Earth Observation space technologies.

Some key national institutional events of interest.

On October 26, 2010, the French Government signed the so-called "*Contrat Etat- Cnes*", an official document which defines policy guidelines for the period 2011-2015. Earth, Environment and climate science and applications are among top priorities. Without any kind of ranking, a few points should be highlighted for EARSeL members : follow-on and innovative oceanography missions (altimetry and ocean color); GHG, water cycle, clouds and aerosols study and monitoring (with a specific emphasis on the role of vegetation in these cycles); contributing to ESA/UE GMES success stories.

At the institutional national level, Cnes and MEDDTL (Ministry of Ecology, Sustainable Development, Transportation and Housing) are closely working on various issues in which EO could bring an undisputed added value. The value of EO derived products and services have been acknowledged for long by Ministry 'technocrats'. The challenge is to have them used at their full capacity by local staffs;

On the national scientific side, a report issued in 2010 by the French Academy of Sciences delivered recommendations to strengthen already important cooperation between Cnes, the CNRS (National

Scientific Research Centre) and Universities. Cnes already signed Conventions with several research organizations, among which CNRS, and also IRD (Development Research Institute), which includes many scientific activities about making use Earth Observation data, products and services

French Scientific Remote Sensing Programme (PNTS)

The **PNTS**[1] programme associates a wide part of the Earth Observation scientific community in multi-year operations. It aims at developing scientific methodologies, promoting the implementation of operational methods, assessing and assimilating space data in complex models, and promoting inter-disciplinary studies. This programme allows funding:

- Exploratory studies for future instruments,
- Observed signal physics studies,
- New processing methodologies for exiting instruments,
- Inter-comparison of satellite and exogenous measurements,
- Innovative use of space observation for a given thematic application.

The priorities are:

- Studies about physics measurement, among which modelling of interaction between electromagnetic waves and atmosphere, oceans and emerged lands;
- Preparation of future missions using active or passive sensors in the solar, infrared and microwave spectral domains;
- Methodological developments using innovative concepts or new capacities offered by recent and future space systems;
- Methodological developments to validate signal modelling and their validity domain,
- Development of new mathematical methods for interpretation, classification and inversion based upon innovative approaches easy to transfer or generalize,
- Development and validation of signal processing techniques paving the way to new applications
- Analysis of relationship between space scales, variables integration, upscaling and downscaling, and spatial analysis methods;
- Methodologies for long temporal series of satellite data taking into account related artefacts.

Using products delivered by 'thematic competence networks' is highly encouraged. Conversely, developed methods and algorithms should contribute to improve the quality and relevance of such products (see hereunder)

An original initiative: Planet'Action Foundation and programme.

Planet Action is a non-profit initiative launched in June 2007 by Spot Image joined by ESRI as a co-founding partner. Other partners have also joined the initiative and the Planet' Action Foundation has been set up.. Planet Action and the UNESCO signed a cooperation agreement within the framework of the Open Initiative to support World Heritage sites.

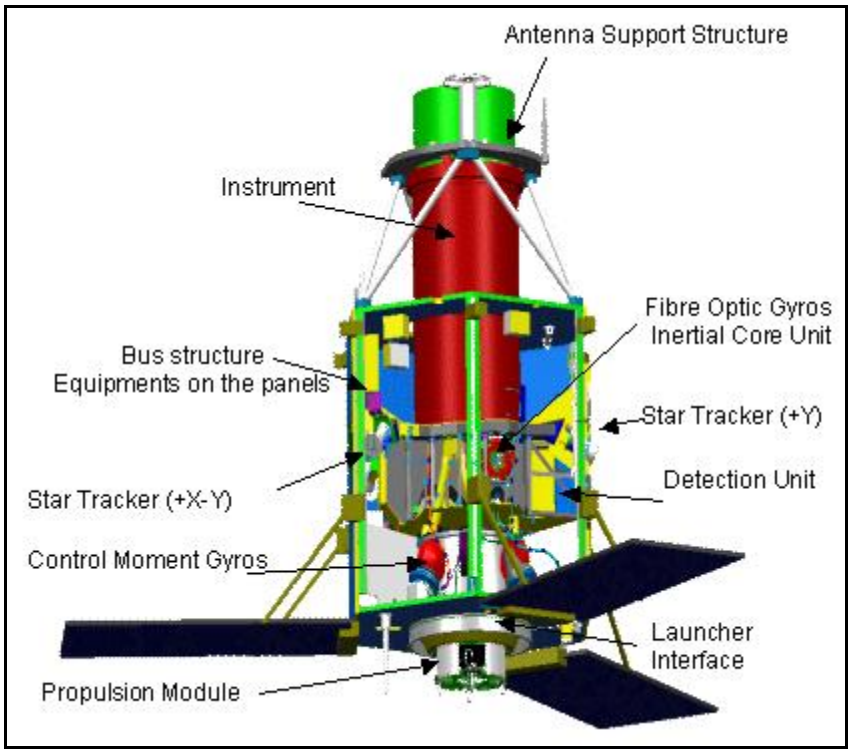
Planet Action supports projects related to climate change issues by providing geographic information, Earth observation images and expertise to organizations (incl. NGOs), institutions and universities working towards combating climate change with local organizations. Over 500 projects have been received since the beginning, 150 of which are currently active. Innovative results have already been got and are available on the web site www.planet-action.org.

High-resolution optical sector systems and scientific preferential data policy

In this field, France runs both the civilian SPOT/Pleiades and military HELIOS systems:

[1] **P**rogramme **N**ational pour la **T**élédétection **S**patiale.

