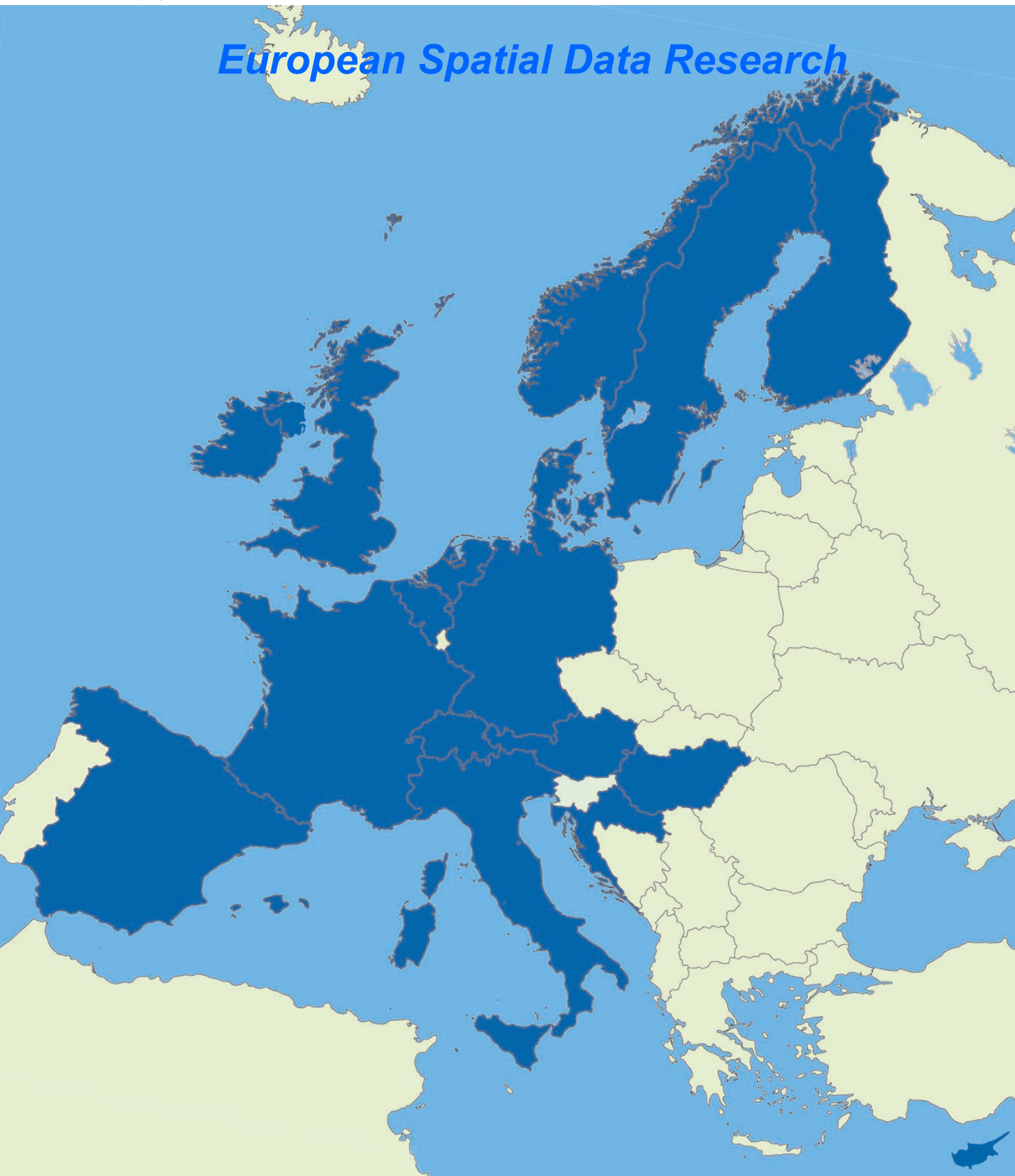




# *Annual Report 2007*

[www.eurosd.net](http://www.eurosd.net)

*European Spatial Data Research*



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# About EuroSDR

EuroSDR is a pan-European organisation established by International Treaty, as OEEPE, in 1953 in Paris in accordance with a recommendation passed by the Council of the Organisation for European Economic Co-operation. The spatial data research interests of European countries are represented in EuroSDR through the membership of national organisations from their production and research sectors.

The result is a network of delegates, from European Geographic Information organisations and research institutes, effectively and practically addressing Europe's spatial data research requirements.

Collaborative research projects address the acquisition, management and delivery of spatial data and services while international workshops and courses, in collaboration with related organisations, address key issues in a timely and focussed manner.

