

EILAT 2009

FIG Working Week

Surveyors Key Role in Accelerated Development

Dan Eilat Hotel, Eilat, Israel, 3-8 May, 2009



Opening Ceremony and Plenary Sessions

Opening Ceremony

Moderator: Dr. **Joseph Forrai**, Deputy Director General for Cadastre, Survey of Israel

Welcome Greeting – Dr. **Haim Srebro**, Director General, Survey of Israel and Conference Director

Greeting – Dr. **Ron Adler**

Welcome Address - Mr. **Joseph Kraus**, ALSI President and Chairman of the Organizing Committee

Welcome Address – Prof. **Stig Enemark**, FIG President

Welcome Address – Minister from the Israeli Government

Opening Keynote Address

Major Gen. (Res.), Prof. **Isaac Ben Israel**, the Chairman of the Israel Space Agency: Israel in Space Programme



Isaac Ben-Israel (born 1949, Tel-Aviv, Israel) is the Chairman of Israel Space Agency (since 2005) and Professor at the University of Tel-Aviv. He studied Mathematics, Physics and Philosophy at Tel-Aviv University, receiving his Ph.D. in 1988. He has been teaching at Tel-Aviv University since 1989. He joined the Israel Air Force (IAF) after graduating high school (1967) and has served continuously up to his retirement 2002 when he joined the University of Tel-Aviv as a professor.

During his service, Prof. Ben-Israel has held several posts in operations, intelligence and weapon development units of the IAF. He headed the IAF Operations Research Branch, Analysis and Assessment Division of IAF Intelligence, and was the Head of Military R&D in Israel Defense Forces and Ministry of Defense (1991-1997). In 1998 he was promoted to Major General and appointed as Director of Defense R&D Directorate in IMOD.

He has received several awards, including twice the Israel Defense Award (1972, 2001) for and Israel Air Force Award (1976) system. In 2002 he won the Singapore Defense Technology Distinguished Award.

Professor Ben-Israel is teaching at the Cohen Institute for the

History & Philosophy of Sciences and Ideas and at the School of Government and Policy at Tel-Aviv University. He is the Head of Tel-Aviv University Workshop for Science Technology and Security (since 2002) and was the head of the Program for Security Studies (2004-2007).

In 2003 he founded RAY-TOP (Technology opportunities) Ltd. advising industry in technological and strategic issues.

Professor Ben-Israel was a member of the Israeli Parliament, Knesset 2007-2009.

Isaac Ben-Israel has written numerous papers on military and security issues. His book *Dialogues on Science and Military Intelligence* (1989) won the Itzhak-Sade Award for Military Literature. His book on *The Philosophy of Military Intelligence* had been published by the Broadcast University (1999) and has been translated into French (2004). His book *Science, Technology and Security: From Soldiers in Combat up to Outer Space*, was published recently (2006).

Dr. Ben-Israel is married to Inbal (née Marcus) and they have three sons.

Cultural Programme

Plenary Session 1 – Geo information Management

Chair: Prof. **Stig Enemark**, FIG President

Mr. **Lawrie E. Jordan III**, Director, Imagery Enterprise Solutions, ESRI:
Geo Information Management Perspectives for the Future



Geographic Information System (GIS) technology is now entering into a new and rapidly expanding era of increased accessibility, applicability, transparency, and meaningfulness. This evolution is transformational and global in scope, with broad implications for the social, economic, and environmental fabrics which connect us. The new GIS paradigm extends its reach well beyond the status-quo by being web-enabled, standards-based, and enterprise wide. The new GIS computing environment is a services-oriented, open architecture that delivers global "Geography-on-Demand" in near real time. The view into this new environment is highly enriched through the use of dynamic 2D and 3D imagery with a highly simplified user interface. Efficiency and return on investment (ROI) are significantly enhanced by "task-at hand" workflows and industry-specific project templates.

The foundation and overarching strength of this new approach is a GIS-centric core data model. The model is comprehensive in design, fully integrating all-source remote sensing imagery with traditional GIS vector layers into the Geodatabase. Imagery is now a core component of GIS in one working environment. This paper will examine the new paradigm in further detail, and will offer for discussion some of the inherent institutional and educational challenges which may be faced.

Lawrie Jordan is the Director of Imagery Enterprise Solutions for ESRI, as well as Special Assistant to Jack Dangermond, President of ESRI. In this capacity, he serves as an advocate for successful applications of all forms of imagery within the GIS enterprise, including environmental, civil, and defense solutions.

