



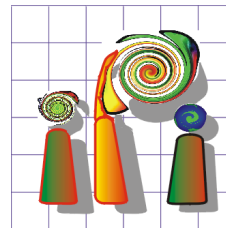
European Organisation for Experimental Photogrammetric Research (OEEPE)

Preliminary Programme

OEEPE Workshop Integrated Sensor Orientation

Monday, Sept 17 to Tuesday, Sept 18, 2001

Hosted by:



**Institute for Photogrammetry and GeoInformation (IPI), University of Hannover
Nienburger Str. 1, D-30167 Hannover, Germany
Tel.: +49-511-762 2482, Fax: +49-511-762 2483, e-mail: boettcher@ipi.uni-hannover.de
online: <http://www.ipi.uni-hannover.de>**

General Information

INVITATION

You are cordially invited to participate in the OEEPE Workshop "Integrated Sensor Orientation" to be held from Sept 17 to 18, 2001.

OBJECTIVES

The topic of image orientation by aerial triangulation integrated with GPS/IMU, also called integrated sensor orientation, has received much attention lately. One of the main questions of fundamental relevance is, if and under which conditions the direct determination of the parameters of exterior orientation via GPS and IMU can be a complete substitute for aerial triangulation. A more practical question deals with the possibilities of an optimum combination of the different methods using a minimum of ground control points. The European Organisation for Experimental Photogrammetric Research (OEEPE) has embarked on a multi-site test investigating these issues.

During the workshop the test results will be presented. In addition, scientists, software and system developers, consultants and service providers will have the opportunity to present their methods, algorithms, products, and services. In this way we expect to have a very interesting and fruitful exchange of experiences. Companies participating in the test flights will have the possibility to comment the test results and to provide additional information.

The conference language will be English.

CONFERENCE CHAIRMEN

Helge Wegmann, IPI, University of Hannover, e-mail: wegmann@ipi.uni-hannover.de

Christian Heipke, IPI, University of Hannover (local chair), e-mail: heipke@ipi.uni-hannover.de

Karsten Jacobsen, IPI, University of Hannover, e-mail: jacobsen@ipi.uni-hannover.de

ORGANISATION

Institute for Photogrammetry and GeoInformation (IPI), University of Hannover

Nienburger Str. 1, D-30167 Hannover, Germany

☎ +49-511-762 2482, Fax: +49-511-762 2483, e-mail: boettcher@ipi.uni-hannover.de

Current information concerning the workshop will be posted on the web site http://www.ipi.uni-hannover.de/OEEPE_workshop.htm

HANNOVER

Hannover is the capital of the German State of Lower Saxony with a population of about 520.000. It is served by an international airport with connections to Frankfurt, London, Amsterdam, Copenhagen, Zurich, Paris, Vienna, Brussels, Berlin and others. It has good train connections to Frankfurt, Munich, Cologne, Hamburg, Berlin. Last year the city hosted the EXPO 2000 with approx. 175 participating countries.

VENUE

The meeting will be held at the University of Hannover in the lecture theatre N 213, Nienburger Str. 1, D-30167 Hannover. Local transportation is available from Langenhagen airport by express train to the main railway station and from there to the conference site (underground 4 "Garbsen" or 5 "Stöcken" to "Schneiderberg/Wilhelm-Busch-Museum"). Free underground parking is available in the basement of the 'Mensa', 50 meters from the Institute

REGISTRATION, FEES, AND ACCOMMODATION

Please register by sending the attached registration form to the organiser. The workshop fee is EURO 130-, payable in advance, and includes conference proceedings and Social Evening. The fee is payable to Freundeskreis der Universität Hanover, account no. 104 002 901 (bank code 250 800 20), Dresdner Bank AG Hannover, **reference 7-0962/OEEPE 2001**. The fees may also be paid by cheque payable in EURO or US \$ (130 US\$). Credit cards will not be accepted.

Accommodation will be handled by HannoverTourismus Service, Ernst-August-Platz 2, D-30159 Hannover, Germany, Fax: +49-511-1684 97 27/37, Tel.: +49-511-81684 9716/8. (As Hannover hosts a rather large fair during the workshop week we advise to make early reservations.)

Proceedings will be published on CD-ROM. Printouts of the proceedings are available upon request at cost.

Please note: Immediately after the OEEPE workshop, from September 19th – 21st, 2001, a joint workshop of ISPRS WG I/ 2, I/5 and IV/4 about "High Resolution Mapping from Space 2001" will take place also at the University of Hanover, Institute for Photogrammetry and Engineering Surveys (IPI). Results of investigations related to the topics of the Working Groups (<http://www.isprs.org/isprs.html>) will be presented; especially the new very high resolution satellite data will be dealt with together with the radiometric and geometric calibration and related issues of direct sensor orientation.

