

1st ES1206 - GNSS4SWEC Workshop

Munich, February 26-28, 2014

Wed, 26th, 09:00-12:30 AM: WG1

Wed, 26th, 14:00-17:30 PM: WG2

Wed, 26th, 17:30-20:00 PM: Posters & ice breaker

Thu 27th, 09:00-12:30 AM: WG3

Thu 27th, 14:00-17:30 PM: Joint session with DA symposium (as planned on the schedule of DA symposium)

Thu 27th, 19:00-22:00 PM: ES1206 dinner

Fri 28th, 09:00-12:30 AM: Parallel sessions

Fri 28th, 14:00-17:00 PM: Plenary discussion and workshop closure.

More information on the workshop (travel information, etc.) on:

<http://www.isda2014.physik.uni-muenchen.de/program/index.html>

Rooms

B001 = 250 people

L155 = 90 people

U151 = 50 people

Workshop ES1206 - GNSS4SWEC

Munich, February 26, 2014

- 09:00 - 09:05 - J. Jones

Brief welcome and introduction by Action Chair

WG1 Session, Weds 26/02/14, 09:00-12:30, Room U151

- 09:05-09:10 - J. Douša, G. Dick

Introduction to plenary WG1 session

- 09:15-09:45 - U. Hugentobler (solicited)

International GNSS Service - precise products and models for GNSS analyses

- 09:45-10:15 - J. Böhm (solicited)

• 10:15-10:35 – Coffee break

Use of numerical weather model data in space geodetic techniques

- 10:35-11:05 – M. Ge (solicited)

The Chinese BeiDou Navigation Satellite System and its precise applications

- 11:05-11:25 – H. Brenot et al. (solicited)

Introduction to GNSS detection of local delay anisotropy induced by water vapour

- 11:25-11:45 – W.Rohm, H.Brenot, M.Kačmařík, T.Manning, L.Rapant, A.Geiger (solicited)

GNSS tomography - current status and road ahead

- 11:45-12:00 – P. Wielgosz, J. Paziewski, K. Stepniak

Application of the GINPOS software for testing external tropospheric products in precise GNSS positioning

- 12:00-12:15 – F. Zus, G. Dick, J. Douša, J. Wickert

The Potsdam Mapping Factors: Rapid direct tropospheric mapping

- 12:15-12:30 – S. Nahmani, O. Bock

Sensitivity of GPS measurements and estimates during extreme meteorological events: the case study of mesoscale convective systems in West Africa

- 12:30 – 12:40 – Summary and Discussion

12:40-14:00 LUNCH

WG2 Session, Weds 26/02/14, 14:00-17:30, Room U151

- 14:00 - 14:05 - S. de Haan, E. Pottiaux

Introduction to plenary session WG2

- 14:05-14:25 - Krzysztof Kroszczyński

Investigation of the properties of discrete mesoscale mapping functions

- 14:25-14:45 - F. Zus, G. Dick and J. Wickert (solicited)

The atmospheric information content of GPS slant total delays

- 14:45-15:05 – Eric Pottiaux, Julie Berckmans, Siebren de Haan and Carine Bruyninx -

Producing IWV Maps for Guiding Nowcasting of Severe Weather

- 15:05-15:25 – G. Guerova, N. Yordanova, A. Stoycheva (solicited)

Intense precipitation case studies in Bulgaria for 2012

• **15:25-15:40 – Coffee break**

• 15:40-16:00 – R. Biondi, A. K.Steiner, G. Kirchengast, S. Bonafoni

The combined use of GPS radio occultations and ground-based GPS receivers for detecting continental storm intensity

• 16:00-16:20 – S. Rózsa, A. Kenyeres

First Results of the Hungarian NRT GPS Processing in the Framework of E-GVAP/COST-1206

• 16:20-16:40 – Mate Mile, Gergely Boloni, Ersin Kucukkaraca, Szabolcs Rozsa

Assimilation of GPS ZTD observations in mesoscale AROME model at Hungarian Meteorological Service

• 16:40-17:00 – K. Eben, J. Resler, P. Jurus, P. Krc, M. Turcicova, V.Fuglik

Comparison of ZTD values with their model counterparts generated by a multi-physics ensemble

• 17:00-17:20 – G.V. Bennett, H. Johnson, and P. Weston

Error correlations of Zenith Total Delay observations from Ground-based GNSS receivers in a high resolution NWP model over the UK

• 17:20–17:30 – Summary & Discussion

Weds 26/02/14, 17:30-20:00, Foyer, C003 and C007

Poster Session and Ice breaker

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Munich, February 27, 2014

WG3 Session, Thurs 27/02/14, 09:00-12:30, Room L155

• 09:00-09:05 - O. Bock, R. Pacione

Introduction to plenary session WG3

• 09:05-09:35 - H. Voemel

The need for reference observations of water vapor in the troposphere and stratosphere

• 09:35-10:05 - S. Vey et al.

