Annual Report 2005

European Spatial Data Research *www.eurosdr.net*

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. Organisations of European countries that are members of the Council of Europe represent the spatial data research interests of those countries through membership of EuroSDR.

The result is a network of delegates of 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 and 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

Austria	Michael Franzen	Bundesamt für Eich- und Vermessungswesen (BEV)
Belgium	Ingrid Vanden Berghe	Institut Géographique National
Cyprus	Christos Zenonos	Department of Lands and Surveys
Denmark	Joachim Höhle	Aalborg University
Finland	Risto Kuittinen	Finnish Geodetic Institute
France	Marc Pierrot Deseilligny	Institut Géographique National
Germany	Dietmar Grünreich	Bundesamt für Kartographie und Geodäsie
Hungary	Arpad Barsi	Budapest University of Technology and Economics
Ireland	Colin Bray	Ordnance Survey Ireland
Italy	Carlo Cannafoglia	Ministero del l'Economia e Finanze
Norway	Jon Arne Trollvik	Norwegian Mapping and Cadastre Authority
Portugal	Berta Cipriano	Instituto Geográfico Português
Spain	Francisco Papí Montanel	Instituto Geografico Nacional
Sweden	Stig Jönsson	Lantmäteriet
Switzerland	Francois Golay	Ecole polytechnique fédérale de Lausanne (EPFL)
The Netherlands	Jantien Stoter	ITC, Enschede
Turkey	Oktay Aksu	Ministry of National Defence
United Kingdom	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 of core data (data serving as a spatial framework for organisations involved in monitoring, management and development) in a Geoinformation Infrastructure (GI) context.

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Message from the President

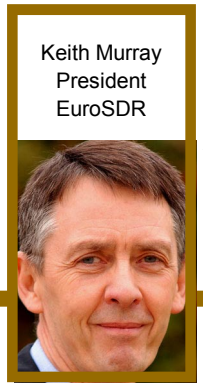
Keith Murray

The year 2005 was a very successful one for EuroSDR and it gives me added pleasure to be able to present this the first EuroSDR Annual Report. We embarked on a modernisation programme several years ago when we recognised that not only was technology moving fast but so too was the political environment.

The transition from the old international treaty to the new organisation has been a challenge but we now have a clearer organisational and legal basis and we have new foundations on which to build with greater flexibility. It was gratifying to hear, on the occasion of Otto Kölbl's retirement in Spring 2005, his comments that several years ago a handful of countries were questioning the value of membership (of the then OEEPE) and it was now these same countries that were among the first to sign up to the new organisation.

This is an interesting and very active time in Europe. EuroSDR is fully engaged in the development of the European Spatial Data Infrastructure (ESDI). We registered as a Spatial Data Interest Community (SDIC) and were successful in placing 10-15% of the Drafting Team candidates. This is another time of change and there is much that EuroSDR members can contribute and are contributing – we know how people use information, the issues involved in data collection, the complexities of data management and information processing and how to meet given quality levels.

We also know how much it costs to create datasets and make them available at a professional level. Likewise the cost of data maintenance is now well known. The rule of thumb indicates that it can cost in the order of 30% of the creation costs, year on year, to maintain a dataset. Added to this are the necessary data improvement costs required to provide new levels of capability required at intervals by users. These are key issues in providing sustainable information infrastructures fit to meet the needs and expectations at both national and European levels. This scenario also offers opportunities for research to improve processes and further reduce production costs for the future.



Keith Murray
President
EuroSDR

This Annual Report contains a summary of all the activities of the organisation during 2005. It is part of our aim to keep our stakeholders better informed. Likewise the growth of the e-Newsletter has been a success in 2005. We now have the ability to reach a much wider audience electronically than ever before and to open up participation beyond what we have been able in the past. In addition the opening session of our Steering Committee meetings ,which generally reports on national developments in the host country at the SDI level, the mapping agency and in research and commercial sectors, is now normally open to all.

This first Annual Report reflects the changes that have been made over the past year and itself records a milestone in the history of the organisation. We remain unique in drawing together true experts from national mapping and cadastral agencies with colleagues in leading universities and research institutes across Europe to further the knowledge and capability in collecting, managing and distributing geographic information.

Finally I would like to record my thanks to the Vice President, Christian Heipke, the Commission Presidents, Ismael Colomina, Juha Hyyppä, Eberhard Gülch, Colin Bray, Peter Woodsford and our Secretary-General, Kevin Mooney, for all their hard work this year. We have all been supported by a Steering 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 this year. Thanks also to collaborating organisations and all those who participated in workshops.