- The **HELIOS-2A** satellite has been operational since April 2005, while the **HELIOS-2B** satellite was launched in December 2009. Compared to HELIOS-I series, these second generation satellites feature sharper imagery, improved viewing field and access time to information, as well as an infrared capability for night imaging. The ground segment has been enhanced as well.
- The **SPOT**[2] constellation currently includes now two satellites (4, and 5). The SPOT archive includes now over 20 million scenes. In order to complement its SPOT offer, SPOTIMAGE also distributes FORMOSAT-2 (2 metres in panchromatic and 8 metres in multispectral mode resolution, daily revisit) and KOMPSAT-2 1 metres in panchromatic and 4 metres in multispectral mode resolution) images.
- Thhe **follow-on SPOT** series (SPOT-6 and SPOT-7) has been switched to private industry (ASTRIUM) in order to ensure follow-on source of high resolution, wide field Earth Observation products up to 2023. It should be noted that such a privatization started with the ilplementation of an operational stereoscopic sensor on SPOT-5. The development of this follow-on series takes advantage of synergies with the Pleiades satellites.



Looking inside the PLEIADES satellite

- The first **Pléiades-HR** satellite is to be launched December 16, 2011, and the second satellite one year later. Pleiades is designed to ensure a innovative generation of wide field observation satellites in panchromatic and multispectral bands. Pleiades will offer 0.5 m resolution products over a 20 km field of view, and a daily revisit capacity. Pleiades and the Italian COSMO-SKYMED satellites are the components of the joint ORFEO system. Pleiades-1 is about to be launched, soon followed by Pleiades-2. In parallel, an ORFEO preparatory program was launched as soon as 2003. Among others, the so-called 'ORFEO toolbox (OTB)' high resolution image processing algorithms was developed and is distributed as an open source library.
- The **Kalideos** programme, set up by CNES as soon as 2000, aims at developing remote sensing consistent reference databases for the scientific community. Three databases have been implemented to support the integration of satellite imagery in basic or applied research pro-

[2] **S**atellite **P**our l'**O**bservation de la **T**erre.

jects. They are aimed at research and development programmes focused on the development of new applications, or activities intended for demonstrating the potential of spatial data for a specific field, consistently with the implementation of the GMES initiative.

Vegetation (low resolution, high receptivity optical system)

- **VEGETATION-1** was launched on-board SPOT-4 in 1998, followed by **VEGETATION-2** on board SPOT-5 in May 2002. The two instruments are still operational. Data are processed and distributed by VITO, Belgium. This led Belgium to take the lead in that specific observation products range.. End 2008, a workshop evidenced the major role that VEGEATION and follow-on programmes played and will play, namely within the GMES framework.
- The continuity of the VEGETATION programme beyond SPOT-5 will be guaranteed by two satellites:

  The **SENTINEL-3** satellite proposed by ESA as part of the space component of the GMES initiative, providing global, frequent and near-real time ocean, ice and land monitoring. to be launched in 2013,

  The **POBA-V** ESA satellite, with VITO as PI, is to be launched mid 2012 .It should fill the gap (if any) between VEGETATION-2 (SPOT-5) and SENTINEL-3. VEGETATION-2 could be used to calibrate PROBA-V.

  This decision clearly breaks off the concept of simultaneous high and medium resolution observations as performed with SPOT-4 and 5, which does not appear as a critical requirement.
- France cooperates with Israel in the **Venµs**[3] research mission, dedicated mainly to vegetation and sustainable development applications. VenµS prime objective is to monitor the fast vegetation changes during the growing season. Scheduled to be operational in 2013, the Venµs micro-satellite will cover every other day 50 to 100 representative sites of the main terrestrial and coastal ecosystems in 12 spectral bands, in the visible and near infra-red regions.

Miscellaneous (soil & oceans): SMOS

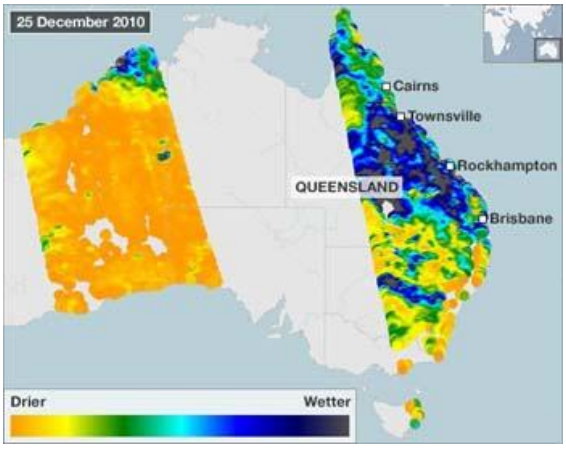
The **SMOS**[4] satellite was successfully launched on Nov.2, 2009. It is a joint ESA (European Space Agency) / CNES (France) / CDTI (Spain) Earth Observation program. The SMOS satellite had been proposed by the French lab CESBIO and selected by ESA as the 2nd Earth Explorer Opportunity Mission.

The SMOS payload a L-Band (1.4 GHz) 2D passive interferometric radiometer with a Y-shaped 3 arms synthetic aperture antenna. The primary objective of the SMOS mission is the global observation of soil moisture and ocean salinity, two important parameters needed for accurate modelling of weather and climate. The SMOS accuracy objective is of 4% for soil moisture on volumetric soil moisture, with three days revisit and a spatial sampling better than 50 km, and a 0, 01 – 0, 02% for ocean salinity for monthly mean at 200*200 km.

The first data transmitted by SMOS evidenced a serious problem. They were severely and irreversibly polluted by illegal radio emissions from ground. ESA got the proper connections to push relevant institutional media to combat this illegal situation – an action which proved successful.

Much scientific work has been led to validate and make a proper use of the physical parameters underlying SMOS data, which appear now as a quite reliable information to better understand water and energy cycles as well as the dynamics of regional phenomena (e.g. recent dramatic dryness in Somalia)

[3] **V**egetation and **E**nvironment Monitoring **N**ew **Micro**-**S**atellite.
[4] Soil Moisture and Ocean Salinity.



