



UNITED NATIONS
Office for Outer Space Affairs

*United Nations/Latvia Workshop on the
Applications of Global Navigation Satellite Systems*

Organised jointly by
**The United Nations Office for Outer Space Affairs and the
Latvian Geospatial Information Agency on behalf of the Government of Latvia**

Co-organized by
**The European Space Agency and the
International Committee on Global Navigation Satellite Systems**

Hosted by
The Latvian Geospatial Information Agency

14 – 18 May 2012

Riga, Latvia

PROGRAMME

Monday, 14 May 2012

08:00 Registration: Latvian War Museum, 20 Smilšu iela, Rīga

-

10:00

10:00 Opening and Welcome Remarks

- 10:00
- *Parliamentary secretary Mr. Veiko SPOLITIS, Ministry of Defence, Latvia*
 - *Director of Communications Department Mr. Edmunds BELSKIS, Ministry of Transport, Latvia*
 - *Mr. Harijs BARANOVŠ, Latvian Geospatial Information Agency, Latvia*
 - *Ms. Sharafat GADIMOVA, United Nations Office for Outer Space Affairs*
 - *Mr. Kenneth HODGKINS, United States of America*
 - *Ms. Anabelle FONSECA, European Space Agency*

11:00 Key note presentation

- 11:00
- *Multi-GNSS opportunities and challenges to GNSS-enabling technology and its applications, Prof. Vidal ASHKENAZI, United Kingdom*

11:20 *Coffee Break*

11:40 Presentation Session 1: Global Navigation Satellite Systems and Satellite-based Augmentation Systems in Operation and in Development

Chairperson: Mr. Alexandru BADEA, Romania

Rapporteur: Ms. Livia NISTOR, Moldova

- 11:40
- *Global Positioning System (GPS), Mr. Kenneth HODGKINS, United States of America*

- 12:00 ▪ GLObal NAVigation Satellite System (GLONASS) status and modernization, *Ekaterina OLEYNIK, Russian Federation*
- 12:20 ▪ Future plan of Quasi-Zenith Satellite System (QZSS), *Mr. Hiroyuki NODA, Japan*
- 12:40 ▪ International Committee on Global Navigation Satellite Systems (ICG) and its Programme on GNSS applications, *Ms. Sharafat GADIMOVA, United Nations Office for Outer Space Affairs*

13:00 *Lunch Break*

14:00 Presentation Session 2: Initiatives/experiences in GNSS user applications: Case studies and opportunities for collaboration

Chairperson: Ms. Heidi KUUSNIEMI, Finland

Rapporteur: Mr. Enik HYTERMEJA, Albania

- 14:00 ▪ Galileo services opportunities and applications, *Mr. Gard UELAND, France*
- 14:20 ▪ The role of EUREF in a changing GNSS landscape, *Mr. Heinz HABRICH, Germany*
- 14:40 ▪ Single-frequency GPS positioning performance in northern Adriatic region during geomagnetic storm on 22 – 24 January 2012, *Mr. Renato FILJAR, Croatia*
- 15:00 ▪ Hungarian Railway countrywide data collection using GPS – GNSS technology, *Mr. Peter BARCZA, Hungary*
- 15:20 ▪ EGNOS extension to Eastern Europe: applications, *Mr. Vlad OLTEANU, Romania*
- 15:40 ▪ EUPOS-RIGA permanent station network improvement, *Mr. Gunars SILABRIEDIS, Latvia*

16:00 *Coffee Break*

16:20 Presentation Session 2: Initiatives/experiences in GNSS user applications: Case studies in Latvia

Chairperson: Mr. Erkin MIRMAKHMUDOV, Uzbekistan

Rapporteur: Mr. Peter BRAUNMULLER, Hungary

- 16:20 ▪ The impact of solid Earth tides on the DGNSS positioning results, *Ms. Diana HARITONOVA, Latvia*

- 16:40 ▪ *Space applications in Latvia, Mr. Kaspars KALNINS, Latvia*
- 17:00 ▪ *On the height component for GNSS positioning, Mr. Janis BALODIS, Latvia*

17:20 Panel Discussion 1: Training and education programme options

Moderators: Ms. Sharafat GADIMOVA and Mr. Luc ST-PIERRE, United Nations Office for Outer Space Affairs, Mr. Janis ZVIRGZDS, Latvia
Rapporteur: Mr. Michael HORNACEK, Austria

- The further development of the education centres at the technical level, which might include various GNSS technologies and the cooperative level with possible collaboration with industry leaders and linkages with current and planned system and augmentation system providers

18:00 *Adjourn*

Tuesday, 15 May 2012

09:00 Presentation Session 3: Initiatives/experiences in GNSS user applications: Case studies and opportunities for collaboration (continues)

Chairperson: Mr. Peter BARCZA, Hungary
Rapporteur: Mr. Islam ALI-ZADA, Azerbaijan