Mr. Jordan has over 30 years of experience as a leader in the field of image processing and remote sensing, including a long standing strategic partnership with ESRI. He has been an advisor to numerous government organizations on current and future trends involving imagery and satellite programs. His background education is in Landscape Architecture, with degrees from The University of Georgia and Harvard University.

Dr. **Vanessa Lawrence**, CB, Director General and CEO, Ordnance Survey:
The Role of a National Mapping Agency in Geo information Management



Geo information management is a key component of a National Mapping Agency's capability to capture, manage and develop geographic data products that meet the changing requirements of dynamic user requirements. While traditional uses of National Mapping Agencies' products have focussed on the map as a contextual reference, today's uses of the products from a National Mapping Agency are much more diverse. In addition to traditional map representations, geographic data is also heavily used in processes such as analysis, report generation and business intelligence data aggregation to drive decision making in both the public and the private sector.

These changing needs require producers of geographic data to rethink the way they customise their spatial information to make it appropriate for the user who maybe still a specialist or may be very unfamiliar with using geospatial products; they also have to rethink the channels to reach these customers

In response to these challenges Ordnance Survey is modernising its approach to users of their data. These changes require considerable cooperation with customers and partners to understand their needs of today and into the future and to understand that data from the national mapping agency is only one geography of many geographies that is needed by the customers to make important evidenced based decisions.

Vanessa Lawrence is the Director General and Chief Executive of Ordnance Survey, Great Britain's national mapping agency. She is the first woman to head Great Britain's national mapping agency and one of the youngest Director Generals in Ordnance Survey's 218-year history. She is a world-renowned expert in how geographic information systems (GIS) can improve decision making at all levels of government and business. Vanessa is the adviser to the British Government on mapping, surveying and geographic information.

Prior to joining Ordnance Survey, Vanessa held senior positions at Autodesk Inc. During this time, Vanessa had particular focus on work in South Africa for the Chief Surveyor-General of South Africa to help create the ward structure for the South African General Election, held in May 1999. Vanessa has extensive experience in running organisations in several continents.

In addition to her work at Ordnance Survey, Vanessa has recently retired as the Chair of the United Kingdom ACE Association, the organisation representing Chief Executives of Government Agencies, Trading Funds and Non-Departmental Public Bodies. She also concluded late in 2008 chairing a high-level group advising Ministers on using location information to improve decision-making in

government. *Place Matters: The Location Strategy for the United Kingdom* was published and endorsed by Ministers in November 2008.

Vanessa is a patron of MapAction, a UK-based international charity which specialises in the mapping of disaster areas and supplying geographic information for humanitarian relief operations.

Vanessa is a Visiting Professor at the University of Southampton and Kingston University.

Vanessa is a Fellow of the Royal Geographical Society, the Royal Institute of Chartered Surveyors and the Institution of Civil Engineering Surveyors. She was elected an Honorary Fellow of the Royal Academy of Engineering in 2008.

Dr. **Haim Srebro**, Director General, Survey of Israel
Geospatial Information On-Line by the Survey of Israel



The Survey of Israel is undergoing a fast process of enabling on-line availability of most of its information and services. The presentation describes these activities, covering geodesy, cadastre, topographic information, including imagery and addresses, as well as the National Archive of Maps. This will include reference to the availability and accessibility of the data.

Dr. Haim Srebro is Director General of the Survey of Israel; B.Sc. and M.Sc. in Civil Engineering and Geodetic Engineering; Ph.D. in Geography- International Boundaries. He has teaching experience in photogrammetry at the Technion, Haifa and at Tel Aviv University. He is a leading participant in the delimitation and demarcation of the boundaries between Israel and Egypt, Jordan and Lebanon.

Plenary Session 2 – Emergency and Natural Resource Management

Chair: Dr. **Haim Srebro**, Congress Director FIG 2009

Dr. **Avi Shapira**, Chairman of the Earthquake Preparedness Committee, Jerusalem and Ex-Director of the Geophysical Institute of Israel:
On Earthquake Preparedness in Israel



Apart from organizational aspects of preparing for strong earthquake, that eventually will occur, there are conceptual aspects which involve prevention acts and response that should be clarified and hopefully accepted by different disciplines involved with earthquake preparedness. The presentation will refer to some of these aspects and their implementation by the national earthquake preparedness committee.