## Our Member States and their Prime Delegates

<b>Austria</b>	Michael Franzen	Bundesamt für Eich- und Vermessungswesen (BEV)
<b>Belgium</b>	Ingrid Vanden Berghe	Institut Géographique National
<b>Croatia</b>	Željko Hećimović	Croatian Geodetic Institute
<b>Cyprus</b>	Christos Zenonos	Department of Lands and Surveys
<b>Denmark</b>	Joachim Höhle	Aalborg University
<b>Finland</b>	Risto Kuittinen	Finnish Geodetic Institute
<b>France</b>	Raphael Heno	Institut Géographique National
<b>Germany</b>	Dietmar Grünreich	Bundesamt für Kartographie und Geodäsie
<b>Hungary</b>	Arpad Barsi	Budapest University of Technology and Economics
<b>Ireland</b>	Colin Bray	Ordnance Survey Ireland
<b>Italy</b>	Carlo Cannafoglia	Ministero del l'Economia e Finanze
<b>Norway</b>	Jon Arne Trollvik	Norwegian Mapping and Cadastre Authority
<b>Spain</b>	Antonio Arozarena	Instituto Geografico Nacional
<b>Sweden</b>	Stig Jönsson	Lantmäteriet
<b>Switzerland</b>	Francois Golay	Ecole polytechnique fédérale de Lausanne (EPFL)
<b>The Netherlands</b>	Jantien Stoter	ITC, Enschede
<b>United Kingdom</b>	Keith Murray	Ordnance Survey of Great Britain

**Our Vision** is to be the **European research platform** for National Mapping and Cadastral Agencies, Academic Institutes, the Private Sector, Industry and User Groups on issues related to the implementation of technology developments with respect to optimising the provision (collection, processing, storage, maintenance, visualisation, dissemination and use) of reference information (data serving as a spatial framework for organisations involved in monitoring, management and development) in a Geoinformation Infrastructure (GI) context.

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Further information on all articles in this report can be requested from the EuroSDR Secretariat at [admin@eurosd.net](mailto:admin@eurosd.net)

# Message from the President

Stig Jönsson

Several high level political decisions and declarations having a clear impact on EuroSDR's activities and those of its members were made in 2007.

The INSPIRE Directive came into force on 15<sup>th</sup> May giving a firm legal framework for the development of the European spatial data infrastructure. In order to attain the full aims and benefits of the Directive it is, however, necessary to create better knowledge and understanding of data modelling, data integration, schema translation, evaluation and quality control, efficient implementation of standards and open software, and provision of services through standardised interfaces.

European Union (EU) and European Space Agency (ESA) member states approved further funding for the GMES programme, which implies that Europe will have a unique global environmental information system in place. The first GMES services should be available in 2008.

The development and validation of processes enabling an efficient combination of existing fundamental geographic, spaceborne and in-situ data and distribution of services giving concrete support for land monitoring, marine environment, natural hazards, etc. is also an important area for research and development. At the end of November I participated, together with several of my colleagues within EuroSDR, in a GMES stakeholder event in Brussels. The event, which was arranged by the European Commission, the Parliament and EuroGeographics showed a clear interest on the part of EU and ESA to strengthen the cooperation with national mapping agencies and to include GMES data and services in the European and national SDI solutions.

Europe's first operational climate monitoring satellite (Metop-A) went into service in May and in the autumn the EU also agreed to finance the Galileo programme, which will enable high accuracy positioning services and be of great importance for our sector.

An important driving force for these initiatives is the increasing need for environmental actions, not least related to climate change, which today is one of the greatest environmental, social and economic threats facing the planet. EuroSDR and its members can contribute with vital spatial information knowledge in order to reduce uncertainty and

prepare for efficient environmental actions. It is gratifying to note that we already are deeply involved in such work. A significant part of the projects related to the EuroSDR rolling research plan is focussed on research areas of importance for the development of SDI's and handling of information of importance for environmental applications.

Furthermore a great number of personnel from EuroSDR member organisations are engaged in working groups related to the development and implementation of INSPIRE, GMES, GEOSS and Galileo. However, I believe that we can do even better to promote ourselves and our knowledge related to the environmental sector. EuroSDR should establish efficient co-operation with related organisations, such as EuroGeographics, AGILE, JRC and ISPRS.

In this regard, 2007 saw a significant number of joint activities with exciting exchanges of experience and ideas.

A memorandum of understanding has been worked out with EuroGeographics, which implies an even closer cooperation between the two organisations.

I would like to record my thanks to the Vice-President, Christian Heipke, the Commission Chairmen, Keith Murray, Juha Hyypä, Eberhard Gülch, Michael Cramer, Mike Jackson and our Secretary-General, Kevin Mooney, for all their hard work this year. We have all been supported by a Science Committee that is getting stronger all the time and we would like to thank project managers, workshop organisers and support staff for all their work and contributions throughout the year. Thanks also go to collaborating organisations and all who participated in projects and workshops.

Finally I hope that, having received this Annual Report, you will spend some time and learn more about EuroSDR and our achievements. We represent a fruitful European-wide collaboration between true experts from national mapping and cadastral agencies and researchers from leading universities and research institutes. Hopefully, the overview given in this report will make you interested to learn more about our work.

Stig Jönsson  
President  
EuroSDR





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# 110<sup>th</sup> Meetings in Rotterdam

jointly hosted by Kadaster, Rijkswaterstaat and ITC

## Spatial Information Activities in The Netherlands

Members of the GI production and research communities in The Netherlands presented their activities to the first session of the EuroSDR Science committee meeting in Rotterdam, The Netherlands on 23<sup>rd</sup> May 2007.