SMOS soil dryness observations over Australia

Geodesy and 'Solid Earth'

Five Doris[5] instruments are currently flying (SPOT-4, SPOT-5, ENVISAT, JASON-1, JASON-2). In its latest configuration, Doris enables a 1-cm accuracy positioning and a few yearly mm for the motion of its 55 ground stations. Enhanced Doris instruments are planned to be used in future missions such as Pléiades and Altika. The Doris tracking network is being modernised too.

Developed by France and the USA, the ARGOS system has been operational since 1978. This system allows accurately positioning any object equipped with Argos beacons and collecting any information that they transmit. This unique system is exploited worldwide by CLS, a subsidiary of Cnes and Ifremer[6]. The first third generation instrument was carried on board of METOP launched in 2006.

Geomagnetism: In the recent past,, France has cooperated with Denmark OERSTED[7] mission (1999-2006). It will contribute to ESA's SWARM mission ('living planet' programme), which includes three satellites – the first one being about to be launched quite soon.

Gravity: France collaborates with the three main dedicated gravity missions of the decade, i.e.:

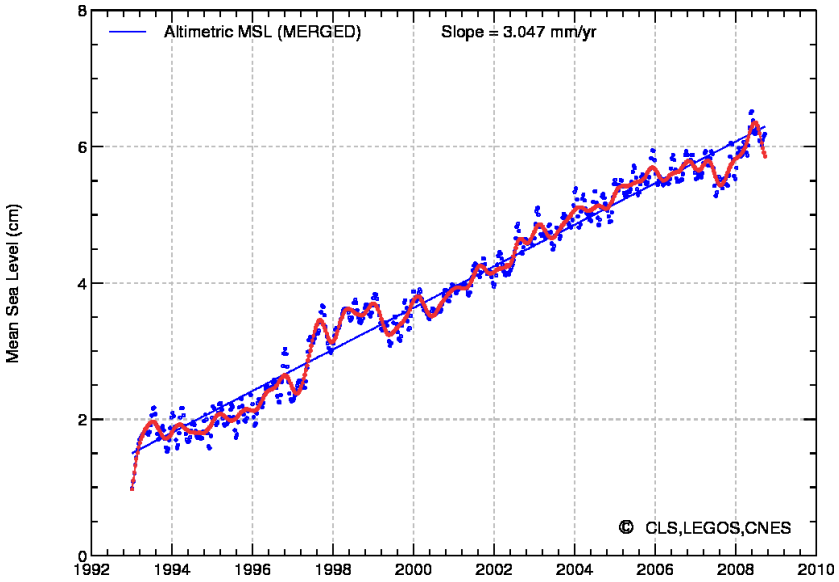
- with Germany up to last year for CHAMP[8] mission (launched on 15 July 2000, CHAMP re-entered Earth's atmosphere on Sept. 20, 2010);
- with the US GRACE[9] twin satellites mission, launched in 2002 and still in operation;
- and with ESA's GOCE[10] mission successfully launched on March 17, 2009 (ESA's 'Earth Explorer' programme). Within two years, GOCE has gathered enough data to map Earth's gravity with unrivalled precision. Scientists now have access to the most accurate model of the 'geoid' ever produced.

Study of electromagnetic and ionosphere disturbances: Scientific results of CNES **DEMETER**[11] micro-satellite have been derived since 2005 and confirm the relevance of the high quality data obtained. The kind of disturbances monitored are believed to be correlated with Earth crust phenomena. The last scientific observations were led on 07/12/2010 before satellite deorbiting. .Scientists have learnt a lot about ionosphere thanks to DEMETER. Scientists from the French LP2CE lab, in cooperation with US, Polish, Czech and Japanese colleagues designed the follow-on **TARANIS** mission, which has been approved by the CNES Council.

[5] **DO**ppler and **R**adio Positioning **I**ntegration by **S**atellite.
[6] French Research Institute for Exploitation of the Sea
[7] Named after the Danish physicist.
[8] **CHA**llenging **M**ini-satellite **P**ayload for Geophysical Research and Application
[9] **G**ravity **R**ecovery **A**nd **C**limate **E**xperiment.
[10] **G**ravity Field and Steady-State **O**cean **C**irculation **E**xplorer.
[11] **D**etection of **E**lectro-**M**agnetic **E**mission **T**ransmitted from **E**arthquake **R**egions.

Oceans

- The Franco-American **TOPEX-POSEIDON** ocean altimeter system stopped operating in 2005 after a successful 13-year mission. Launched in 2001, its successor, the **JASON-1** mini-satellite has enabled to study ocean dynamics and to determine sea level with 1-cm accuracy. The **JASON-2** satellite, launched in 2008, is a key component of the Ocean Surface Topography Mission (EUMETSAT). Jason-2 is the continuation of the existing successful cooperation between the United States and Europe. Responsibilities for satellite development and launch are shared between Cnes and NASA. EUMETSAT and NOAA are responsible for satellite operations. Data processing is carried out by CNES, EUMETSAT and NOAA, with EUMETSAT acting as an interface for near real-time product distribution to European users. This perfectly illustrates a progressive transfer of operational systems from research to operational agencies. The follow-on TOPEX-POSEIDON, JASON-1 and JASON-2 series of satellites allow both long term oceanic altimetry monitoring and its near-real time forecast. The follow-on JASON-3 satellite is planned to be launched mid-2014
- A new ocean observation programme, the operational ocean altimetry **ALTIKA**[12] mission is led in cooperation with ISRO (Indian Space Research Organisation). It will allow enhanced observations of ocean surface levels, currents, wave height and wind speed at sea surface thanks to measurements in Ka band – an innovative high frequency in altimetry technology.
- Having now run for 10 years, the French **MERCATOR** project for operational oceanography (real-time assimilation of global data in complex high resolution models) is part of the French involvement in the **MYOCEAN** European Integrated Project, a core component of GMES to define and set up an integrated pan-European capacity for ocean monitoring and forecasting. **MYOCEAN** contributes in turn to the **GODAE**[13] global experiment.
- The Chinese Space Agency (CNSA) and Cnes have decided to cooperate in building up the so-called **CFOSAT** mission. CFOSAT will monitor ocean waves and climatic state of sea surface state on a global and repetitive basis. CFOSAT is planned to be launched in 2015.