As an interesting case, the unusual seismic activity in south Lebanon and its implications in the context of earthquake preparedness will be discussed.

Dr. Avi Shapira has a BSc. From Bar Ilan University, Israel and a Doctor of Science from Upsala University, Sweden. He has training experience of institutions in Israel, USA, Sweden, South Africa, UK and Italy. He held positions in many countries, including service as the Director General of the Geophysical Institute of Israel and as the Director of the International Seismological Centre UK. At present he serves as the Chairman of the National Earthquake Preparedness Committee in Israel.

Prof. **Orhan Altan**, President of ISPRS and Chair of the JB GIS Committee on Risk and Disaster Management:
Role of Geospatial Professionals in Risk and Disaster Management and Preventing Natural Catastrophes



Each year disasters, such as storms, floods, volcanoes, and earthquakes, cause thousands of deaths and tremendous damage to property around the world, displacing tens of thousands of people from their homes and destroying their livelihood. Many of these deaths and losses could be prevented with better information regarding the onset and course of such disasters. One of these catastrophes is the earthquake and recent events in Northridge, Kobe, Marmara Sea, South-east Asia and latest earthquakes in China were typical examples of what can happen when a major earthquake strikes directly under a densely populated area.

Geodetic science plays an important role in the earthquake research. By means of long-term measurement, deformations caused by the breakage of the earth crust caused by the moving plates can be examined. Photogrammetry and Information System techniques are new tools in the earthquake research. Terrestrial photogrammetric methods are used to document the damages after an earthquake.

The major aim of this presentation is to address the Role

of Geospatial Professionals in the above mentioned areas.

Dr. Orhan Altan is Professor at the Department of Geodesy and Photogrammetry of Istanbul Technical University; published more than 160 papers in different journals and congress proceedings in English, German and Turkish, was editor or co-editor of 15 books and conference proceedings in Photogrammetry, Remote Sensing and Spatial Information Systems. He worked as guest professor at the Universities of Berlin, Munich, Stuttgart and the ETH-Z in different years and gave there lectures and seminars on the Use of Geo-information in different application areas. He is elected as President of the ISPRS during the Beijing Congress at July 2008 for the period 2008-2012.

His main working areas are Digital and Architectural Photogrammetry, Spatial Information Systems, Disaster-Risk Management and Deformation Measurements.

Prof. **Stig Enemark**, President of FIG, Denmark:
Facing the Global Agenda – Focus on Land Governance



The surveyors – nationally and globally – will have a key role as providers of the relevant spatial information and also as builders of efficient land tenure systems and effective measures for urban and rural land use management. This should support economic growth, social equity, and environmental sustainability. The role of FIG is about “Building the Capacity” in this area.

Issues such as tenure security, pro-poor land management, and good governance in land administration are all key issues to be advocated in the process of contributing to the global agenda. Measures such as capacity assessment, institutional development and human resource development are all key tools in this regard. More generally, the work of the land professionals within land management forms a kind of “backbone” in society that supports social justice, economic growth, and environmental sustainability. These aspects are all key components in facing the global agenda.

Stig Enemark is President of FIG. He is Professor in Land Management and Problem Based Learning at Aalborg University, Denmark, where he was Head of School of Surveying and Planning 1991-2005. He has been substantially involved in the Danish Association of Chartered Surveyors (DdL) being President 2003-2006, and he chaired the FIG Commission 2 on Professional Education 1994-1998. He is an honorary member of both DdL and FIG.

He is a well know international expert in the areas of land administration systems, land management and spatial planning, and related educational and capacity building issues. He has published widely in these areas and undertaken consultancies for the EU and World Bank especially in Eastern Europe and Sub Saharan Africa.

Plenary Session 3 – GNSS, Geo-sciences and Surveying

Chair: Mr. **Matthew Higgins**, FIG Vice President, Australia

Dr. **Ze'ev B. Begin**, Director of the Geological Survey of Israel and Ex-Minister of Science:

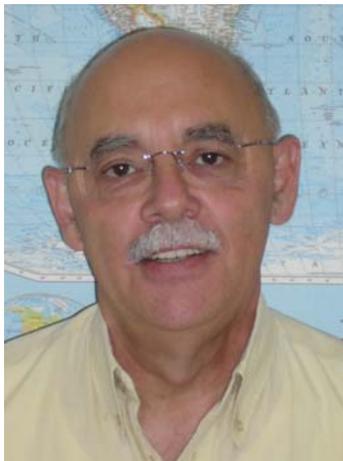
The Dead Sea Fault – Thousand Kilometres and 20 Million Years of Destructive Earthquakes