The very comprehensive and informative series of presentations included:

### **The Netherlands Kadaster**

*Arco Groothedde, Member of the Board of Kadaster*

### **Key-registers and Inspire - The Dutch Organisation and Perspective of a (inter)national SDI**

*Noud Hooyman, Ministry of Housing, Spatial Planning and the Environment*

### **Space for Geo-information (RGI): Network for geo-innovation in the Netherlands**

*Jacqueline Meerkerk, RGI*

### **Implementing INSPIRE (principles): Towards an Enterprise SDI for Rijkswaterstaat**

*Michel Grothe, ICT Department Rijkswaterstaat*



*Prof. Monika Sester* from the Institut für Kartographie und Geoinformatik (ikg), Hannover, delivering the keynote presentation on **Multiple representation and multiple resolution of geospatial databases for updating.**



EuroSDR delegates were treated to a very enjoyable evening at the impressive Euromast tower in Rotterdam by our hosts, the Netherlands Kadaster, Rijkswaterstaat and ITC.

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## INSPIRE

There is a fair chance that, in the future, we will think of 2007 as the year of the INSPIRE directive (Infrastructure for Spatial Information in Europe). More precisely, INSPIRE entered into force on 15<sup>th</sup> May 2007 and European nations must follow up with national legislation by May 2009. EuroSDR continued to contribute to INSPIRE in 2007 by nominating a number of our colleagues for the Implementing Rules Drafting Teams and Thematic Working Groups. We also made a formal change in this regard during 2007, namely the alignment of the terms of reference of Commissions 4 and 5 to better reflect INSPIRE requirements in Data Specifications and Network Services.

# 111<sup>th</sup> Meetings in Brussels

Hosted by Institut Géographique National (NGI – IGN)

## Spatial Data Research in Belgium

The 111<sup>th</sup> meetings of the EuroSDR Science Committee took place from 17<sup>th</sup> to 19<sup>th</sup> October 2007 at The Egmont Palace in Brussels, Belgium and were hosted by Nationaal Geografisch Instituut - Institut Géographique National (NGI – IGN).



On Wednesday 17<sup>th</sup> October NGI – IGN organised a very well attended seminar, entitled Spatial Data Research in Belgium, at the Royal Military Academy, Brussels.

Topics presented included:

**Research at EuroSDR - vital to sustainable spatial planning and development in Europe**—*Christian Heipke, Leibniz Universität Hannover. Vice-President, EuroSDR*

**Belgian landscape of academic education in geomatics and surveying**—*Philippe De Maeyer, Ghent University*

**Fusion of optical and PolInSAR data for land cover classification**—*Marc Acheroy, Royal Military School – Signal & Image Centre*

**Integration of in situ data and hyperspectral remote sensing for plant production modelling**—*Willem W. Verstraeten and Pol Coppin, K.U.Leuven*  
**Qualitative Spatio-Temporal Reasoning and Spatial Database Design**—*J-P. Donnay, P. Hallot and F. Laplanche, Unit of Geomatics of the University of Liège*

**Points of interest of spatial research at Ghent University**—*Nico Van de Weghe, Ghent University*

**Technological innovation - bridging the gap between R&D and customer satisfaction**—*Dirk Van Speybroeck, Head Remote Sensing, Flemish Institute for Technological Research, VITO (Mol, Belgium)*  
**Mapping the Belgian GEO-ICT sector**—*Tanguy De Lestré, Agoria – Federation of the technological industry*



Mrs. Ingrid Vanden Berghe, Director-general NGI, welcomes guests and introduces the Seminar 'Spatial Data Research in Belgium'.



Mr Philippe Busquin, Minister of State and Member of the European Parliament (right) talks to Mr. Colin Bray (left) and Mr. Keith Murray (centre) of EuroSDR

# Message from the Vice-President

## Christian Heipke

2007 was another very interesting and successful year for EuroSDR. Fascinating new projects were begun, focussed workshops conducted and we continued the EduServ e-learning initiative with yet another module.

2007 saw a consolidation of our work along the lines of the new rolling research plan 2007 – 2010.

Three projects, dealing with such diverse topics as the calibration of digital aerial cameras, automatic tree extraction and 3D city models and CityGML, were successfully completed in 2007. They currently await final publication as No. 53 of our official series.

All three projects obtained new and very relevant results and have thus indeed lived up to their promises: generating new and relevant knowledge, and involving a wide number of groups within EuroSDR and beyond; congratulations to the project leaders and all participants!

New projects started in 2007 are examining the capabilities of medium format digital aerial cameras, airborne laser scanning intensity calibration and virtual globes. We at EuroSDR are certain that they will also obtain excellent results and thus contribute to extending the body of knowledge in the geospatial sciences.

The same is true for the workshops which EuroSDR organised or co-organised in 2007. Topics included the integration of land and marine information, the management of partnerships in the production of geospatial information, and an assessment of software tools for cartographic generalisation. A very interesting workshop on interoperability was organised in conjunction with AGILE, which resulted in the investigation of the establishment of a persistent interoperability test-bed.