The average sea level rise as measured by the follow-on TOPEX-POSEIDON/JASON

Meteorology, climate

Following the successful launch of the **EUMETSAT MSG-2**[14] satellite (2005) developed with a strong French industry involvement, and the experimental **PUMA**[15] exploitation programme, aimed at fos-

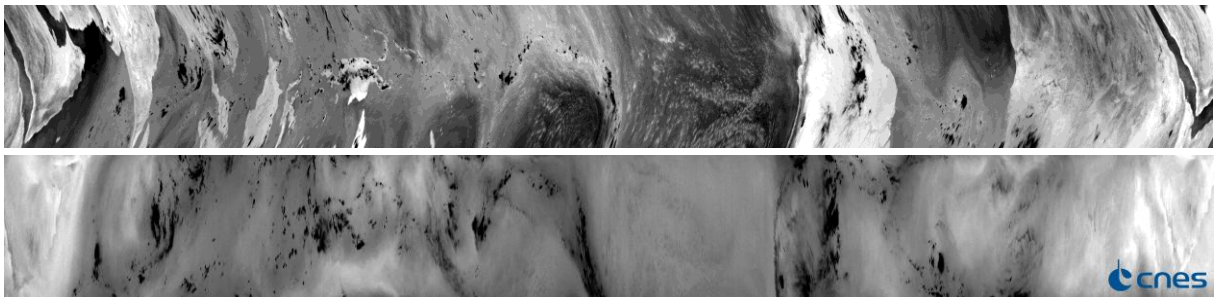
[12] **Alti**metry in **Ka**-band.
[13] **G**lobal **O**cean **D**ata **A**ssimilation **E**xperiment.
[14] **M**eteosat **S**econd **G**eneration.

tering the use of MSG data for non-meteorological applications in Africa, which ended in September 2005, the **AMESD**[16] programme is considered as a GMES component to support African countries in better managing their natural resources by providing them with relevant environmental information. 111 stations were deployed as of June 2011 in 48 African Sub-Saharan countries in the framework of AMESD programme by Telespazio-France. The 111 stations comprise 57 AMESD stations, 50 PUMA-2010 stations, and the equipment of 4 African training centres.

The last two **Meteosat Second Generation** (**MSG**) series are readied to launch as from 2011, while the **Meteosat Third generation (MTG)** Preparatory Programme started at the beginning of 2008 according to a decision of the 63rd EUMETSAT Council. Intended for launch in 2015, MTG will provide a significant improvement over the capabilities of the current Meteosat satellites.

France took an important part in the development of the **METOP**[17] programme, which is the space segment of the **EUMETSAT Polar System** (EPS)[18]. Among the three polar orbiting satellites to be launched at five-year intervals, the first one was launched in 2006. So, the polar-orbiting satellites dedicated to operational meteorology are now equally shared between EUMETSAT and NOAA. The most innovative METOP payload is **IASI**[19], a new-generation Fourier Transform Michelson interferometer developed by CNES that currently provides atmospheric infrared emission spectra of unprecedented accuracy (temperature and humidity profiles accurate to 1°C and 10% respectively, with a vertical resolution of 1 kilometre). It also allows retrieving such trace gases as O_3, CH_4, CO at global scale. The second and third METOP satellites are planned to be launched in 2012 and 2016 respectively.

The Indian Space Research Organisation (ISRO) and CNES jointly developed the **MEGHA-TROPIQUES** [20] satellite, just launched on October 12, 2011. Observations transmitted by MEGHA-TROPIQUES are expected to improve scientific knowledge on the water cycle contribution to the climate dynamic in the **tropical atmosphere** and on the processes linked to the tropical convection, especially regarding the ITCZ [21], where the atmosphere dynamics is particularly intense. It carries on three instruments : MADRAS, a microwave imaging sensor to study rainfall and cloud properties, SAPHIR, a 6-channel microwave radiometer to determine water vapour vertical profile and horizontal distribution and SCARAB , a radiometer to measure top of atmosphere radiative flux.



MEGHA-TROPIQUES: Among the very first images delivered by MADRAS (89V channel) and SAPHIR (channel 6) sensors- © ISRO & CNES.

Aerosols, clouds, radiative budget – The A-Train

Developed by the NASA, CNES and CSA[22], the so-called **A-Train** is a series of seven satellites (Oco[23], Aqua, Cloudsat, Calipso, Parasol, Aura, Glory) on the same orbit, crossing the equator at about 13:30.

[15] **P**reparation to the **U**se of **M**SG in **A**frica.
[16] **A**frican **M**onitoring of the **E**nvironment for **S**ustainable **D**evelopment.
[17] **MET**eorological **OP**erational Satellite.
[18] The **E**UMETSAT **P**olar **S**ystem consists of the METOP spacecrafts and associated ground segment.
[19] **I**nfrared **A**tmospheric **S**ounding **I**nterferometer.
[20] "**Megha**" means cloud in Sanskrit and "**Tropiques**" means tropics in French.
[21] **I**nter-**T**ropical **C**onvergence **Z**one.
[22] Canadian **S**pace **A**gency.
[23] The launch of **OCO** failed.

