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  Opening and Welcome Remarks

10:00  Parliamentary secretary Mr. Veiko SPOLITIS, Ministry of Defence, Latvia

10:00  Director of Communications Department Mr. Edmunds BELSKIS, Ministry of Transport, Latvia

10:00  Mr. Harijs BARANOVVS, Latvian Geospatial Information Agency, Latvia

10:00  Ms. Sharafat GADIMOVA, United Nations Office for Outer Space Affairs

10:00  Mr. Kenneth HODGKINS, United States of America

10:00  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

11:40  Chairperson: Mr. Alexandru BADEA, Romania

11:40  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 HAUBA, 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**

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**Wednesday, 16 May 2012**

11:00 Technical Tour (Radiotelescope in Irbene)


**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 CHIRIA, Moldova

18:00  Adjourn

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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 CHIRIA, 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