Using homogeneous precipitable water vapor time series derived from global GPS observations to validate this parameter in the NCEP/DOE reanalysis

• **10:05-10:25 – Coffee break**

• 10:25-10:55 - E. Brockmann

Reprocessing Activities as possible contribution to GNSS4SWEC

• 10:55-11:20 - X. Collilieux

How to homogenise GNSS ZTD series?

• 11:20-11:45 - R. Pacione

GNSS Atmospheric Water Vapor Retrieval methods

- 11:45-12:10 - R. Van Malderen

A literature survey on IWV intercomparison studies

- 12:10-12:25 - K. Rannat, R. Kivi

Atmospheric water vapor measurements at a high latitude GRUAN site

- 12:25 - 12:30 - Summary & Discussion

12:30-14:00 LUNCH

Joint DA symposium & ES1206 session, Thurs 27/02/14,

14:00-17:30, Room B001

- 14:00-14:40 - J. Douša - **Overview of GNSS Data Processing Methods and Data Quality**
- 14:40-15:20 - G.V. Bennitt - **Overview of GNSS Data Assimilation at the UK Met Office**
- 15:20-15:40 – Jean Francois Mahfouf - **Overview of GNSS Data Assimilation at MeteoFrance**

• 15:40-16:00 – Coffee break

- 16:00-16:20 – Takuya Kawabata - **GPS Slant Total Delay Assimilation with a Storm Scale 4D-Var on an MCS Event**
- 16:20-17:00 – Michael Bender - **GNSS Data Assimilation and GNSS Tomography for Global and Regional Models**
- 17:00-17:30 – Henrik Vedel - **E-GVAP**

27th of February, 19:00-22:00 PM

ES1206 dinner - Hofbräuhaus (<http://www.hofbraeuhaus.de/>)

Workshop ES1206 - GNSS4SWEC

Munich, February 28, 2014

3 x Parallel Working Group Sessions, Fri 28/02/14, 9:00-12:30

WG1 Parallel Session, Chairs JD and GD, Fri 28/02/14, 09:00-12:30, Room B001

• 09:00-10:10 J. Douša, G. Dick & sub-group coordinators

Sub-WG goals and milestones

• 10:10-10:30 F. Ahmed, P. Vaclavovic, F. Teferle, J. Dousa, R. Bingley, D. Laurichesse
Comparative Analysis of Real-Time Precise Point Positioning Zenith Total Delay Estimates

• **10:30-11:00 – Coffee break**

• 11:00-12:00 WG1 members

Benchmark Planning

• 12:00-12:30 WG1 members

Overlaps with WG2 and WG3

WG2 Parallel session, Chairs SdH and EP Fri 28/02/14, 09:00-12:30, Room 115

• 09:00-10:30 S. de Haan, E. Pottiaux & sub-group coordinators

Sub-WG goals and milestones, leaders

• **10:30-11:00 – Coffee break**

• 11:00-12:30 WG2 members

Discussion overlaps with WG1 and WG3

WG3 Parallel session, Chairs OB and RP Fri 28/02/14, 09:00-12:30, Room 123

• 09:00-09:45 F. Ahmed

Presentation of inventory on ZTD datasets + discussion (collect datasets, study error sources, organise intercomparison, reprocessing)

• 09:45-10:30 R. Pacione

Presentation of inventory on ZTD2IWV methods + discussion (standardize methods)

• **10:30-11:00 – Coffee break**

• 11:00-11:45 R. Van Malderen

Presentation of inventory on IWV intercomparison studies + discussion (interpolation methods, collect datasets, organise intercomparison)

- 11:45-12:30 O. Bock

Discussion of other topics (homogenisation, interpretation of PWV time series, climate model validation, etc.)