A-Train is a unique observatory of the integrated Earth system and specially the atmosphere that they sound both horizontally and vertically from about the same location at the same time.

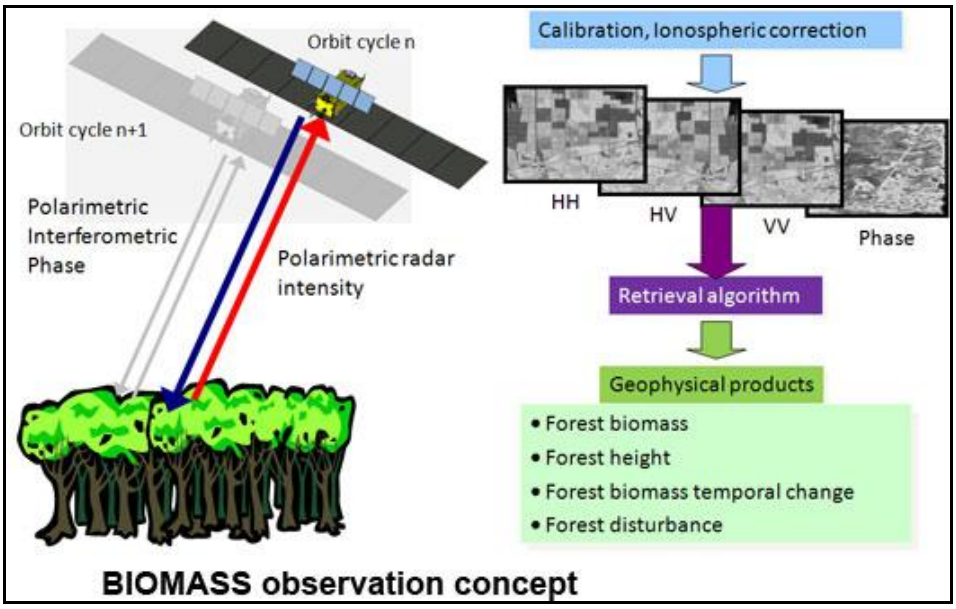
CNES' **PARASOL**[24] micro-satellite carried on a **POLDER**[25]-like wide-field radiometer. Derived products were made available in April 2005. They include unique information and results about the marine and terrestrial aerosols. They are distributed by CNES and by the ICARE 'Thematic Competence Network' (see below). On 2 December 2009, PARASOL was maneuvered out of the A-Train and dropped some 4 km below the other satellites by early January 2010 without stopping transmitting information.

Managed by NASA in cooperation with France, the **CALIPSO**[26] mission was launched in 2006. CALIPSO addresses important questions about the effects of clouds and aerosols (airborne particles) on the Earth climate change.

Involvement in future ESA Earth Explorer Core Missions

Within the framework of the second call for **Earth Explorer Opportunity Missions** (2005) , following pre-phase A studies, ESA selected the following missions for Phase A studies in March 2009: BIOMASS, CoReH2O and PREMIER. France is deeply involved in these proposals, especially in the first one.

BIOMASS aims at delineating forests and quantifying forest biomass using a 50 m spatial resolution, 25 days revisit time P-band SAR offering repeat-pass interferometer. Coordinated by CESBIO (France), BIOMASS is the first mission fully dedicated to forest monitoring with scientists in the "driving seat".



The BIOMASS observation concept. © CESBIO

'Thematic competence networks'

The French programme of 'thematic competence networks' is a major initiative meant to provide scientists with relevant products and information, while saving as much time and manpower as possible regarding data handling and pre-processing irrelevant to their scope of research.

[24] **P**olarisation and **A**nisotropy of **R**eflectances for **A**tmospheric **S**ciences coupled with **O**bservations from a **L**idar

[25] PO**Larisation and** D**irectionality of the** E**arth's** R**eflectances**.

[26] **C**loud-**A**erosol **L**idar and **I**nfrared **P**athfinder **S**atellite **O**bservations.

- The **ETHER** Thematic Competence Network manages and valorises data related to atmospheric chemistry. Although dedicated primarily to scientists, it can bring valuable information to operational services, policy makers and general public.
- The **ICARE**[27] Thematic Competence Network is a partnership dedicated to aerosols, clouds, radiation and the water cycle. Among others, it distributes atmospheric products derived from PARASOL (see above).

Environment and security: GMES

From its very beginning, France strongly supported **GMES**[28] as a user driven initiative making use of reliable operational information sources, both from space and in situ monitoring, . ESA was involved in GMES through the **GSE**[29]scheme that is a suite of Earth Observation-based precursor services. France was engaged in 11 of the 12 initial GSE projects and is presently leading 3 of them. CNES developed a dedicated programme to facilitate the operational use of GMES at national level. .

Gérard BEGNI (CNES)

[27] **I**nteractions **C**louds **A**erosols **R**adiations **E**tc.
[28] **G**lobal **M**onitoring for **E**nvironment and **S**ecurity.
[29] GMES Service Elements.

ACRS 2011, the 32nd Asian Conference on Remote Sensing

During October 3-7, 2011, the Asian Association of Remote Sensing Laboratories (AARS) held its 32nd Annual Symposium in Taiwan. The event was organised by Liang-Chien Chen from the Chinese Taipei Society of Photogrammetry and Remote Sensing. Taipei's International Convention Center hosted the symposium, in the shadow of the Taipei 101 tower, a 500 m high landmark skyscraper.

The event was visited by 850 participants, more than 400 came from outside Asia. The programme offered 47 oral presentation sessions with 251 contributions in six parallel sessions. In three interactive sessions 189 posters were presented. The number of no-shows was low: oral: 9%, poster: 29%. 117 presentations from students contributed to the success of the symposium. Nine special sessions were organised by space agencies and other remote sensing organisations (e.g. NSPO from Taiwan, JAXA from Japan, NCDR from China, and IEEE GRSS) on selected topics of their activities. 21 companies presented state-of-the-art products in commercial technical presentations and exhibitions accompanying the symposium. 538 manuscripts were published in the Symposium Proceedings, and distributed to all attendees.

