



## United Nations/Russian Federation Workshop on the Applications of Global Navigation Satellite Systems

# Workshop Programme

18 – 22 May 2015

Krasnoyarsk, Russian Federation

Venue: Krasnoyarsk, Siberia Expocentre, Grand Concert Hall

Monday, 18 May 2015

08:00 - 09:30 Registration of Participants

09:30 – 10:50 Opening and Welcome Remarks, and Key Note Presentation

- 09:30
- **Viktor TOLOKONSKY**, Krasnoyarsk Region Governor, Russian Federation
- 09:40
- **Mikhail KHAILOV**, Deputy Head of Roscosmos, Federal Space Agency (Roscosmos), Moscow, Russian Federation
- 09:50
- **Nikolay TESTOYEDOV**, JSC Academician M.F. Reshetnev Information Satellite Systems Krasnoyarsk, Russian Federation
- 10:00
- **Viktor MESHKOV**, Deputy Head of Department for new challenges and threats of the MFA of Russia, Ministry of Foreign Affairs, Russian Federation
- 10:10
- **Sharafat GADIMOVA**, Programme Officer, United Nations Office for Outer Space Affairs, Austria
- 10:20
- Space Navigation in Russia: History of Development, **Nikolay TESTOYEDOV**, JSC Academician M.F. Reshetnev Information Satellite Systems, Krasnoyarsk, Russian Federation
- 10:50 Coffee Break

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11:10- 12:50 **Presentation Session 1: Overview of Global Navigation Satellite Systems in Operation and in Development**  
Chairperson: Andre RYPL, Brazil  
Rapporteur: Erkin MIRMAKHMUDOV, Uzbekistan

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- 11:10
- Global Navigation Satellite System (GLONASS): Status and development, **Victor KOSENKO**, JSC Academician M.F. Reshetnev Information Satellite Systems, Krasnoyarsk, Russian Federation
- 11:30
- Global Positioning System (GPS): Status and development and Wide-area Augmentation System (WAAS) Overview, **Thomas STANSELL**, Stansell Consulting, United States of America

12:00	<ul style="list-style-type: none"> <li>Galileo Programme development and European Geostationary Navigation Overlay Service (EGNOS) programme update, <b>Joerg HAHN</b>, ESTEC/European Space Agency, The Netherlands</li> </ul>
12:30	<ul style="list-style-type: none"> <li>Development of BeiDou Navigation Satellite System (BDS), <b>Jian YANG</b>, China Satellite Navigation Office, China</li> </ul>
12:50	<i>Lunch Break</i>
14:00- 15:00	<p><b>Presentation Session 2: Update on Satellite-based Augmentation Systems</b>  <i>Chairperson: Medzida MULIC, Bosnia and Herzegovina</i>  <i>Rapporteur: Dadaso SHETTI, India</i></p>
14:00	<ul style="list-style-type: none"> <li>SDCM GLONASS SBAS. Status and development, <b>Vitaly SERNOV</b>, Russian Space Systems, Russian Federation</li> </ul>
14:25	<ul style="list-style-type: none"> <li>The United Nations and GNSS: International Committee on Global Navigation Satellite Systems, <b>Sharafat GADIMOVA</b>, United Nations Office for Outer Space Affairs, Austria</li> </ul>
15:00- 18:20	<p><b>Presentation Session 3: Implementation of GLONASS/GNSS technology</b>  <i>Chairperson: Andrey KUPRIYANOV, Russian Federation</i>  <i>Rapporteur: Pavel KAZAKOV, Russian Federation</i></p>
15:00	<ul style="list-style-type: none"> <li>The use of the Russian system of mobile satellite communication "Gonets" as a coherent environment for GNS GLONASS, <b>Vladimir DUBROVSKY</b>, JSC Satellite System "GONETZ", Russian Federation</li> </ul>
15:20	<ul style="list-style-type: none"> <li>ERA-GLONASS: Status update and plans for project development, <b>Evgenii BELIANKO</b>, GLONASS Union, Russian Federation</li> </ul>
15:40	<ul style="list-style-type: none"> <li>"RSS Doroga" navigation-and-information system (NIS) as a basis for development in the region of the effective organizational and technical system for objective control of actual road maintenance work, <b>Vyacheslav CHISTYAKOV</b>, JSC "Russian Satellite Systems", Russian Federation</li> </ul>
16:00	<ul style="list-style-type: none"> <li>Approbation results for Design Bureau Navis engineering solutions for shipping, precision agriculture and geodesy, <b>Denis MILYAKOV</b>, Navis Inc. Design Bureau, Russian Federation</li> </ul>
16:20	<i>Coffee Break</i>
16:40	<ul style="list-style-type: none"> <li>Practical application of GNSS in the automated information system of urgent search and rescue using the resources of space system search of vessels and aircraft COSPAS-SARSAT in the Krasnoyarsky Kray, <b>Valery TERESHKOV</b>, Navis, Russian Federation</li> </ul>
17:00	<ul style="list-style-type: none"> <li>GLONASS accuracy improvement for the benefit of operational and a posteriori applications, <b>Vladimir PASYNKOV</b>, JSC Scientific Production Corporation "Precise Instrument Engineering Systems" (NPK SPP)</li> </ul>
17:20	<ul style="list-style-type: none"> <li>Implementation of high precision navigation, <b>Sergey SILIN</b>, Navis, Russian Federation</li> </ul>
17:40	<ul style="list-style-type: none"> <li>Equipment development approaches for GLONASS navigation signal simulation with the purpose of user navigation equipment testing, <b>Sergey KOKOREV</b>, Kompas Small Design Bureau, Russian Federation</li> </ul>
18:30	<i>Welcoming Reception</i>