12:30-14:00 LUNCH

Joint Workshop Session – Plenary discussion and Workshop closure Fri 28/02/14, 14:00-17:00, Room B001

- 14:00-14:30 M. Schröder

GEWEX water Vapour Assessment Plan (G-VAP)

- 14:30-14:55 J. Douša & G. Dick

WG1 – Plenary discussion

- 14:55-15:20 S. de Haan & E. Pottiaux

WG2 – Plenary discussion

- 15:20-15:45 O. Bock & R. Passione

WG3 – Plenary discussion

• 15:45-16:00 – Coffee break

- 16:00-16:15 - F. Ahmed

STSM mission to the MeteoFrance

- 16:15-16:30 - K. Rannat

STSM mission to the GFZ

- 16:30-16:45 - T. Hadas

STSM mission to the University of New Brunswick

- 16:45-17:00 J. Jones and G. Guerova

Workshop closure

Poster session

Workshop ES1206 - GNSS4SWEC

Munich, February 26, 2014

WG1

1. Douša J, Václavovic P: Summary of tropospheric products provided by Geodetic Observatory Pecny (GOP)
2. Eliaš M, Douša J, Václavovic P: Development of the tropospheric augmentation model in support of precise point positioning
3. Kaplon J, Sierny J, Wilgan K, Hadas T, Rohm W, Bosy J, Hordyniec P: GNSS meteorology processing activities at WUELS. Current status, results and plans
4. Mekik C: Water Vapour Estimation using GPS
5. Möller G, Böhm J, Elke U, Hinterberger F, Weber R: COST ES1206: Contribution of the Vienna University of Technology
6. Pikridas Ch, Katsougiannopoulos S, Nicholas Z: GNSS permanent station network infrastructure in Greece: Current Status and Future plans
7. Pottiaux E, Berckmans J, Bruyninx C: Recent Developments towards enhanced Multi-GNSS Processing and Tropospheric Products at ROB
8. Rózsa S, Kenyeres A: First Results of the Hungarian NRT GPS Processing in the Framework of E-GVAP/COST-1206
9. Sa A, Bento F, Fernandes R, Crocker P: Tomographic determination of the Spatial Distribution of Water Vapor using GNSS Observations
10. Simeonov T: Sofia University GNSS Analysis Centre
11. Tanir Kayikci E: Proposal from Department of Geomatics Engineering at KTU (Turkey) and its vision in COST ES1206 umbrella
12. Václavovic P, Douša J: Evaluation of benchmark results from zenith total delays estimated in real time
13. A. Stürze, W. Söhne, Y. Altiner: Real-Time Tropospheric Delay Estimation at BKG – potential input for WP1 sub-groups

WG2

1. H. Brenot, E. Pottiaux and R. van Malderen: Detection of blobs of water vapour and potential GNSS application for nowcasting
2. J.-F. Mahfouf, F. Ahmed, P. Moll, N. Teferle, R. Bingley: Assimilation of zenith total delays in the AROME France convective scale model: a recent assessment
3. J. Sanchez, S. Thorsteinsson, M. Lindskog, H. Vedel: Assimilation of GNSS ZTD with HARMONIE
4. X. Yan, Ch. Wittmann, G. Moeller, R. Weber: The use of GNSS tomography products inside high resolution NWP model - AROME/3DVAR
5. Priego, E., Seco, A., Ferragud, D., Serna, E: Precipitable water monitoring during the storm of 27 to 29 September 2012 in the Southeast of the Iberian Peninsula (Spain) obtained with GNSS techniques

WG3

1. O. Bock, P. Bosser, L. David, C. Thom, J. Pelon, C. Hoareau, P. Keckhut, A. Sarkissian, A. Pazmino, F. Goutail, D. Legain, D. Tzanos, T. Bourcy, G. Poujol, G. Tournois: Accuracy assessment of water vapour measurements from in-situ and remote sensing techniques during the DEMEVAP 2011 campaign
2. O. Bock, P. Willis, J. Wang, C. Mears : A high-quality, homogenized, global, long-term (1993-2008) DORIS precipitable water dataset for climate monitoring and model verification
3. O. Bock, B. Garayt, Y. Bar-Sever, and S. Byun : Analysis of long time series of reprocessed GPS precipitable water estimates
4. O. Bock, M. Nuret, P. Bosser, C. Champollion, E. Bresson, G. Dick, M. Ramatschi, M. Kohler and R. Pacione: Comparison of GNSS and radiosonde integrated water vapour measurements during the HYMEX SOP
5. Jan Douša, Gabriel Györi : Development towards tropospheric parameter assessment, inter-comparison, conversion and other related aspects
6. G. Guerova and J. Dousa : Study of discontinuities of the GNSS tropospheric product
7. R. Heinkelman, Cuixian Lu, Julian A. Mora-Diaz, Harald Schuh : Water vapor climatology by geodetic VLBI
8. S. Steinke, S. Crewell, S. Reitter : Assessment of integrated water vapor inferred by GPS, miscellaneous measurements and atmospheric models