SCHEDULE

Monday, Sept 17, 2001

- 9.00 **Registration**
- 10.30 **Introduction:** C. Heipke, Institute for Photogrammetry and Geo-Information, University of Hannover
- 11.00 **Keynote address: I. Colomina**, Institut Cartogràfic de Catalunya, Barcelona, Spain: *Modern sensor orientation technologies and procedures*
- 12.00 Lunch
- 13.30-15.00 **Models for Integrated Direct Sensor Orientation (I)**
A. Habib, T. Schenk, Dept of Civil and Environmental Engineering, The Ohio State University, Columbus, OH, USA: *Accuracy Analysis of Reconstructed Points in Object Space from Direct and Indirect Exterior Orientations Methods*
L. Pinto, Technical University of Milano, **G. Forlani**, University of Parma, Italy: *System Calibration and combined block adjustment of an integrated GPS/INS System*
C. Ressler, Institute for Photogrammetry and Remote Sensing, Vienna Technical University, Austria: *The OEEPE-Test 'Integrated Sensor Orientation' and its handling within the hybrid-block adjustment program ORIENT*
M. Cramer, D. Stallmann, Institute for Photogrammetry (ifp), University of Stuttgart, Germany: *On the use of GPS/inertial exterior orientation parameters in airborne photogrammetry*
- 15.00 Coffee Break
- 15.30-17.00 **Models for Integrated Direct Sensor Orientation (II)**
R. Alamús, A. Baron, J. Talaya, Institut Cartogràfic de Catalunya, Barcelona, Spain: *Integrated Sensor Orientation at IC, mathematical models and experiences*
E. Kruck, GIP mbH, Aalen, Germany: *Combined IMU Sensor Calibration and Bundle Adjustment with BINGO-F*
M. Mostafa, APPLANIX Corp., Richmond Hill, Ont., Canada: *Digital Multi-Sensor Systems – Calibration and Performance Analysis*
M. Madani, Z/I Imaging Corp., Huntsville, Ala, USA, **M. Mostafa**, APPLANIX Corp., Richmond Hill, Ont., Canada: *ISAT Direct Exterior Orientation QA/QC Strategy Using POS Data*
- 19.00 **Social Evening**

Tuesday, Sept 18, 2001

- 9.00-10.30 **Systems for Integrated Sensor Orientation**
M. Mostafa, APPLANIX Corp., Richmond Hill, Ont., Canada: *Boresight Calibration without Ground Control*
A. Grimm, IGI Kreuztal, Germany: *Results of the integrated CCNS-AEROcontrol System*
M. Bäumker, F.J. Heimes, University of Applied Sciences, Bochum, Germany: *New Calibration and Computing Method for Direct Georeferencing of Image and Scanner Data Using the Position and Angular Data of an Hybrid Inertial Navigation System*
M. Schmitz, G. Wübbena, A. Bagge, Geo++, Garbsen, **E. Kruck**, GIP, Aalen, Germany: *Benefit of Rigorous Modeling of GPS in Combined AT/GPS/IMU-Bundle Block Adjustment*
- 10.30 Coffee Break
- 11.00-12.30 **OEEPE-Test Integrated Sensor Orientation**
K. Jacobsen, H. Wegmann, Institute for Photogrammetry and GeoInformation, University of Hannover, Germany: *Dependencies and Problems of Direct Sensor Orientation*
C. Heipke, K. Jacobsen, H. Wegmann, Institute for Photogrammetry and GeoInformation, University of Hannover, Germany: *The OEEPE-Test on Integrated Sensor Orientation – Analysis of Results*
- 12.30 Lunch
- 14.00-15.15 **User Experience**
Ø. Anderson, B. Nilsen, Agricultural University of Norway, Aas, Norway: *Can map compilation rely on GPS/INS alone?*
A.J. Seara, The National Geodetic Mapping and Cadastre Agency of Portugal (IPCC), Lisboa, Portugal: *Comparison Between Direct Camera Orientation Measurement and Bundle Block Adjustment Determination*
J. Vallet, Swiss Federal Institute of Technology, Lausanne, Switzerland: *Handheld Mobile Mapping System for Helicopter-based Avalanche Monitoring*
- 15.15 **Closing**

Workshop
"Integrated Sensor Orientation"



European Organisation for Experimental Photogrammetric Research (OEEPE)

Hannover, Monday, Sept 17, to Tuesday, Sept 18, 2001

REGISTRATION FORM

(please use one form per participant)

Mr Ms

Family name (please underline)/First name, initial(s)	
Organisation/Institute/Company	
Department	
Street, No.	P.O.B.
Postal Code/Zip code	City
Country	State/Country (where applic.)
Telephone office	Fax
E-Mail:	

Registration Fees (one form per participant)

Registration Fee € 130,-

The total amount will be paid as follows

- bank transfer** **Freundeskreis der Universität Hannover e.V**
Dresdner Bank Hannover,
Bank Code: 25080020; Account Number: 104002901
Ref. 70962/OEEPE 2001

cheque no. _____ **enclosed**

Date: _____ **Signature:** _____

Registration will be accepted only upon receipt of payment.

In case of cancellation, the fees minus handling charges will be refunded provided the cancellation is made in written form before Aug 31, 2001.