Message from the Vice-President

Christian Heipke

In recent years EuroSDR has seen a significant expansion from an organisation focused on data acquisition by means of photogrammetry into one which is concerned with all aspects of geospatial information (GI) as it relates to National Mapping and Cadastral Agencies (NMCA) across Europe. This ambitious expansion has been accompanied by a name change, a change in its legal status and an internal re-orientation with respect to goals and priorities.

In particular, databases and data delivery have started to become of paramount interest to most EuroSDR partners. A number of well attended and very successful workshops were organised covering these and similar topics, and they have caught the attention of many European and international GI players such as AGILE, ICA, JRC, EuroGeographics and ISPRS.

The time has now come to consolidate the results achieved while further looking for interesting topics in the whole field of GI. To this end we should

- begin to generate more EuroSDR projects in GI related areas,
- further enlarge the network of EuroSDR officers from GI disciplines,
- continuously update our knowledge of the challenges and the potential of GI for us all, and
- cooperate with our neighbouring organisations wherever possible and appropriate.

At the same time EuroSDR should keep a clear focus on issues of applied research for which it has a unique capability due to the close collaboration of academia, NMCAs and industry, and should of course strive to stay competent in the classical areas where EuroSDR and, indeed, OEEPE are known to be strong: those of spatial data acquisition and updating using imagery.

A particularly successful example of this consolidation, combined with further expansion, is the cooperation between EuroSDR and EuroGeographics in order to define and solve the enormous research issues associated with the EuroSpec initiative. Other areas, in which work has already started, are generalisation and geospatial standards. Taking a closer look at the latter, EuroSDR needs to better understand how standards relate to its work in order to judge at which point and in which way EuroSDR should make its voice heard. Last but not least, EuroSDR will continue its efforts to disseminate the knowledge gained through its activities, e.g. by continuing the successful Educational Service which enters its fourth round in spring 2006.

In order to achieve our goals, we will strive to:

- Increase efforts to secure external funds for carrying out projects both within the European Union Framework Programmes and on a national level in each country.
- Invite the input of international experts to our scientific meetings.
- Comprehensively check and update EuroSDR's rolling research plan on an ongoing basis.
- Improve project management having regard to the voluntary nature of the contributions by the project leaders and the participants.
- Increase the visibility of EuroSDR's work through the official publication series, the electronic newsletter, the annual report and the web site.
- Continue to place emphasis on publishing short reports about running or recently completed projects and about workshops in the scientific and professional journals of our fields.

When we continue together along these lines, we will be successful in achieving the far-reaching goals ahead of us.

Christian Heipke
Vice-President
EuroSDR

Sensors, Primary Data Acquisition and Georeferencing *Ismael Colomina*

2005 was a busy year in the area of Sensors, Primary Data Acquisition and Georeferencing with two projects completed (or changed focus) and two continuing through to 2006.

Interoperability: The InterOCI project, led by Vittorio Casella, University of Pavia, examined issues relating to Interoperability for Orientation and Calibration data of photogrammetric Images and, in particular, to establish the possibility of seamlessly moving photogrammetric images, together with orientation data, from one photogrammetric workstation to another.

An xml-based format proposal was formulated (http://geomatica.unipv.it/interoci) and the corresponding xml schema explored.

As described below, a second project, InterSENSOR-0, had been examining the role of EuroSDR in standards development and, in order to avoid excessive duplication, the InterOCI project was closed with its work continuing under the broader InterSENSOR-0.

Standardisation: Under the leadership of Wolfgang Kresse, this short very effective project has resulted in a report on standardization procedures and an appropriate EuroSDR strategy. The main goal of the project has been achieved, namely, that EuroSDR has set up a Working Group on Standards led by Wolfgang Kresse. The Working Group will chart the participation of EuroSDR in international standardization efforts in the "geo" field. Having attained its goals, the project was closed in Spring 2005.

The EuroSDR "**Working Group on Standards**" commenced its work at the beginning of the year and is charged with implementing EuroSDR's strategy on standardization. A report of EuroSDR's activities in the standards arena is published elsewhere in this report.

