Tutorial

Railway Geodesy

Organisation: Prof. Dr.-Ing. H. Ingensand, Dr. T. Engel

Support: Infrastructure commission UIC, T. Gradinariu

Presentators: Practicians and specialists from Railway, Data-Management and Engineering Survey
## Overview

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<tr>
<td><strong>1.1 Introduction</strong></td>
<td><img src="image" alt="Introduction Graphic" /></td>
<td><strong>Hilmar Ingensand</strong>  Prof. Dr.-Ing. teaching and research at the Institute for Geodesy and Photogrammetry of ETH Zürich. The Conference on Engineering Surveying 2004, which is organised in a turnaround with TU München and TU Graz, railway specific subjects are central, future oriented views of the engineering survey and data handling basic knowledge.  <a href="mailto:hilmar.ingensand@geod.baug.ethz.ch">hilmar.ingensand@geod.baug.ethz.ch</a></td>
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<td><strong>1.2 Presentation of the Georail project</strong></td>
<td><img src="image" alt="Georail Graphic" /></td>
<td><strong>Théo Engel</strong>, Dr. ès sc. techn. EPFL. Since 1985 operational and conceptual activities at SBB: Track projects, track machine guidance based on absolute numeric track definition, central infrastructure database of SBB. Integral reformulation of the track construction process based on absolute tracks. Today: Program manager in the asset management. <a href="mailto:theo.engel@sbb.ch">theo.engel@sbb.ch</a></td>
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<tr>
<td><strong>2. Practice at DB</strong></td>
<td><img src="image" alt="Practice Graphic" /></td>
<td><strong>Bodo Lahr</strong>, Dipl.-Ing., leads at Frankfurt the central domain of reference data und track survey from DB Netz AG. Together with industry he develops new surveying methods for the support of track construction. <a href="mailto:bodo.lahr@bahn.de">bodo.lahr@bahn.de</a></td>
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Tutorial organised with the support of the UIC Infrastructure commission
Philippe Hallé is Coach of topography at SNCF. After a detailed evaluation of several methods for track construction and applications on high speed lines, the working methods of SBB was taken over by SNCF. Actually the domain IEM (Infrastructure of SNCF) is in charge of this tool under the leadership of Denis Robert head of the track domain. philippe.halle@sncf.fr (presentation by T. Engel)

Bernhard Lichtberger, Dr.-Dipl.-Ing., is head of development at Plasser und Theurer, the track machine producer No. 1 of the world. Together with DB and ÖBB he develops the new coordinate based measuring and steering system EM-Sat / GPS from Plasser. lichtberger@plassertheurer.co.at

Matthias Manhart, Dipl.-Ing ETH., is development engineer at J. Müller AG, Effretikon and has largely contributed to the realisation of the Palas steering system of the Matisa track machines. m.manhart@jmag.ch
### 6. EDV-Systems

Jean-Jacques Stuby, Dipl.-Ing. HES, has developed the SBB track calculation system Toporail in direct contact with the needs of the practice. He has permanently adapted this tool to the concrete demand. [jean-jacques.stuby@sbb.ch](mailto:jean-jacques.stuby@sbb.ch)

Sandro Müller, Dipl.-Ing., is surveying engineer at EuroNav Service, Waltersdorf. Together with Mr. Lahr at DB AG net level, he is in charge, of the project of realising a harmonised geodetic reference system DB_RE. [sandro.mueller@bahn.de](mailto:sandro.mueller@bahn.de)

### 7. Operational & safety related applications

Georges Barbu, Dipl.-Ing., Signal-specialist and project leader of Georail. From the viewpoint of „Tracking and Tracing“ and train navigation, he draws the development potential opened by co-ordinate development in this domain. [gbarbu@erri.nl](mailto:gbarbu@erri.nl)

### 8. Looking toward the future of track data exchanges

Hans Rudolf Gnägi, Dipl.-mathematicien, scientific adjunct at Institute of geodesy and Photogrammetry of ETHZ, has actively collaborated in Switzerland on the development of model driven language and data transfer method INTERLIS 2 and to its transfer to the practice. He posses a great, also international experience in the harmonisation of data and standard data transfer. [gnaegi@geod.baug.ethz.ch](mailto:gnaegi@geod.baug.ethz.ch)


Gerhard Müller, Dr. sc. techn., honorary professor, at Hochschule für Technik und Wirtschaft, Dresden. With the book “track construction” he has set a reference document. Together with an enlarged author team he’s looking towards a new edition of the book. Jörg Zimmermann, Prof. Dr.-Ing. for engineering survey and measuring techniques in Dresden. [zimmermann@htw-dresden.de](mailto:zimmermann@htw-dresden.de)