09:00- 11:00	<b>Presentation Session 4: Global Navigation Satellite Systems Infrastructure</b> <i>Chairperson: Stanislav MAKARCHUCK, Argentina</i> <i>Rapporteur: Ferdaous CHAABANE, Tunisia</i>
09:00	▪ Current status of global terrestrial reference systems implemented in GNSS, <b>Igor GUSEV</b> , <i>Central Research Institute for Machine Building, Russian Federation</i>
09:20	▪ Finland's public precise positioning service based on nationwide GNSS network, <b>Laura RUOTSALAINEN</b> , <i>Finish Geospatial Research Institute, Finland</i>
09:40	▪ GLONASS from India: review of the revitalized system performance, <b>Anindya BOSE</b> , <i>University of Burdwan, India</i>
10:00	▪ Intermediate reference frame for the Uzbekistan topographic maps, <b>Erkin MIRMAKHMUDOV</b> , <i>National University of Uzbekistan, Uzbekistan</i>
10:20	▪ Current status and future navigation requirements for Mexico city new airport, <b>Julio Castillo URDAPILLETA</b> , <i>Mexican Space Agency, Mexico</i>
10:40	▪ Development of the complex for time-frequency and metrological support of GLONASS, <b>Sergey DONCHENKO</b> , <i>Russian Federation</i>
11:00	▪ A-GLONASS application practice, <b>Sergey SILIN</b> , <i>Navis, Russian Federation</i>
11:20	<i>Coffee Break</i>
11:40- 15:00	<b>Presentation Session 5: GNSS and space/atmospheric weather monitoring</b> <i>Chairperson: Claudia PAPARINI, ICTP, Italy</i> <i>Rapporteur: Sanjeev DELWAR, Bangladesh</i>
11:40	▪ GLONASS/GNSS measurements in polar latitudes, <b>Yuri FATEYEV</b> , <i>Siberian Federal University, Russian Federation</i>
12:00	▪ Ionosphere and solar activities monitoring in Bosnia and Herzegovina using OS software-preliminary results, <b>Medzida MULIC</b> , <i>University of Sarajevo, Bosnia and Herzegovina</i>
12:20	▪ The Brazilian EMBRACE space weather monitoring programme, <b>Andre RYPL</b> , <i>Office of Outer Space, Ocean, and Antarctic Affairs, Brazil</i>
12:40	▪ GPS-TEC and equatorial plasma bubbles observations during the period of 2002 - 2013, <b>Dadaso SHETTI</b> , <i>Kasturbai Walchand College, India</i>
13:00	▪ SUGAC: Sofia University GNSS Analysis Center, <b>Keranka VASSILEVA</b> , <i>Bulgaria</i>
13:20	<i>Lunch Break</i>
14:20	▪ Experimental study of real-time ionosphere parameters using the special multi-GNSS equipment, <b>Andrey KUPRIYANOV</b> , <i>Moscow State University Geodesy and Cartography, Russian Federation</i>
14:40	▪ Ionospheric total electron content disturbances observed before earthquakes: Tashkent and Kitab GNSS stations, <b>Husan ESHQUVATOV</b> , <i>Astronomical Institute of Academy of Sciences, Uzbekistan</i>
15:30	<b>Technical Tour/City tour and Discussion Session 1: Developing of Partnerships and Networks</b> ▪ <i>Requirements of implementing, mechanisms and resources of implementing</i>
19:00	<i>Adjourn</i>