- 09:00 ▪ Effects of GNSS jammers and potential mitigation approaches, *Ms. Heidi KUUSNIEMI, Finland*
- 09:20 ▪ GNSS concept in the framework of the Romanian R&D programme “Space and Security”, *Mr. Alexandru BADEA, Romania*
- 09:40 ▪ Current participation of Bulgaria in European and regional GNSS projects, *Ms. Keranka Slavova VASSILEVA, Bulgaria*
- 10:00 ▪ Low cost GNSS applications, *Mr. Ivo MILEV, Germany*
- 10:20 ▪ Using location-based social media for emergency response, *Mr. Tal DEKEL, Israel*
- 10:40 ▪ Planned DGPS system at SANA’A international airport, *Mr. Waleed Abdullah AL ANESI, Yemen*

11:00 *Coffee Break*

11:20 Presentation Session 4: GNSS reference station networks and services

Chairperson: Mr. Renato FILJAR, Croatia
Rapporteur: Mr. Vlad OLTEANU, Romania

- 11:20 ▪ Latvian geodetic network and GNSS applications in Latvia, *Mr. Janis ZVIRGZDS, Latvia*
- 11:40 ▪ Geo-CORS project in Georgia, *Mr. Galaktion HAHUBIA, Georgia*
- 12:00 ▪ Creation of geodetic databases for MoldPos services, *Mr. Vasile CHIRIAC, Moldova*
- 12:20 ▪ Modification of vertical reference frame of Uzbekistan, *Mr. Erkin MIRMAKHMUDOV, Uzbekistan*
- 12:40 ▪ Latvian National height system as EVRS realization, *Mr. Ivars ALEKSEJENKO, Latvia*

13:00 *Lunch Break*

14:30 Presentation Session 4: GNSS reference station network and services (continues)

Chairperson: Mr. Ayman MAHROUS, Egypt
Rapporteur: Ms. Keranka VASSILEVA, Bulgaria

- 14:30 ▪ Benefit of reprocessed orbits IGS1 to geodetic reference network of Bosnia and Herzegovina, *Ms. Medzida MULIC, Bosnia and Herzegovina*
- 14:50 ▪ Development of the GNSS-based geodetic infrastructure in the Czech Republic in context of international projects, *Mr. Jaroslav SIMEK, Czech Republic*
- 15:10 ▪ Developments in the Hungarian active GNSS network, *Mr. Peter Balazs BRAUNMULLER, Hungary*
- 15:30 ▪ SWEPOS™ Network-RTK service – establishment, status and experiences, *Mr. Peter WIKLUND, Sweden*

16:00 *Coffee Break*

16:30 Discussion Session 1 (Working Groups sessions in parallel): Proposals/Recommendations

- International/Regional collaboration opportunities that could be established in order to promote the use of enabling space technologies, and follow-up projects/initiatives

Working Group 1: GNSS Applications and Space Weather Effects on GNSS

*Co-chairs: Mr. Luc ST-PIERRE, UNOOSA
Mr. Renato FILJAR, Croatia, and Mr. Michael HORNACEK, Austria*

Working Group 2: Regional Reference Frames/Systems

*Co-chairs: Mr. Janis ZVIRGZDS, Latvia
Mr. Ivo MILEV, Germany, and Mr. Galaktion HAHUBA, Georgia*

Working Group 3: GNSS Education

Co-chair: Ms. Sharafat GADIMOVA, UNOOSA, Mr. Alexandru BADEA, Romania, and Mr. Vasile CHIRIAC, Moldova

18:00 *Adjourn*

Gala Dinner

Wednesday, 16 May 2012

11:00 **Technical Tour (Radiotelescope in Irbene)**

–

18:00 **Website:** http://virac.venta.lv/en/index.php?option=com_frontpage&Itemid=1
http://virac.venta.lv/en/index.php?option=com_content&task=view&id=21&Itemid=34
http://virac.venta.lv/en/index.php?option=com_content&task=view&id=21&Itemid=34

Thursday, 17 May 2011

09:00 **Presentation Session 5: Capacity-building, training and education in the field of GNSS**

*Chairperson: Ms. Medzida MULIC, Bosnia and Herzegovina
Rapporteur: Mr. Shfagat Abbas KHAN, Denmark*

- 09:00 ▪ Ventspils University and its programme, *Mr. Valdis AVOTINS, Latvia*
- 09:20 ▪ GNSS Education at the University of Melbourne, *Mr. Eldar RUBINOV, Australia*
- 09:40 ▪ GNSS applications in the educational system of the Technical University of Moldova, *Ms. Livia NISTOR LOPATENCO, Moldova*
- 10:00 ▪ Targeted professional education can improve the role of GNSS as a component of national infrastructure, *Mr. Renato FILJAR, Croatia*