In the framework of the Symposium an eLearning Workshop of ISPRS Working Group VI was organized and chaired by Gerhard König from the Technische Universität Berlin and Peter Shih from National Chiao-Tung University, Hsinchu, Taiwan, where a contribution on *SEOS – EARSeL's Project on Science Education through Earth Observation for High Schools* was an invited paper.

Opening session of ACRS 2011. Right: Kohei Cho, Secretary General of AARS, welcomes the participants. Left: Shunji Murai initiated the ACRS conferences in 1980. He was AARS General Secretary from 1981 – when AARS was founded – until 2009 when Kohei Cho was assigned as Secretary General. Courtesy: ACRS 2011

AARS and the Asian Conferences on Remote Sensing

At first glance AARS appears as EARSeL's Asian counterpart. However, there are differences. There is no laboratory membership but 24 countries in Asia (plus Australia) are members. There are 9 associate members in America and Europe, and 8 companies are sustaining members. The AARS Board is the General Conference, where representatives of member countries come together in the evening hours of the symposium and decide on all matters affecting the association.

The principal objective of AARS is to organise the annual symposia which bring together almost all Asian researchers in remote sensing. The series started in 1980 and will now continue 2012 in Jakarta, Indonesia, 2013 in Pattaya, Thailand, and 2014 in India.

The symposia attract many colleagues from Europe, Africa and America, mostly due to the Asian atmosphere which makes the symposia very enjoyable events, not to mention the very high quality of presentations. ACRS is fully open to any nation and region. An important element is non-discrimination, which means that any participant must pay the registration fee. But fees are low (100 US$), in agreement with the spirit of ACRS: *Friendship First and Money After!* This allows many students to join the events and to meet experts in their field of study.

The symposia are indeed very attractive for young researchers, in ACRS 2011 due to

- one-day Pre-conference Tutorials on selected topics (in 2011: Airborne Lidar Remote Sensing, and Mobile Mapping Technology)
- the Student Programme with student sessions and networks which are supported by coordinators from different countries
- a web contest entitled WEBCON with the objective to promote the development of web based materials which can give us a future vision of web-related geo-information services beyond Google Earth
- and by the so-called White Elephant Sessions which aim to teach important soft skills such as (in 2011) Thesis Writing (lecturer: Armin Grün), Proposal Writing (lecturer: Ian Dowman), and Presentation Technique (lecturer: Shunji Murai).

Kohei Cho, Secretary General of AARS. Courtesy: ACRS 2011

Meeting on future cooperation of international societies

On 5 October a special meeting initiated by Kohei Cho was held on the subject of future cooperation among societies engaged in remote sensing. Invited participants were Chen Jun (ISPRS Secretary General), David G. Goodenough and Anthony K. Milne (IEEE Geoscience and Remote Sensing Society), and Rainer Reuter (EARSeL). The meeting was chaired by Liang-Chien Chen (Chinese Taipei Society of Photogrammetry and Remote Sensing).

In the first part of the meeting the societies involved were briefly introduced by their representatives.

The structure of the International Society of Remote Sensing (ISPRS) includes the General Assembly, having 87 National Member Organisations, 10 Associate Member Organisations and 12 Regional Member Organisations (among them: EARSeL); a Council supported by 77 Sustaining Members; and 8 Working Groups focussing on specific fields of Earth observation and remote sensing. ISPRS was founded in 1910 and celebrated last year its centenary in Vienna. ISPRS is very much engaged in organising scientific meetings, and in scientific publications (*Archives* of Congress Volumes and Commission Symposia with open-access, ISPRS Journal of Photogrammetry and Remote Sensing). Future administrative actions announced by the Secretary General are to establish permanent headquarters, and to allow for individual membership. Among the next steps in the field of international cooperation is an initiative towards *Global Land Cover Mapping at 30 Metres Resolution and Service* with GEO, GOFC-GOLD and EARSeL as potential partners.

Vision of the IEEE Geoscience and Remote Sensing Society (IEEE-GRSS) is "to be the leading society in science, engineering, applications, and education for the remote sensing and geospatial information community". The society organises the annual IGARSS Symposia and publishes the *Geoscience and Remote Sensing Newsletter*, the *Transactions on Geoscience and Remote Sensing*, the *Geoscience and Remote Sensing Letters*, and the *Journal on Selected Topics in Applied Earth Observations and Remote Sensing* and thus states to publish "one-third of the world's literature in this field". Membership is organised in regional Chapters, with a total of 34 worldwide. IEEE-GRSS is active in education through on-line audio lectures and tutorials, life broadcasts from IGARSS and workshops, and an on-line PhD thesis library. Memoranda of Understanding were signed with the Canadian Remote Sensing Society in 2004, with ISPRS in 2005, with the African Association of Remote Sensing of the Environment (AARSE) in 2008, and with the Joint Board of Geospatial Information Societies in 2009.

In 2010, in the framework of the ISPRS Centenary in Vienna, EARSeL signed a Memorandum of Understanding with AARS, AARSE and SELPER, see EARSeL Newsletter 83, 2010. The objectives of this MoU were presented and discussed.

In particular the idea of establishing an International Scientific Academy of Remote Sensing found much interest, aiming at improving the international standing of Earth observation from space. This could be created as a joint effort, bringing together the potential of regional associations with ISPRS as a partner. A proposal shall be prepared in the near future and submitted to the societies for further discussion.