**Presentation Session 6:**

<b>09:30- 12:30</b>	<b>Capacity building, training and education in the field of GNSS</b> <i>Chairperson: Keranka VASSILEVA, Bulgaria</i> <i>Rapporteur: Sharafat GADIMOVA, United Nations Office for Outer Space Affairs</i>
<b>09:30</b>	▪ New approach for prompting international GNSS education, <b>Jingnong WENG</b> , <i>Beihang University, China</i>
<b>09:50</b>	▪ Modern technology training system for space industry, <b>Andrey KABIROV</b> , <i>“NAVIS”, Russian Federation</i>
<b>10:10</b>	▪ About the teaching of radionavigation theory, <b>Alexander POVALYAEV</b> , <i>Russian Federation</i>
<b>10:30</b>	▪ Training and informing of specialists in Russian Space Systems as a groundwork of development and use of GLONASS for consumers in different countries, <b>Pavel KAZAKOV</b> , <i>Russian Space Systems, Russian Federation</i>
<b>10:50</b>	<i>Coffee Break</i>
<b>11:30</b>	▪ Integrated education system for training highly qualified specialists in the aerospace industry, <b>Jury LOGINOV</b> , <i>Russian Federation</i>
<b>11:50</b>	▪ Research and Educational training centre of highly qualified specialists in the field of application satellite navigation technologies (GLONASS/GNSS) in Moscow State University of Geodesy and Cartography, <b>Andrey KUPRIYANOV</b> , <i>GLONASS GNSS Forum association, Russian Federation</i>
<b>12:10</b>	▪ Education and training centre of earth segment of GLONASS, <b>Alexander PISAREV</b> , <i>NAVIS, Russian Federation</i>
<b>12:30</b>	▪ Model for schedule implementation quality management in real-time mode, <b>Evgeny SHULGA</b> , <i>Timiryazev Russian State Agriculture University, Russian Federation</i>
<b>12:50</b>	<i>Lunch Break</i>
<b>14:00</b>	<b>Technical Tour (JSC ISS)</b>
<b>18:00</b>	<b>Adjourn</b>

**Presentation Session 7: GNSS applications and technology development**

09:30- 11:30

*Chairperson: Isiye OLALEKAN, South Africa*

*Rapporteur: Sounakhen SENGDUANGTHIP, Lao PDR*

09:30

- Recent experience in operating the first quantum and optical system of satellite laser ranging installed in Brazil, **Renato Alves BORGES**, *University of Brazilia, Brazil*