Workshop proceedings are made available to a wide audience on CD and via the Internet.

Other projects have generated activities beyond their lifetime and thus continue to influence our work. Examples include the EuroDAC<sup>2</sup> initiative (European digital airborne camera certification) which brings together experts from manufacturers and users across the world to establish a recognised procedure for camera calibration of digital aerial sensors and the Memorandum of Understanding recently signed with the OGC (the Open GIS Consortium), which is a direct result of our working group on standards.

An interesting development in the way we conduct our twice-yearly EuroSDR meetings was the introduction of the so-called *Tour de Table*. This gives everybody the opportunity of expressing their opinion and sharing their knowledge with the group. During the spring meeting new ideas are discussed, while the autumn meeting is devoted to examples of best practice in our member organisations. We have also started to discuss new project proposals in these groups in order to maximise the benefit for project participants, project leaders, and EuroSDR as a whole.

We continue to identify one relevant topic per meeting for which we invite renowned experts to share their knowledge with us. At the May meeting in Rotterdam we welcomed Prof. Monika Sester from Hannover, who gave an excellent talk about multiple representation and multiple resolution of geospatial databases for updating.

The topic of the October meeting in Brussels dealt with the potential and limitations of a European Digital Terrain Model generated through laser scanning and was presented by Prof. Norbert Pfeifer from Vienna who has an outstanding research record in DTM generation and in laser scanning. Both talks were followed by breakout sessions on the same topic, thus linking the two new items on the meeting agenda.

In finishing, I would like to wholeheartedly thank everybody who has put effort and time into the EuroSDR research activities. In particular, I would like to thank Eberhard Gülch, who stood down as Chairman of Commission 3 in 2007 after three terms of very productive and successful work. I am glad to report that Eberhard will continue to support EuroSDR, first in organising the 2008 EduServ module in Stuttgart, and then as co-chair of the new project on virtual globes. Eberhard's place has been taken by André Streilein from swisstopo in Berne. I am sure André will continue Eberhard's successful work while adding a new dimension to our organisation.

Welcome to André and welcome also to Željko Hećimović and Ivan Landek from Croatia. Croatia is the youngest member of our organisation and joined in 2007. We are happy to extend our activities into this area of Europe and will certainly strive to fulfil your hopes and expectations.

Christian Heipke  
Vice-President  
EuroSDR





# Sensors, Primary Data Acquisition and Georeferencing

Michael Cramer

Commission 1 activities in 2007 were mainly focused on the analysis of the new digital airborne cameras, which are widely-established in operational applications now. Some national mapping authorities, for example, have already decided to switch from analogue to exclusively digital airborne data acquisition. So far more than 150 large format digital airborne cameras have been sold, mainly from the three “global players” Intergraph/ZI (DMC), Leica Geosystems (ADS40) and Microsoft Vexcel Imaging (Ultracam). Other large format cameras are under development, some of which originated from the so-called medium format camera segment, and their market introduction is expected soon.

Obviously developments in digital airborne imaging are very fast and new technology has transferred to operations very rapidly. In contrast to this, there remains a lack of appropriate validation processes or legal certification procedures. These shortcomings consequently have to be addressed through this commission’s activities.

The project, Network Digital Camera Calibration, is now finished. Detailed results will be published in the official EuroSDR publication series No 53. A comprehensive presentation of the project and its results is also given in <http://www.ifp.uni-stuttgart.de/publications/phowo07/120Cramer.pdf>

Substantial preparatory work was carried out in this project since it began in 2003. Within this activity an international network of experts was established, which in its empirical second phases focused on the analysis of real test flight data from ADS40, DMC and Ultracam-D camera systems. Since the same image data was processed by different organisations based on their experience and specific processing environments, the findings obtained clearly reflect current geometrical performance in digital airborne imaging.

For all investigated data sets the introduction of additional self-calibration parameters was necessary and yielded an increase in object point accuracy.

Although originally planned, the medium format camera segment was not covered in the project, Network Digital Camera Calibration, due to the lack of data availability. Nevertheless, this segment is an emerging one and of increasing interest to the mapping community. Thus the new project “Medium Format Digital Cameras” was started during the 111<sup>th</sup> Science Committee meeting in Brussels in October 2007. The project will focus exclusively on this type of camera and is led by Dr. Görres Grenzdzörffer, Institute for Management of Rural Areas, Rostock University, Germany.

Similar to the camera calibration network activities two project phases have been defined. In the first step an extensive report reflecting currently used systems, practice and methods in airborne medium format digital imaging will be compiled. This more theoretical and literature based part will then be followed by the empirical testing of four to six professional camera systems with a focus on the adoption of commonly accepted procedures for camera calibration and testing. All activities are based on the established network of experts from the preceding project. In addition to focussing on the systems geometrical performance, analysis of the radiometric potential is a substantial part of this medium format camera project.

Investigations in radiometric performance are also of interest for the large format metric cameras. Thus initial preparations for a new project on Radiometric Aspects of Digital Photogrammetric Images have been endorsed. The project will run under joint leadership from the Finnish Geodetic Institute (FGI), Maasala, Finland and the Institut Cartographic de Catalunya (ICC), Barcelona, Spain. The official project launch will take place during the 112<sup>th</sup> EuroSDR meetings in May 2008.