10:20 ▪ Attractiveness of GNSS in education, *Mr. Janis KAMINSKIS, Latvia*

10:40 ▪ The position of Albania as a non – EU country toward GNSS education and Galileo evolution, *Mr. Enik SHYTERMEJA, Albania*

11:00 *Coffee Break*

11:20 Presentation Session 6: GNSS-based application areas

Chairperson: Mr. Tal DEKEL, Israel

Rapporteur: Mr. Jaroslav SIMEK, Czech Republic

11:20 ▪ GNSS applications in Estonia: Estonian GNSS permanent station network, *Ms. Karin KOLLO, Estonia*

11:40 ▪ GNSS positioning in support of surface soil moisture retrieval and flood delineation in near real time, *Mr. Michael HORNACEK, Austria*

12:00 ▪ Greenland ice sheet mass balance from GPS, GRACE and ICESat, *Mr. Shfagat Abbas KHAN, Denmark*

12:20 ▪ Understanding of GNSS anomalies near the Equatorial Region: Anatolian Bump Signatures in ITNE-CIDR, *Mr. Ayman MAHROUS, Egypt*

12:40 ▪ Precision estimation of GNSS devices in static and dynamic modes, *Mr. Ansis KLUGA, Latvia*

13:00 *Lunch Break*

14:30 Presentation Session 7: GNSS-based application areas (continues)

Chairperson: Ms. Karin KOLLO, Estonia

Rapporteur: Mr. Waleed AL-ANESI, Yemen

14:30 ▪ Telecommunications networks: application of up-to-date equipment, *Mr. Islam ALI-ZADA, Azerbaijan*

14:50 ▪ Geodynamical station Riga: current situation and future prospects, *Mr. Kalvis SALMINS, Latvia*

15:10 Panel Discussion 2: Developing partnerships and networks

Moderators: Ms. Sharafat GADIMOVA and Mr. Luc ST-PIERRE, United Nations Office for Outer Space Affairs, Mr. Janis ZVIRGZDS, Latvia

Rapporteur: Mr. Michael HORNACEK, Austria

- Issues, concerns and approaches for pilot projects/initiatives, requirements of implementing, mechanisms and resources of implementing
- Assess the practical benefits of the follow-up actions resulting from the workshop and its contribution to the ICG and its working groups
- A functional partnership that could be established in order to promote the use of GNSS technology and its applications

16:00 *Coffee Break*

16:20 Discussion Session 2 (Working Groups sessions in parallel): Proposals/Recommendations

Working Group 1: GNSS Applications and Space Weather Effects on GNSS

*Co-chairs: Mr. Luc ST-PIERRE, UNOOSA
Mr. Renato FILJAR, Croatia, and Mr. Michael HORNACEK, Austria*

Working Group 2: Regional Reference Frames/Systems

*Co-chairs: Mr. Janis ZVIRGZDS, Latvia
Mr. Ivo MILEV, Germany, and Mr. Galaktion HAHUBA, Georgia*

Working Group 3: GNSS Education

Co-chair: Ms. Sharafat GADIMOVA, UNOOSA, Mr. Alexandru BADEA, Romania, and Mr. Vasile CHIRIAC, Moldova

18:00 *Adjourn*

Friday, 18 May 2012

09:00 Discussion Session 3 (Working Groups sessions in parallel): Proposals/Recommendations (continues)

- *Drafting of discussion sessions reports*

Working Group 1: GNSS Applications and Space Weather Effects on GNSS

*Co-chairs: Mr. Luc ST-PIERRE, UNOOSA
Mr. Renato FILJAR, Croatia, and Mr. Michael HORNACEK, Austria*

Working Group 2: Regional Reference Frames/Systems

*Co-chairs: Mr. Janis ZVIRGZDS, Latvia
Mr. Ivo MILEV, Germany, and Mr. Galaktion HAHUBA, Georgia*

Working Group 3: GNSS Education

Co-chair: Ms. Sharafat GADIMOVA, UNOOSA, Mr. Alexandru BADEA, Romania, and Mr. Vasile CHIRIAC, Moldova

11:00 *Coffee Break*

11:30 Discussion Session 4: Round table to finalize the recommendations/observations/proposals (*All working groups come together to finalize the recommendations*)

Co-chairs: Ms. Sharafat GADIMOVA and Mr. Luc ST-PIERRE, United Nations Office for Outer Space Affairs and Mr. Janis ZVIRGZDS, Latvia

11:30 ▪ Summary report of the presentation sessions

12:30 ▪ Summary report of discussion sessions: presentation of proposals and recommendations consolidated at the discussion sessions

13:00 **Concluding Remarks**

▪ *Ms. Sharafat GADIMOVA and Mr. Luc ST-PIERRE, United Nations Office for Outer Space Affairs*

▪ *Mr. Harijs BARANOVS, Latvian Geospatial Information Agency, Latvia*

13:30 *Adjourn*