09:50

- Use of GNSS and terrestrial laser scanner for DAMS auscultation, **Mourad BOUZANI**, *Department of Geodesy, Morocco*

10:10

- Fishing into future: Satellite Technology based monitoring, control and surveillance system for Pakistan marine sector, **Iftikhar KHAN**, *SUPARCO, Pakistan*

10:30

- Seismic risks assessment around the Mediterranean region, **Ferdaous CHAABANE**, *SUPCOM, Tunisia*

10:50

- Accuracy improvement for the GLONASS time scale generation and synchronization with UTC(SU), **Alexander BANDURA**, *JSC RIRT, Russian Federation*

11:10

*Coffee Break*

**Presentation Session 8: GNSS applications: National Programmes**

11:50-13:30

*Chairperson: Mourad BOUZANI, Morocco*

*Rapporteur: Julio Castillo URDAPILETA, Mexico*

11:50

- Aiding surveying and mapping with the help of GNSS in Bangladesh, **Sanjeev DELWAR**, *Beihang University, Bangladesh*

12:10

- GNSS as a new field of cooperation for Argentina, **Stanislav MAKARCHUCK**, *National Commission on Space Activities, Argentina*

12:30

- GPS application in Mongolia, **Bolorchuluun CHOXSOM**, *National University of Mongolia, Mongolia*

12:50

- Signal structure, interoperability and geometry, **Thomas STANSELL**, *Stansell Consulting, United States of America*

13:30

*Lunch Break*

**Presentation Session 9: GNSS applications: Case studies**

14:30-16:50

*Chairperson: Bolorchuluun CHOXSOM, Mongolia*

*Rapporteur: Iftikhar KHAN, SUPARCO, Pakistan*

14:30

- Training on EGNOS-GNSS in Africa (TREGA), **Claudia PAPARINI**, *ICTP, Italy*

14:50

- Incorporating the broad concept of GNSS as a geodetic tool of high importance in academic aspects and applied research in Colombia, South America, **Hector MORA-PAEZ**, *University of Manizales, Colombia*

15:10

- Performance evaluation of the GPT2w and UNB3M tropospheric delay correction models over Africa, **Isiye OLALEKAN**, *University of Pretoria, South Africa*

15:30

- Synergy between GNSS and GIS application for monitoring land-use production – An integrated approach, **Muhammad Umar IQBAL**, *SUPARCO, Pakistan*

15:50

- GNSS measurements in Ulaanbaatar and its vicinity, **Erdenezul DANZANSAN**, *Academy of Sciences, Mongolia*

16:10

*Coffee Break*

16:30

- Challenges for positioning and navigation in the Arctic, **Anna JENSEN**, *Royal Institute of Technology, Sweden (to be presented by Laura RUOTSALAINEN)*

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**Discussion Session 2:**  
**Capacity building, training and education in the field of GNSS**

**16:50**

*Moderators: Sharafat GADIMOVA, United Nations Office for Outer Space Affairs and Vassily ZVONAR, Russian Federation*

- *Type and level of training required for addressing enabling space technologies and their applications*

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**18:00**

**Adjourn**

**Venue: Krasnoyarsk, Siberia Expocentre, Large meeting room**

**Friday, 22 May 2015**

**09:30**

**Discussion Session 3:**  
**Workshop Views and Recommendations**

*Moderators: Sharafat GADIMOVA, United Nations Office for Outer Space Affairs and Vassily ZVONAR, Russian Federation*

- *Possible follow-up projects/initiatives (issues, concerns and approaches);*
- *Next steps (proposals for future workshops/training courses)*

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**11:30**

**Coffee Break**

**11:30**

**Closing Remarks**

- *Workshop participants*
- *Sharafat GADIMOVA and Ahmed OSMAN, United Nations Office for Outer Space Affairs*
- *Vassily ZVONAR and Marina MOLOKANOVA, Russian Federation*

**13:00**

**Lunch Break**

**14:00**

**Adjourn**