Significant progress can also be reported from the EuroSDR initiative in European digital airborne camera certification – EuroDAC<sup>2</sup>. This more legally oriented activity is reported on page 13.



Michael Cramer  
Chairman  
Commission 1





# Image Analysis and Information Extraction

Juha Hyypä

In 2007 the project, Tree Extraction, was completed and Radiometric Calibration of ALS intensity was initiated. The complete status of the projects running in 2007 is given below.

In the project, Tree Extraction, chaired by Juha Hyypä and Harri Kaartinen, Finnish Geodetic Institute, methods of obtaining individual tree geometry information were compared using laser scanning, photogrammetry and hybrid methods. The objective of this EuroSDR/ISPRS project was to evaluate the quality, accuracy, and feasibility of automatic or semi-automatic tree extraction methods based on high-density laser scanner data and digital image data.

Twelve partners from USA, Canada, Norway, Sweden, Finland, Germany, Austria, Switzerland, Italy, Poland and Taiwan participated in the test covering global knowledge of tree extraction. Participants were requested to extract trees using the given material. They were allowed to use any method and data combination. Participants were asked to provide the following information (as many attributes as it is possible) for each tree: tree location (x,y coordinates of the supposed centre of the trunk), crown delineation, tree height, height of crown base, if possible, or the volume of the crown, if possible.

Results showed that the extraction method is the main factor affecting the achieved accuracy.

When comparing results with accuracies reported in the literature, it is clear that forest conditions play a major role in such tests. Therefore, no final conclusions on the quality of the retrieval algorithms can be drawn from results previously reported in the literature.

Tests such as this should continue in order to improve the existing models systematically and to compare them with each other. FGI will continue with the further analysis of the results.

When laser point density increases, the improvement in crown base height and crown delineation accuracy is marginal, but in some methods the accuracy of the tree location and especially the tree height determination improves.

As there were only two “hybrid” methods, where the height was obtained from laser data and crown

delineation (and species) from aerial images, it is not possible to give a well-grounded conclusion as to whether and by how much the results can be improved by integrating laser scanner data and aerial data.

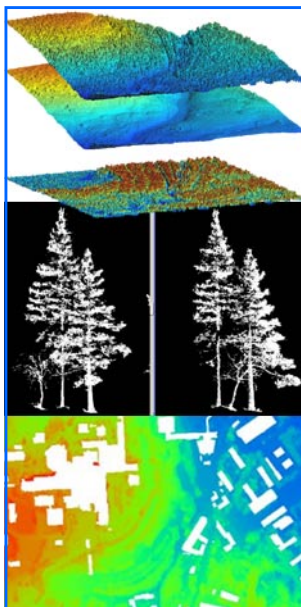
The project, Detection of Unregistered Buildings for Updating Databases, chaired by Nicholas Champion, IGN, France, continued in 2007. Its aim is to find the feasibility of detecting building changes in a 2D database, which can be of several types, e.g. city plan or cadastral database. Five different algorithms are tested in the project, running on the three test areas including Marseille (France), Lyngby (Denmark) and Toulouse (France). Continuing progress in this project is reported on its website at: <http://buildingsdetection.free.fr/>

The project, Radiometric Calibration of ALS Intensity, chaired by Juha Hyypä, FGI, and Wolfgang Wagner, TU Wien, was initiated in May 2007. The objective of the project is to develop feasible, cost-effective techniques for NMCAs and value-adding companies to carry intensity or backscatter cross-section calibration and to evaluate the proposed approach together with NMCAs and companies. Sub-objectives include the development of a practical calibration method; practical tests of FGI and TU Wien on ALS calibration; and tests of NMCAs and value-adding companies on the proposed approach.

In addition to FGI and TU Wien, IGN has also promised to develop methods for intensity calibration. A paper on intensity calibration was published at the ISPRS Workshop on Laser Scanning – Silvilaser 2007, in September where a panel, chaired by Wolfgang Wagner within the workshop, discussed calibration possibilities with other researchers and representatives from industry.

A questionnaire is currently in preparation to be sent to the LiDAR industry in order to get more detail about the intensity recording in each LiDAR system.

Two new projects are under development for commencement in 2008, namely Analysis of Registration Quality – Towards Integration of Laser Scanning and Photogrammetry; and Automizing Road Environment 3D Mapping using Mobile



Juha Hyypä  
Chairman  
Commission 2



# Production Systems and Processes

Eberhard Gülch and André Streilein

2007 was a year of practical progress for production systems in the field of digital photogrammetry. Developments in the scientific community continued to evolve into practical usefulness for users and supported private companies and governmental organisations in the production and maintenance of core spatial databases.

The project **Evaluation of building extraction**, under the leadership of Dr. Juha Hyyppä of the Finnish Geodetic Institute, was completed and incorporated as a distance e-learning course in EuroSDR's education service, EduServ5, during the first half of 2007.