Ismael Colomina
President
Commission 1

Reliability of Direct Georeferencing: The project DirectTRUST-0 continued under the leadership of Jan Skaloud (EPFL, Lausanne) but changed name to DGReliability-0 (Direct Georeferencing Reliability) during the year. The project aims to understand the current approach to the reliability of direct sensor orientation and to decide how EuroSDR may contribute to the issue through an eventual possible larger project.

The project made good progress during the year and a number of deliverables have been realised. Specifically, the project has compiled an assessment of the situation in practice and will advise EuroSDR on an appropriate role that it might effectively take on in order to make a meaningful contribution to improving the reliability of direct georeferencing.

Unconventional Platforms for Remote Sensing: A project entitled NewPLATFORMS, under the leadership of Jurgen Everaerts (VITO), got under way at the beginning of the year. Its objectives are to make a comprehensive list of unconventional platforms, document their characteristics and intended applications, document the quality of the data acquired by their Remote Sensing instruments and estimate the cost of using them compared to traditional platforms.

Work continued on evaluating responses to three questionnaires for ground, airborne and spaceborne based sensors, which were distributed in December 2004. The first project deliverables (Reports on existing platforms and their characteristics) continued throughout the year.

Image Analysis and Information Extraction

Juha Hyyppä

Activities in the area of Image Analysis and Information Extraction in 2005 concentrated on six projects.

Information for mapping from SAR and optical imagery, chaired by Olaf Hellwich, Technical University of Berlin, seeks to compare the potential of airborne synthetic aperture radar data with imagery from optical sensors for topographic mapping. Airborne SAR can compete with optical sensors for the detection of objects significantly larger than the resolution cell size which is significant in that the resolution of modern SAR systems has continuously been improved in recent years. Also certain small objects, not visible in optical images, can be seen on radar imagery. The final report of this project is due in 2006.

The project **Automatic extraction, refinement, and update of road databases from imagery and other**

data is chaired by Helmut Mayer, Bundeswehr University Munich, Germany, and Manos Baltsavias, ETH Zurich, Switzerland. Practically oriented research has shown that an automation of road extraction and update is feasible to an extent that may be very relevant for practical applications. The project has shown that even though automation has improved some practical problems remain. The final report of this project is due in 2006.

The project **Evaluation of the Quality of Digital Terrain Models** is chaired by Joachim Höhle, Aalborg University Denmark. The Digital Terrain Model (DTM) is an important prerequisite for the generation of orthoimages. The quality of the DTM determines the accuracy of new orthoimages. The goal of the project is to develop procedures for DTM quality control and to test existing or new methods by means of data of different methods.

A DTM quality control seminar took place at Aalborg University, Denmark, from 18th to 20th August 2005. The seminar attracted fifty participants including some members of the research groups who participated in the test: fifteen papers were presented and demonstrations of relevant software packages were given. A summary report on the seminar including some photographs can be found at the home page of the project (http://www.plan.aau.dk/~jh/dtm_checking). The presented papers of the seminar will be included in an EuroSDR Official Publication together with the analysis of the achieved results. The printing and distribution of the publication is planned for summer 2006.

The project **Tree Extraction** is chaired by Juha Hyyppä, Finnish Geodetic Institute. The project compares the methods and accuracy for extracting individual tree geometry from laser scanner and digital aerial image data. By the end of 2005, about ten groups (from USA, Canada, Taiwan, Switzerland, Sweden, Finland, and Norway) had contributed to the project. The final project report is scheduled for the end of 2006.

The project **Change Detection** is chaired by Klaus Steinnocher from ARC system research GmbH, Austria. The project focuses on the development and implementation of a Change Detection process that automatically locates change occurrences rather than defining the type or the detailed geometry of change. The Change Detection process was tested on a set of international test sites. Workshops took place in June and October 2005 where Change Detection results were presented to an extended international consortium. The final report of this project is due in 2006.

The project **Detection of Unregistered Buildings for Updating Databases** is chaired by Nicholas Champion, IGN, France, and was initiated towards the end of 2005. It will continue throughout 2006.

Juha Hyyppä
President
Commission 2

Production Systems and Processes

Eberhard Gülch

Three projects continued or got under way in the area of Production Systems and Processes during 2005.

The project **Evaluation of building extraction** was completed under the leadership of Juha Hyyppä, Finnish Geodetic Institute. The results of the extraction comparison have been published in three presentations in 2005:

- ISPRS Hanover Workshop 2005
- 1st International Workshop on Next Generation 3D City Models, Bonn and
- ISPRS Workshop on Laser Scanning 2005, Enschede.