The Asian Association of Remote Sensing Laboratories on the internet: http://www.a-a-r-s.org/acrs/

EARSeL eProceedings

New Publications in Vol. 10(2), 2011

Calibration and validation of an algorithm for remote sensing of turbidity over La Plata River estuary, Argentina

Ana I Dogliotti, Kevin Ruddick, Bouchra Nechad, Carlos Lasta, Alejandra Mercado, Constanza Hozbor, Raúl Guerrero, Gabriela Riviello López, and Mariana Abelando

Abstract Read full paper online

The La Plata River, located at 35°S on the Atlantic coast, is one of the largest waterways of South America. It carries a large amount of suspended particulate and dissolved organic matter, and is considered among the most turbid waters of the world. Very high values of total suspended matter have been reported in this region, with mean values ranging from 100 to 300 g m^{-3} and extreme concentrations up to 400 g m^{-3}. Satellite sensors have shown to be the best tools available to map river plumes and to study their influence on the adjacent ocean. However, global algorithms for remotely estimating sediment concentration are not currently available. Moreover, such high sediment loads represent a challenge to atmospheric correction algorithms which usually rely on the assumption of zero water-leaving reflectance in the near infrared or short wave infrared part of the spectrum (black pixel assumption). In the extremely turbid waters of La Plata Estuary such assumptions are not valid. A two band algorithm to estimate turbidity using near infrared and the short wave infrared bands (858 nm and 1240 nm) of the MODIS-Aqua sensor is presented. The model is calibrated using *in situ* reflectance and turbidity measurements from turbid waters of the Southern North Sea and Scheldt River (Belgium) and then applied to MODIS imagery of La Plata River estuary (Argentina). A good correlation was found between modelled and *in situ* turbidity values when the algorithm was applied to concurrent MODIS imagery. Moreover, satellite-derived turbidity maps show a spatial distribution of sediment consistent with patterns and characteristic features of the estuary.

Monitoring the reopening of roads in the Democratic Republic of Congo with Earth Observation data

Nathalie Stephenne, Ides Bauwens, Mathieu Rahm, and Nicolas Dosselaere

Abstract Read full paper online

Infrastructure projects are particularly important for the socio-economic development. But roads can also have a large impact on natural environment while opening new tracks. Changes in the accessibility of remote areas could increase illegal activities, in particular the illegal timber logging.

Within the Global Monitoring for Environment and Security (GMES) project called G-Mosaic (GMES Services for Management of Operations, Situation Awareness and Intelligence for Regional Crises), the critical asset working group developed geo-spatial information to monitor human and environmental impact of reopening roads, in DRC (Democratic Republic of Congo). This paper presents the Earth Observation (EO) derived tools to monitor forest changes along the route between Kisangani and Bunduki/Bondo. The EO monitoring service combines frequently large area monitoring at high resolution (20 - 30 m) with detailed annual monitoring at very high resolution (0.5 m). First results quantify the number of clear-cuts along the road in the Rubi-Tele reserve. The number of patches increase from 2010 to 2011 but the total area in these clear-cuts is constant during the period.

The potential application of the developed tools in the context of REDD will be further developed in the REDDiness project. The project was obtained in the last calls of the 7th European Commission (EC) Framework Programme and has just started in 2011. In REDDiness, up-to-date Earth Observation (EO) techniques will be adapted to local situation in order to assist Central African countries in addressing the challenges of Reducing Emissions from Deforestation and forest Degradation (REDD). For both G-Mosaic and REDDiness projects, there is a high interest of measuring and mapping chang-

es in the world's humid tropical forests to derive national and regional figures for multilateral agreements and sustainable forest management.

Designing teaching units via WEBGIS: Remotely sensed imagery in the language classroom

Nils Lammert-Siepmann, Dennis Edler, Andreas Redecker, and Carsten Jürgens

Abstract Read full paper online

The capabilities of some open source web map client applications allow users to imbed remotely sensed data obtained from free of charge web services into web browser applications via their Application Programming Interface (API). As an example, Google imagery is one of those interesting sources for different educational applications. The visual base provided by Google can be extended with OpenLayers, an open source JavaScript library, which allows users to link the acoustic dimension with visual spatial representations.

To support language teachers in the design and creation of space-related teaching material, a research project named Localized Language Learning (LLL) has been started in the Geomatics/Remote Sensing Group at the Ruhr-University Bochum (RUB), Germany. Here, students shall be invited to study linguistic features such as vocabulary, grammar and pronunciation while simultaneously looking at remotely sensed images on different scales.

The present paper is focused on the project's technical implementation. In addition, it contains four examples of teaching units that have already been used in an Irish language course at RUB.

Remote determination of temperature and salinity in presence of dissolved organic matter in natural waters using laser spectroscopy

Tatiana Dolenko, Sergey Burikov, Alexey Sabirov, and Victor Fadeev

Abstract Read full paper online

During the last years, the problem of remote determination of parameters of natural waters became very important. This is due to the fact that salinity and temperature are the key parameters determining ocean circulation, and transfer of energy and mass in conterminous layers of the ocean. The authors of this study have previously suggested and implemented a method of simultaneous determination of temperature and salinity of seawater using laser Raman spectroscopy. In this paper, the results of the next step of this work are presented: the determination of temperature and salinity of natural water using Raman spectra in presence of fluorescence of dissolved organic matter as dispersant pedestal under the Raman valence band. This inverse problem of laser spectroscopy was successfully solved using Raman and fluorescence spectra of aqueous media and using artificial neural networks.