The Dead Sea Fault is a major transform fault, separating the Arabian Plate from the Israel-Sinai sub-plate. Both plates have been moving northwards for the last 20 million years, with the eastern Arabian plate moving faster at a relative velocity of 5 mm/year. This relative movement is associated with the occurrence of destructive earthquakes, for which there is a historical record. This record is extended in time through geological evidence for strong earthquakes along the Dead Sea Fault in the last 200,000.

Dr. Ze'ev B. Begin has been a geologist with the Geological Survey of Israel since 1965. He earned his B.Sc and M.Sc degrees in geology from the Hebrew University, and a Ph.D degree in geology from Colorado State University.

Dr. **Joseph Forrai**, Deputy Director General for Cadastre, Survey of Israel
Permanent GPS Network-based Measurement Practice in Israel



The permanent GPS network has been developed in Israel as an ultimate infrastructure for geodetic-geodynamic research. Following its establishment, the network became a commonly used, multi-purpose measurement system, supporting research as well as geodetic control, cadastral-, engineering-, topographic- and GIS tasks. Current developments aim at matching relevant surveying regulations to the high quality permanent GPS applications.

Dr. Joseph Forrai is Deputy Director General of the Survey of Israel for Cadastre; M.Sc.(1974) and D.Sc.(1980) degrees at Technical University of Budapest, Hungary; Teaching Experience in various subjects at the TU Budapest, at Tel Aviv University and the Technion – Haifa. Past president of the Israeli Society of Photogrammetry and Remote Sensing.

Prof. Dr. Ing. **Rudolf Staiger**, University of Applied Sciences Bochum, Germany, Chair of FIG Commission 5:
Push the Button - or Does the Art of Measurement Still Exist?



In former days a good surveyor had sharp eyes and capabilities from a precision engineer. Additionally he was an exceptionally gifted calculator, being able to perform precise and tedious field operations under uncomfortable weather conditions. This is also a circumscription for the geodetic "art of measurement". Today our surveying instruments are automatic measuring devices; their results do no longer depend on the sharp eyes of the users. "Push the button – and the rest will be done automatically" This is one important advertising slogan from all the manufacturers. And it describes reality: we do not know what is going on inside our instruments, but today the data acquisition itself is easier and much more efficient than it was decades before. The flow of our data is automatic as well as the entire process of data treatment and calculation. So is there any "art of measurement" left or still needed? In order to answer this question the different eras of surveying will be described and analyzed carefully. The data acquisition became much easier, but this does not mean that our measurement results are error-free. This does also not mean that we control the entire measurement process! Are there still blunders in our data? How do we have to control our measurements in order to prevent undetected outliers or significant systematic deviations? Can we estimate our overall precision and accuracy? The "art of measurement" still exists, but it is different from the traditional one. It consists very generally spoken in the successful control of the entire measurement process. What this means will be explained in detail. And it will be certainly much more than just "Pushing the Button".

Prof. Dr. Ing. Rudolf Staiger has been Professor at the University of Applied Sciences Bochum, Department of Surveying and Geoinformatics and at the University of Duisburg-Essen in the Department of Surveying Engineering since 1994. His areas of special interest are instruments, sensors, measuring systems, the standardization, check and the calibration of such systems. From 1988 to 1994 he held different positions in marketing and R&D for industrial measurement systems, for Kern & Co AG Aarau and Leica-Geosystems, Unterentfelden, Switzerland. He made his PhD in 1998 on the theory of "On-line-Triangulation" for Theodolite Measuring Systems.

He is the current Chairperson of FIG Commission 5 - Positioning and Measurement (2007-2010). He has been Chairperson of the AK5 (DVW, Germany) (2003-2006) and Chair of FIG Commission 5 WG. 5.1 (2003-2006). Since 2003 he has been member of the DIN-Commission

- Geodätische Instrumente und Geräte (*Geodetic Instruments and Devices*).

Prof. Staiger has more than 40 publications in English, French and German. In 2001 he was the editor - together with Prof. Fritz Deumlich (Dresden, Germany) - of the 9th edition of the "Instrumentenkunde der Vermessungstechnik".

25.04.2009