Phase 1 of the **CityGML** project, under the leadership of Dr Thomas Kolbe of the Technical University Berlin, was finalised. The CityGML standard for city models has attracted worldwide interest and has been accepted as an OGC discussion paper. The project has also generated a distance e-learning course for EduServ6, to take place in Spring 2008. All EuroSDR members are invited to join the 'CityGML Standards Working Group' of the OGC and it would be valuable to get comments from the EuroSDR members during the upcoming 'Request for Comments' phase of the CityGML standardisation process.

Commission 3 is exploring the following projects and activities:

**Business Process Modelling:** The commission is actively seeking a project leader for this topic, to be seen in the context of increased outsourcing/subcontracting by NMCAs and public/private partnerships.

**Virtual Globes:** Prof. Stephan Nebiker of Switzerland and Prof. Eberhard Gülch of Germany presented a project proposal on this topic for discussion during the EuroSDR meetings in October 2007 in Brussels. The objectives deal with the challenges and opportunities presented by virtual globes and an evaluation of impacts on the geospatial industry.

Eberhard Gülch  
Chairman  
(outgoing)  
Commission 3



**Intercommission Working Group (ICWG) on 3D City Models:** Dr. Thomas Kolbe and Prof. Eberhard Gülch have proposed the hosting of such an ICWG. A need has been identified to coordinate the different activities in various WGs on this specific topic. Such a working group would also provide a point of contact on this topic for EuroSDR to the outside world. It has become very clear that the acquisition of city models as well as the modelling aspect (follow-up of the CityGML project) will play an important role in the future. Draft terms of reference are under preparation and will be finalised in 2008.

It is hoped that EuroSDR will contribute to the organisation of an international symposium on 3D city models (possibly in Potsdam/Berlin) in 2008.

At the **UDMS 2007** conference in Stuttgart, from 10<sup>th</sup> to 12<sup>th</sup> October 2007, the Commission 3 chairman was invited to give a welcome address on behalf of EuroSDR and chair a session dealing with data and model acquisition based on aerial and satellite image data.

**New Commission Chairman:** The third and final term of the current chairman of EuroSDR Commission 3 ended at the 111<sup>th</sup> EuroSDR meetings in Brussels in October 2007. During this period, the progress of photogrammetric production systems and processes in the photogrammetric community was undoubtedly tied to the efforts of this commission within EuroSDR.

In the field of production systems and processes significant improvements are still feasible for the user. The outgoing and incoming chairmen would like to see EuroSDR contribute to these developments in a user visioned and practical manner.

The outgoing chairman, Prof. Eberhard Gülch of Germany, and the incoming chairman, Dr. André Streilein of Switzerland, would like to thank all project leaders and participants of recent years for their exceptional work which helps the field of technology to evolve.

André Streilein  
Chairman  
(incoming)  
Commission 3



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## EuroSDR Publications



**Bundesamt für Kartographie und Geodäsie (BKG)** and EuroSDR were pleased to announce in 2007 that BKG generously agrees to continue its long-standing sponsorship of the EuroSDR Office of Publications and the costs of printing and distributing EuroSDR's official series of publications - within the context of BKG's annual budgetary constraints. EuroSDR's 'Officer for Publications' will continue to be BKG staff member, Dr. Andreas Busch. Our picture shows Prof. Dietmar Grünreich, President of BKG and Mr. Stig Jönsson, President of EuroSDR signing the Memorandum of Understanding at the 110<sup>th</sup> EuroSDR meetings in Rotterdam in May 2007.

Official Publication No.51 on **DTM Quality and Direct Georeferencing Reliability** was distributed in the first quarter of 2007 by the EuroSDR Office of Publications. It contained the following reports:

**Checking and Improving of Digital Terrain Models**  
*by Joachim Höhle and Marketa Potuckova*

**Reliability of Direct Georeferencing Phase 1:  
An Overview of the Current Approaches and Possibilities**

*by Jan Skaloud*

**Reliability of Direct Georeferencing Phase 2:  
A Case Study on Practical Problems and Solutions**

*by Klaus Legat, Jan Skaloud and Ronald Schmidt*

The proceedings of the **Workshop on Land and Marine Information Integration** were published as Official Publication No.52 during the fourth quarter of 2007. The Workshop was held in Dublin, Ireland from 21<sup>st</sup> to 23<sup>rd</sup> March 2007.

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## E-Learning Courses

**EduServ5**, the fifth in the series of **short e-learning courses** organised by EuroSDR's education service, was launched at the end of March 2007 at a seminar in Charles University, Prague under the hospitality and organisation of Dr. Jan Kolar and Dr. Marketa Potuckova. The four distance learning courses were followed by participants via the Internet from their own workplace or preferred location.