A scientific paper is planned for publication in the ISPRS Journal. The final report will be published in 2006.

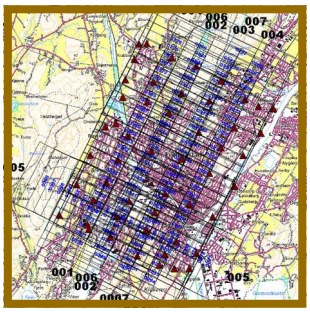
The Project **CityGML** has started under the leadership of Thomas Kolbe, University of Bonn. Dr. Kolbe had presented the status of the SIG3D initiative in Germany at the EuroSDR Science Committee meeting in Bern, Switzerland, in April and prepared a proposal for a two phase project on CityGML. Phase 1 started in December 2005 and will be finalized in 2006.

Eberhard Gülch
President
Commission 3

A workshop on **Next Generation 3D City Models** was held in Bonn from 21st to 22nd June 2005. It was jointly organized by SIG3D, DGPF, EuroSDR and ISPRS.

This workshop, organized by Thomas Kolbe and Gerhard Gröger in co-operation with several national and international organizations was a huge success. EuroSDR was well represented at this event and three of our commission presidents participated. CityGML attracted considerable interest and a significant outcome of the workshop was the clear evidence that CityGML certainly has an European dimension. The final proceedings of the workshop will be published as part of EuroSDR's Official Publication No. 49.

The Project **Digital Camera Calibration** continues in



its Phase 2 under the leadership of Michael Cramer of the University of Stuttgart, Germany. Data sets for this phase on the geometric aspects of camera calibration have been prepared and disseminated and contacts with the hardware vendors have been intensified.

Core Geospatial Databases

Colin Bray

There were two main activities in this area during 2005, namely a Joint EuroSDR/DIT Positional Accuracy Improvement Workshop **Achieving Geometric Interoperability of Spatial Data – PAI 2** in Munich from 8th to 9th June 2005, and the commencement of a new EuroSDR project: **State-Of-The-Art in Generalisation**.

The second joint EuroSDR/Dublin Institute of Technology PAI workshop was held in Munich in June 2005, kindly hosted by the Bayerisches Landesvermessungsamt and supported by the Ordnance Survey of Great Britain, and the International Federation of Surveyors (FIG).

Positional Accuracy is an important quality attribute of geodata. It has proved difficult to find an accurate term to describe the issue. The term PAI is now widely

accepted to illustrate accuracy issues with geodata.

PAI is usually not seen as an immediate priority when working with geodata, but it is fundamental to the integrity of systems and the ways by which PAI is tackled throughout Europe are very different.

The workshop committee felt the need to keep PAI on the agenda, although using a different approach from the first PAI workshop (held in Malahide, Dublin in May 2004). Although it was established in Malahide that data users have a core responsibility for PAI in their environment, PAI always starts (and often sticks with) the data provider.

The workshop raised some interesting points:

A successful transformation of user data requires high quality input data. It seems that in a lot of cases the quality of the data before PAI is poor and PAI reveals this. Since these issues need to be solved first, the effort is increased.

Planning for PAI is complex. It needs special expertise and is therefore costly. Getting correct advice from experienced experts is crucial to get the planning stage right.

It became apparent that the market has developed a large number of very individual technical solutions to PAI. This can be taken as an indicator that there is no generic strategy for PAI and the individual requirements need to be taken into account when planning for PAI.

In order to argue for the investment of funds in shifting data, PAI needs to be seen in the light of a cost/benefit analysis. While the benefit of PAI is geometric interoperability that, for example, allows direct integration of GPS measurements, the financial benefit of this will often be realized mid-term.

The proceedings of the workshop will form part of the Official EuroSDR CD Publication No.49 due for publication in 2006.

The EuroSDR project **State-Of-The-Art in Generalisation** was officially approved this year and will commence in January 2006. Under the leadership of Jantien Stoter of ITC, The Netherlands, the project has as its objectives:

- To establish, by a small set of controlled tests, the State-of-the-art in generalisation, particularly with reference to 'framework data'.
- To establish the State-of-the-art of commercially available software.

It is anticipated that the project will be completed by the end of 2006.