PROBA-V performance assessment for forest cover mapping over the Atlantic biogeographical region of Europe

Assia Azzi, Ioannis Manakos, Chariton Kalaitzidis, Mathias Schardt, and Heinz Gallaun

Abstract Read full paper online

The Belgian Federal Science Policy Office (BELSPO) has initiated a Preparatory Evaluation/Validation Programme for the products of the new PROBA-V satellite to be launched in 2012. The satellite will allow daily monitoring of terrestrial vegetation cover through remote sensing, and will cover the data provision gap between the closure of the SPOT/VEGETATION Programme and the launch of the SENTINEL-3 mission. The aim of this study is to evaluate the improvements that PROBA-V will bring along for forest monitoring in the Atlantic Biogeographical Region of Europe, and lies within the objectives of the FM@PROBA-V project. A representative site in Northern Portugal is selected for this reason. VEGETATION, LANDSAT-TM5, and MODIS data along with the JRC Forest Cover Map are used to train the classifiers, simulate PROBA-V data, apply the classifiers at 250 m, 1/3 of a km, and 1 km pixels, and validate the results, while quantifying the accuracies. Maximum Likelihood (ML), Artificial Neural

Networks (ANN), and Support Vector Machine (SVM) methods were tested. From the confusion matrices the best result is obtained by MODIS 2 bands with ANN classifier. Further analysis on the base of those confusion matrices will be applied to define the best classifier taking into account all the parameters of the matrices. The best performing classifier will then be recommended to examine its robustness against sudden disastrous events, like fire, in the same area, performing change detection between sequential dates (before and after the event). The performance of the data and classifiers are demonstrated, and the preliminary results are discussed.

Forthcoming EARSeL Conferences

May 21 - 24, 2012:
32nd EARSeL Symposium 2012
Mykonos Island, Greece. Organised by University of Thessaly, Greece

May 24 - 25, 2012:
Remote Sensing and Geology.
Mykonos Island, Greece. Organised by the Institute of Geology and Mineral Exploration, Athens, Greece

Other Conferences

March 12-14, 2012 RSPSoc Annual Student Conference. Falmouth, United Kingdom

March 12 - 13, 2012 EduServ, EuroSDR's annual series of short eLearning courses. Dublin, Ireland. A two-days seminar followed by four two-week distance eLearning courses

April 23-27, 2012 Geospatial World Forum. Amsterdam, The Netherlands

April 23-27, 2012 Sentinel-2 Preparatory Symposium. ESA-ESRIN, Frascati, Italy

May 7-9, 2012 4th International Conference on GEographic Object Based Image Analysis (GEOBIA 2012). Rio de Janeiro, Brazil

May 7-11, 2012 44th International Liege Colloquium on Ocean Dynamics Remote Sensing of Colour, Temperature and Salinity. Liege, Belgium.

July 14-23, 2012 COSPAR 2012: 39th Scientific Assembly of the Committee on Space Research. Mysore, India

August 25 - September 1, 2012 ISPRS Congress 2012. Melbourne, Australia

September 11-14, 2012 ForestSAT 2012. Corvallis, Oregon, United States

September 12-14, 2012 Remote Sensing and Photogrammetry Society Annual Conference. Greenwich, United Kingdom

October 29 - November 2, 2012 9th International Conference of the African Association of Remote Sensing of the Environment (AARSE). Eljadida, Morocco

Symposium 2012: Call for Papers

Reminder: Final abstract submission due date is 10 January 2012

Call for Papers

EARSeL is a scientific network of European remote sensing laboratories, coming from both academia and commercial/industrial sector, which covers all fields of geoinformation and earth observation through remote sensing. All scientists, professionals and researchers involved or interested in the field of the symposium are strongly encouraged to present papers according to the following topics. Authors are requested to submit their abstracts by December 15, 2011.

Symposium Topics

Contributions to the Symposium are invited in one of the following topics:

- 3D Remote Sensing
- Archaeology
- Remote Sensing of Cultural Heritage
- Climate and Climate Change
- Developing Countries
- Education and Training (E&T)
- Forest Fires
- Forestry
- Imaging Spectroscopy
- Land Ice and Snow
- Natural and Man-Made Disasters
- New Instruments and Methods
- Ocean Remote Sensing
- Radar Remote Sensing
- Thermal Remote Sensing
- Urban Remote Sensing

Contributions will be presented either orally or by poster. Both are considered of equal value and no distinction is made in the Symposium proceedings.

Committees

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Hans-Peter Thamm	Free University Berlin, Germany
Piotr Wezyk	Agricultural University of Cracow, Poland
Stefan Wunderle	University of Bern, Switzerland

Important Dates

Due date for abstract submission *(Symposium)*
December 15, 2011
Notification of authors *(Symposium)*
February 28, 2012
Due date for the symposium fee payment of authors *
April 15, 2012
Submission due date for full papers *(Joint Workshop only)*
March 19, 2012
Submission due date for full papers *(Symposium and Workshops)*
May 26, 2012

*Early registration with reduced fees before April 15, 2012 is mandatory for authors of oral and poster contributions.

Registration Fees

Registration fees *before 15 April 2012**	**EARSeL Member**	**Non-Member**	**EARSeL Student**	**Non EARSeL Student**
Symposium	€ 350	€ 470	€ 190	€ 240
Joint Workshop on Radar, 3D and Urban Remote Sensing	€ 250	€ 300	€ 150	€ 190
Workshop on Geological Applications	€ 250	€ 300	€ 150	€ 190

Please visit the symposium website for workshops updates or any new workshops announcements.

** 25 % must be added to registration fees if paid after 15th April 2012. Workshop fees are reduced by 20% for participants of the symposium.*

The registration fees for the 32nd EARSeL Symposium are shown in Euros. They include a conference package, the abstract book, publication in the Symposium Proceedings, plenary sessions, workshops and poster presentations, welcoming reception, midday lunches, and coffee breaks. Banquet is not included in the registration fees.

For registration and paper submission enquiries please visit EARSeL's Conference Management System:
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Reminder: Final abstract submission due date is 10 January 2012

Cover –Photos from the VIII EARSeL workshop on Forest Fire in October 2011 Stresa (Italy)

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