Thirty-eight participants from sixteen countries in Europe, Asia and Africa enrolled on EduServ5 and thirty attended the seminar. The two-week courses, which are based on EuroSDR research projects, covered the following topics:

**Quality of Geospatial Data and the Related Statistical Concepts** (Hosted by ITC, Netherlands) - *Alfred Stein*

**Methods for Checking and Improving of DTMs** (Hosted by Aalborg University and Charles University Prague) - *Marketa Potuckova and Joachim Höhle*

**Laserscanning for 3D City Models** (Hosted by the Finnish Geodetic Institute) - *Juha Hyyppä*

**Mapping from SAR and Optical Imagery** (Hosted by TU Berlin) - *Olaf Hellwich*

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## EduServ 5





# Data Specifications

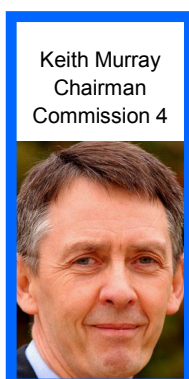
Keith Murray

The primary output of the National Mapping and Cadastral Agencies is the data they produce. This takes many forms from buildings, addresses, property parcels, highway networks, river networks, DTMs, orthoimagery and so on. It is no longer sufficient that data exists; to meet the modern user needs it needs to be defined, it needs to be interoperable, it needs to be maintained, it needs to be reliable and it has to be accessible and easy to use. The activities surrounding these processes have been developing rapidly over the last decade but are still not always well understood outside the small community of experts who are responsible for them. The growth in this field has also been reflected in EuroSDR activity over that time and is now accelerating due to the development of the European Spatial Data Infrastructure (ESDI) via the INSPIRE Directive. The name of Commission 4 now better reflects this change in emphasis and is also better aligned with the INSPIRE developments.

The main activities of the Commission during 2007 centred on four topic areas: INSPIRE, data generalisation, data interoperability and data quality:

**INSPIRE:** we have several members working across most of the drafting teams who are making good progress in developing and laying down the basic foundations of INSPIRE – the Implementing Rules. These developments also influence much of the other work we do.

**Generalisation:** Jantien Stoter of ITC has been leading the investigation and comparison of applications and methods that support generalisation of data. This also overlaps with the aim of the “multiple representation” model that supports the “local to pan European view” of the spatial objects that represent that object –

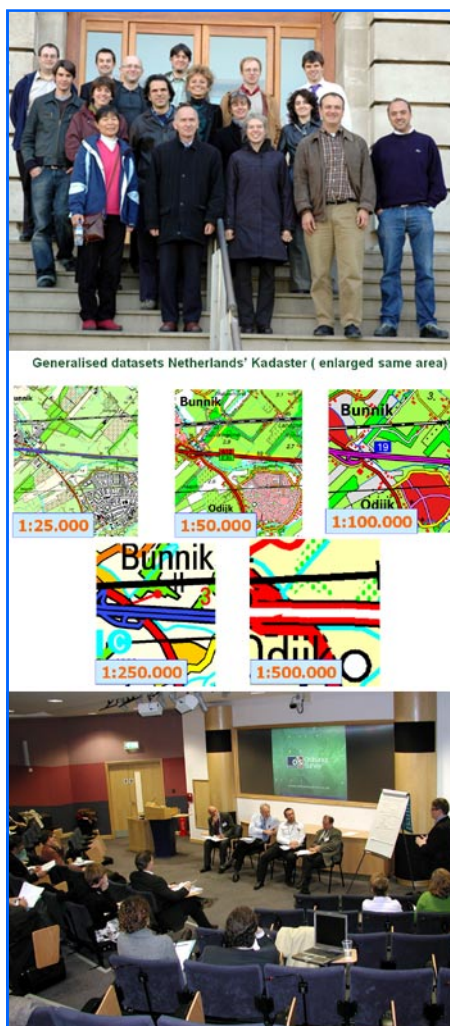


Keith Murray  
Chairman  
Commission 4

“consistently and seamlessly” at whatever resolution the user wishes to observe the object(s).

**Data and Information Interoperability:** There are many aspects to this topic but one that was of interest to many early in 2007 was the issue of joining up the Land and Marine databases so that the users can reference and manage their own information in a seamless environment. This introduces many of the components required in the next generation SDI/INSPIRE such as spatial objects, feature catalogues, transformations (vertical datums being especially important), collaboration across organisations and agreed methodologies. A workshop in March, in collaboration with the International Hydrographic Organisation, the Joint Research Centre of the European Commission and EuroGeographics was attended by fifty people across Europe and it is hoped that further work will follow in 2008.

**Data Quality:** Towards the end of the year discussions initiated at the 2006 Paris workshop on data quality held in conjunction with EuroGeographics led to a further workshop reviewing emerging practices regarding Production Partnership Management (PPM). This included both data providers and contractors and was aimed at obtaining win-win results from the client-supplier working relationship in data creation or update processes. It is hoped that a formal standard will emerge out of the actions agreed at the workshop.



And finally ...this is my last year as Commission chairman (and as a member of EuroSDR) and I would like to take the opportunity of thanking all those I have worked with in the community and beyond over the last ten years. I have thoroughly enjoyed all of that time and have learnt from every event that I have attended. It is now time for some of the new members to take up the baton who I wish well for the future.