Colin Bray
President
Commission 4

Integration and Delivery of Data and Services

Peter Woodsford

A major focus of the year has been support for pan-European projects, primarily the EuroSpec project of EuroGeographics and INSPIRE. A Workshop was held in February 2005, hosted by BKG, Frankfurt, Germany and entitled 'NMCA's and the Internet II – Electronic Delivery and Feature Serving'. This was a successor to two earlier workshops, 'NMA's and the Internet' (2000, OEEPE publication 38a) and 'Use of XML/GML' (2002, OEEPE publication 42b). Both of these were highly influential in aiding NMAs in formulating policy and practice in relation to the World Wide Web, and in a fast moving arena, the whole area needed to be re-visited.

In addition to addressing the state-of-the-art, best practice and operational procedures, the Workshop covered two key technical/research areas where progress is particularly rapid (Digital Rights Management and Schema Translation). It also formulated a questionnaire (utilising the collective experience of the 35 attendees) surveying capabilities and plans of NMCAs under the headings of Services (Metadata Catalogue Service, Web Map Services, Web Feature Services), Digital Rights Management, Data Model, Schema Transformations and Pricing Model. This survey was subsequently used by EuroGeographics to establish a planning base for this aspect of the EuroSpec project. Breakout sessions addressed the topic – 'What does a Spatial Data Infrastructure (SDI) require of its constituents', taken from the viewpoints of the SDI designer and the contributing agency.

A paper on the Workshop and the interim results of the capabilities survey was presented at the 11th EC GI & GIS Workshop, 'ESDI: Setting the Framework' in Sardinia in June.

Following the successful workshop on 'Ontologies and Schema Translation' (2004, EuroSDR/OEEPE publication 48) an informal agreement was reached with the Joint Research Council (JRC) of the EC, whereby JRC takes the lead on near-term aspects of this important topic and EuroSDR leads on longer term research aspects. In 2005, a number of EuroSDR members participated in an invited JRC ESDI Workshop on 'Conceptual Schema Languages and Tools'. It is anticipated that EuroSDR will take the lead in a research workshop on Ontologies and the Semantic Web in 2006/7.

Peter Woodsford
President
Commission 5

Highlighting the call for participation in the INSPIRE implementation rules drafting process, current at the time of the 106th EuroSDR meetings at Bern, led to the timely participation of EuroSDR as a Spatial Data Interest Community (SDIC)

A follow-on arising from the 'eDelivery' Workshop was the requirement for a similar event on the topic of 'Feature/Object Data Models'. This has evolved during 2006, to include topics on data model interoperability relevant to the INSPIRE drafting team on 'Data Specifications', as well as the rationale and benefits of such models, design and implementation issues and current best practice. This workshop will take place at the Bavarian LVG, Munich on 24-5 April 2006, immediately prior to a meeting of the INSPIRE drafting team.

A new Commission President is required in 2006. A number of strong candidates emerged and at the 107th meeting in Nicosia, Professor M. J. Jackson, head of the new Centre for Geospatial Science at Nottingham University, UK, was appointed. He brings a wide background of experience, in government, industry and academia, to the task, which he will take over at the 108th meeting in June 2006.

Contributing to European Initiatives

Keith Murray

In recent years the world of geographic information has been transformed. Governments around the world are waking up to the value of geographic information because "everything happens somewhere".

The need to pass information from one organisation to another is now widely recognised as critical to all kinds of processes in the public, private and consumer sectors. Information might concern river quality, a property or land that is open to the public for walking etc. All of this requires a paradigm shift in the nature of the information we collect. Users' expectations have moved up several notches over this time.

A shift has occurred at the national and at the European level, often driven by national legislation, modernisation or e-government agendas. This is an exciting time, one where the true power of geographic information has the potential to be realised.

At the European level this need is manifest in several initiatives which seek to address the issues of data and information interoperability and develop spatial data infrastructures [SDIs]. There are several initiatives that we need to ensure complement each other in using scarce resources and in advancing the European Spatial Data Infrastructure (ESDI) by building on the national initiatives. The four primary developments are ESDI-INSPIRE, EuroSpec, GMES and Galileo (we should expect this new constellation of satellites to further drive expectations, developments and applications when it becomes operational from 2008-09 onwards).

INSPIRE is a major new development on the European scene and is being supported by legislation at the European level; it is expected to complete the legislative process during 2006. This will require member states to implement ways of passing data to the commission and work within certain levels of conformance to support some form of uniformity to ease not only directive reporting but to promote the economic benefits of GI across the community as well. To support the legislation "Implementing Rules" are also being developed (similar to "regulations") in the fields of Metadata, Data Specifications, Network Services, Data Sharing and Monitoring (of the process). Five Drafting Teams have been established to prepare the rules and EuroSDR was successful in placing around fifteen of the eighty-plus Drafting Team members – a tribute to the expertise of our members.