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## Network Services

Mike Jackson

The main research focus for Commission 5 in 2007 has been the area of **Geospatial data and service interoperability** and the establishment of a test-bed for related research and education. The activity gained momentum following a Commission 5 “Workshop on Test-Beds for Geospatial Web Services Interoperability” held jointly with the Association of Geographic Information Laboratories for Europe (AGILE) in Aalborg, Denmark on 8<sup>th</sup> May. The workshop included presentations on interoperability research from six organisations and five countries [JRC, Italy; Universities of Münster and Munich, Germany; the Centre for Geospatial Science, University of Nottingham, UK; Jaume I University Castellon, Spain; and the ITC, Netherlands]. A hands-on session using OGC standards was provided by the ITC (Rob Lemmens) and the afternoon included a panel led discussion. This very successful event resulted in a joint call by EuroSDR, AGILE and the Open Geospatial Consortium (OGC) for the establishment of a persistent geospatial interoperability test-bed [now known as the “PTB”]. Twentysix responses were received representing over thirty organisations from sixteen European countries plus the EC Joint Research Centre (JRC). Subsequent planning meetings have been held in Barcelona (hosted by the Cartographic Institute of Catalonia) and in Stresa, Italy in association with the OGC Technical Committee. A presentation on the planned activity was presented in July by Eva Klien, University of Münster, at the 13<sup>th</sup> EC GI & GIS Workshop in Porto, Portugal. Dr Gobe Hobona, Centre for Geospatial Science, University of

Nottingham, has been appointed as the Project Manager for the first phase of the test-bed development.

During the year there were a number of discussions on the alignment and rationalisation of the roles of Commissions 4 and 5 in the context of increased activity around INSPIRE. The outcome has been to focus Commission 4 on Data Specifications and Commission 5 on Network Services. This alignment is consistent with the planned programme of activity for Commission 5 on the test bed activities.

2008 looks set to be a busy year for Commission 5 with the PTB moving from its current planning and use case evaluation stages to the first multi-site implementation and the relevance of the PTB to INSPIRE activity and related EU programmes such as GMES. The Commission PTB programme currently has excellent support from the academic research community and from both national and regional governmental agencies but individuals and organisations interested in participating in the Commission 5 programme or being kept abreast of developments with the PTB are encouraged to contact the commission chairman at [mike.jackson@nottingham.ac.uk](mailto:mike.jackson@nottingham.ac.uk).

Mike Jackson  
Chairman  
Commission 5



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## European Digital Airborne Camera Certification - EuroDAC<sup>2</sup> - Michael Cramer

Significant progress can be reported in 2007 from the EuroSDR EuroDAC<sup>2</sup> initiative. It involves coordination between the European National Mapping and Cadastre Agencies (NMCAs) while cooperating closely with all relevant digital airborne mapping camera suppliers and other experts. A position paper (<http://www.ifp.uni-stuttgart.de/eurosdrr/EuroDAC2-PositionPaper.pdf>) has been distributed and a core competence group established to work on the next steps in **European airborne camera certification**. Six experts from science, national mapping, standards and commercial companies form the group.

Certification of new digital camera systems is a hot issue worldwide today. Many of these activities are driven by the quality assurance plan developed by the US Geological Survey (USGS). Close co-operation has already been established between EuroSDR and USGS to align both concepts as much as possible.

Michael Cramer  
Chairman  
Commission 1



# Croatian Geodetic Institute joins EuroSDR



Mr. Stig Jönsson, President of EuroSDR welcomes Dr. Željko Hecimovic of the Croatian Geodetic Institute (CGI) to the 110<sup>th</sup> meetings in Rotterdam. EuroSDR was delighted to admit CGI, based in Zagreb, as the eighteenth member of the organisation. CGI is a specialized public institution for performing highly professional, scientific and development works in the fields of geodesy, surveying and cadastre. It was founded in February 2001 and works on annual and

multi-year programmes. The Croatian Geodetic Institute undertakes its jobs in collaboration with the State Geodetic Administration of the Republic of Croatia (SGA). The main tasks of the Institute are:

- *Fundamental geodetic works,*
- *Development and research projects,*
- *Geodetic product quality control,*
- *Supporting SGA in database creation,*
- *Creating and maintaining the database of geographic names,*
- *Standardisation of geodetic works and procedures.*

CGI currently comprises four departments:

- **The Department for topographic survey and supervising**
- **The Department for fundamental geodetic works**
- **The Department for geoinformation systems and databases**
- **The Department for legal and financial tasks**

## Financial Overview 2007 *(Subject to audit)*

Income		Expenditure	
Membership fees 2007	96,990.00	Project Seed <sup>(1)</sup>	900.70
Workshops	-921.22	Executive Team	9,264.08
		Secretariat	57,192.89
		Annual recurring <sup>(2)</sup>	14,444.93
		Audit accrual	2,420.00
		Miscellaneous	2,692.96
<b>Totals</b>	<b>€96,068.78</b>		<b>€86,915.56</b>
<b>Income Surplus</b>	<b>€9,153.22</b>		

**Notes:**

- (1) Allocated as project seed funding. Projects are largely financed by contributions from members and project participants.
- (2) Subscription Fees, Newsletter costs, Web hosting, Bank charges, Publication costs.

# Over 45 Years of EuroSDR Publications

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