EuroSpec is a complementary initiative led by EuroGeographics. It is widely recognised that as "everything happens somewhere" we require a common "map" (or reference base). Thereon each organisation can reference its information. By avoiding a multiplicity of disconnected bases we establish the potential to share information reliably and increasingly in an automated environment. This reference base is generally maintained by national mapping and cadastral agencies and hence the EuroSpec strategy is to ensure that these are interoperable. This means that we need to ensure that the reference base is supported through a seamless transition across national borders using a set of defined parameters. EuroSpec work so far has researched the "state of the art" in reference information and several successful workshops have been undertaken in conjunction with EuroSDR. The most recent was the "NMCA & the Internet II" held in Frankfurt in February 2005 to baseline the NMCA e-delivery capabilities. In 2005 planning of the framework for a joint EuroSDR-EuroGeographics research programme was commenced.

GMES - the Global Monitoring of the Environment and Security programme is supported by the EC and ESA and has substantial funding. It has been operational for several years. In 2005 plans were developed to operationalise several service functions by 2008 in the fields of a seamless high resolution land cover map of Europe, services in the marine and emergency domains.

The challenge for us all is to move forwards in the same direction. We cannot hope to resolve all the differences in one or even two steps, but if we follow a path of convergence we can identify some significant gains. It would be a pity if we did not seize this opportunity and continued the past practices of duplication and isolation. However we should not underestimate the challenge that lies before us but focus instead on the opportunities that could unfold as a result.

Keith Murray
President
EuroSDR

Developing International Standards

Wolfgang Kresse

Liaison status to CEN/TC 287 and ISO/TC 211

At its meeting in April 2005, EuroSDR requested its Working Group on Standards to establish liaison status with both CEN/TC 287 "Geographic information" and ISO/TC 211 "Geographic information / geomatics".

Both requests were approved by the liaison partners: CEN/TC 287 in June 2005 and ISO/TC 211 in September 2005.

CEN/TC 287 hosts GIS topics, primarily for spatial data infrastructures, while standards for photogrammetry and remote sensing are mainly developed on an international level in the ISO/TC 211. As EuroSDR is focussed on both topics liaison status was requested in both organisations.

Liaison status allows the members of EuroSDR to play an active role in the development of new international standards. EuroSDR can launch "New Work Item Proposals" (new standards) and is entitled to take part in the complete development process which includes full access to all documents and full right to comment and to attend the project team meetings.

Imagery Standards: ISO/TC 211

EuroSDR members had an opportunity during 2005 to review and comment on documents relating to the three imagery standards of ISO, which almost reached completion during the year. ISO 19115-2, the standard for imagery metadata, and ISO 19101-2, the standard for a reference model of imagery, are in the Committee Draft stage. The comments given will be discussed at the next ISO meeting in May 2006. ISO 19130, the standard for orientation data, was officially deleted in March 2006 because the maximum development period for ISO-standards, which is five years, had expired. The development of ISO 19130 will probably restart in 2006 with a closer alignment to projects such as SensorML (see below) and a stronger focus on the new sensors and their orientation devices.

Other standardization projects in 2005

Most of the first generation ISO standards of the 19100 series are completed. They define the vector world. At this time the following are also on the agenda:

Amendment to ISO 19113 "Quality principles": creation of a finer level of detail
Amendment to ISO 19119 "Services": particular focus on spatial data infrastructures
Completion of the standards on Location Based Services, ISO 19132 – 19134
Completion of ISO 19136 "Geography Markup Language"
Completion of ISO 19139 "Metadata – XML schema implementation"
Continuation of work on ISO 19142 "Web Feature Service" and ISO 19143 "Filter Encoding", both being proposed by the liaison member Open Geospatial Consortium (OGC)

Open Geospatial Consortium

Three years ago the SensorML was planned to become an implementation standard of ISO 19130 and eventually of other standards. In the meantime SensorML became a Recommendation Paper of the OGC. The development of SensorML and ISO 19130 was done independently. At the OGC-meeting in November 2005 SensorML received the status of a Best Practices Document. During 2005, EuroSDR has initiated a closer cooperation with the OGC.

Education Service

Kevin Mooney

The Education Service of EuroSDR was started in 2001 with the goal of disseminating knowledge gained in EuroSDR research activities. The courses are delivered by e-learning over two weeks preceded by an introductory seminar of two days. Course participants thereby have the opportunity to get in touch with the teachers, other participants, the educational material and the communication software.

The 2005 module, **EduServ3**, consisted of three courses:

- Co-ordinate Reference Systems for Spatial Information
- Positional Accuracy Improvement in GI Databases
- Digital Cameras/Sensors

The first two courses were included following the joint

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Collaborating with Related Organisations

Keith Murray

By the nature of the industry we are involved in as EuroSDR, i.e. geographic information, we will never be alone and can not operate in isolation - whether this is at the local, regional, national or European levels. As we move up this scale the challenges become more and more daunting as we try and balance them against the vital need for an organisation to fully discharge its daily responsibilities. This might be processes such as property registration or valuation, but at the same time we wish to encourage greater linkage and "joined-upness" across organisations and countries to support future potential and wider data sharing.

It is quite clear that a lot, indeed most, of the action and developments need to take place at the national level and below, yet we still need interoperability and some harmonisation at the European level. This is where organisations like EuroSDR, EuroGeographics, the UN Working Party on Land Administration and others can help and play a part by sharing experience and knowledge across nations to support this process of rapid evolution.

EuroSDR already enjoys an established set of relationships with the scientific domain in our relationship with the International Society of Photogrammetry and Remote Sensing (where EuroSDR is a regional member), the International Cartographic Association, FIG (International Federation of Surveyors), EARSeL (the European association of remote sensing laboratories) and others - and we aim to develop further some of these relationships. For example the President of ISPRS will attend the 2006 spring meeting with us in Stockholm and we hope to forge a closer relationship out of that event.

In recognition of the need for greater co-operation the meeting of the secretaries of the European Associations (known then as PEAF) was transformed in late 2004 to become the European GI Network. It remains to be seen whether it will develop to perform a vital function. The main benefit we all recognise is the ability to exchange and share information about planned events and, where applicable, co-sponsor workshops and like activities. To be effective, this has to operate on a continual basis.

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EuroSDR - Dublin Institute of Technology (DIT) workshop on 'The Implications of Improving the Positional Accuracy of GI Databases' held in May 2004 in Dublin. The third course liaises closely with the EuroSDR project on 'Digital Camera Calibration'.
Twenty-five participants from GI organizations and universities in Belgium, Cyprus, Denmark, Greece, Ireland, Italy, Latvia, the Netherlands, Switzerland and the United Kingdom registered for EduServ3 with approximately fourteen following each course.

Organisational Developments in 2005

Kevin Mooney

Two developments in 2005 of major significance were the **Incorporation of the organisation** under the Company Laws of Ireland and the admission of **Hungary as the eighteenth state** represented in the organisation.

Following the change of name of the organisation from OEEPE to EuroSDR in 2003 (in order to better reflect its aims and objectives) it was felt that an international treaty was not a flexible enough instrument for the legal status of the Organisation due to the fact that implementing any changes required to the rules and procedures would be cumbersome. Therefore, it was decided to investigate other legal forms of the organisation.

EuroSDR was incorporated in Ireland on 17th June as a **'Company Limited by Guarantee and not having a Share Capital'** and was granted **'Charitable Status'** in September. A Guarantee Company gives considerable flexibility to the organisation as a whole and facilitates its continued expansion with new members able to join in a relatively straightforward manner. It allows the organisation the flexibility to manage the running of its affairs and simplifies the making of any necessary amendments to its constitution.

We were delighted to learn, early in the year, that the **Geodetic Science Committee of the Hungarian Academy of Sciences** had agreed to represent Hungary in the newly constituted EuroSDR. The Prime Delegate of Hungary is Dr. Arpad Barsi of the Budapest University of Technology and Economics. **The membership of Hungary brings the total membership of EuroSDR to eighteen member states** and the process of changing the membership status of all states to the new legal status is well under way.

Financial Overview 2005

(Subject to audit)

Income		**Expenditure**	
Membership fees 2005	94,486.70	Research (1)	8,680.95
Workshops	1767.67	Services	1,072.08
		Management Team	16,112.95
		Secretariat	55,547.64
		Annual recurring (2)	10,230.50
		Miscellaneous	-247.56
Totals	**€96,254.37**		**€91,396.56**
Income Surplus	**€4,857.81**		

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 40 Years of EuroSDR Publications

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