

**United Nations/United Arab Emirates/United States of America Workshop on
the Applications of Global Navigation Satellite Systems**

Dubai, 16 – 20 January 2011

PROGRAMME

Day 1, 16 January 2011

09:00 Registration of Participants

10:00 Opening and Welcome Remarks, and Key Note Addresses

- HE SHEIKH NAHAYAN MABARAK AL NAHAYAN, *Minister of Higher Education and Scientific Research, United Arab Emirates*
- HE Mr. AHMED AL MANSOORI, *Director General of EIAST, United Arab Emirates*
- Ms. Sharafat GADIMOVA, *United Nations Office for Outer Space Affairs*
- Mr. Jeffrey AUERBACH, *Department of State, United States of America*

Objectives of the Workshop

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

11:00 *Coffee Break*

11:30 Key Note Presentations

11:30 International Committee on Global Navigation Satellite Systems, *Ms. Sharafat GADIMOVA, United Nations Office for Outer Space Affairs*

11:50 Establishing Space Policy, *Mr. Mohamed Ahmed TARABZOUNI, Saudi Arabia*

12:15 Presentation Session 1: Trends in satellite-based navigation systems

Chairperson: Mr. Alexandru BADEA, Romania

Rapporteur: Mr. Janis ZVIRGZDS, Latvia

12:15 - 12:35 ▪ Global Positioning System (GPS) modernization: GPS IIIA – On the road to the future, *Mr. Michael SHAW, United States of America*

12:40 – 13:00 ▪ GLObal Navigation Satellite System (GLONASS) status, performance and modernization efforts, *Ms. Tatyana MIRGORODSKAYA, Russian Federation*

13:05 *Lunch Break*

14:35 Presentation Session 1: Trends in satellite-based navigation systems (continues)

14:35 – 14:55 ▪ SSTL role in the GALILEO navigation project, *Mr. Ramon Alexander da SILVA*

CURIEL, United Kingdom

15:00 – 15:20 ▪ Quazi-Zenith Satellite Systems (QZSS) Update, *Mr. Mikio AOKI, Japan*

15:25 – 15:45 ▪ Update of COMPASS and its applications, *Mr. Jingnong WENG, China*

15:50 *Coffee Break*

16:20 Presentation Session 2: GNSS services and reference frames

Chairperson: Mr. Sethu Nandakumar MENON, United Arab Emirates

Rapporteur: Mr. Ivo MILEV, Germany

16:20 – 16:40 ▪ Continuous operating GNSS network for Saudi Arabia, *Mr. Nasr ALSAHHAF, Saudi Arabia*

16:45 – 17:05 ▪ Indonesian permanent GNSS stations network: the current status, *Mr. Cecep SUBARYA, Indonesia*

17:05 – 17:25 ▪ GNSS reference station system LatPos in Latvia: regional cooperation with Lithuania, *Mr. Janis ZVIRGZDS, Latvia*

17:30 – 17:50 ▪ Geodetic Infrastructure for GNSS positioning services (GIGPS), *Mr. Vasile CHIRIAC, Moldova*

17:55 Adjourn

18:00 Welcoming Reception

Day 2, 17 January 2011

09:00 Presentation Session 3: GNSS augmentation and applications

Chairperson: Mr. Michael SHAW, United States of America

Rapporteur: Mr. Vasile CHIRIAC, Moldova

09:00 – 09:20 ▪ GNSS augmentation and applications, *Mr. Jeffrey AUERBACH, United States of America*

09:25 – 09:45 ▪ Implementation of EGNOS-based LPV approaches in Europe, *Mr. Luis CHOCANO, Spain*

09:50 – 10:10 ▪ Examples of QZSS applications, *Mr. Koichi KISHI, Japan*

10:15 – 10:35 ▪ GNSS implementation within the United Arab Emirates aviation sector, *Mr. Michael HAYES, United Arab Emirates*

10:40 – 11:00 ▪ Pakistan satellite based augmentation system (PakSBAS), *Mr. Ajmal MUHAMMAD, Pakistan*

11:05 *Coffee Break*

11:30 Presentation Session 4: Activities in the field of GNSS applications

Chairperson: Mr. Olivier OBROU, Cote d'Ivoire

Rapporteur: Mr. Ajmal MUHAMMAD, Pakistan

11:30 – 11:50 ▪ Positioning with Internet-based, wide-area, real time GPS, *Mr. Tarig ALI, United Arab Emirates*

11:55 – 12:15 ▪ High-end GNSS based application used for the German railway clearance measuring train, *Mr. Ivo MILEV, Germany*

- 12:20 – 12:40 ▪ Design and realization of delay mapping receiver based on GPS for sea surface wind measurement, *Mr. Dongkai YANG, China*
- 12:45 – 13:05 ▪ Comparison between remote sensing and GPS measurements for earthquake ground deformation monitoring, *Ms. Ferdaous CHAABANE, Tunisia*

13:10 *Lunch Break*

14:30 Presentation Session 4: Activities in the field of GNSS applications (continues)

Chairperson: Mr. Cecep SUBARYA, Indonesia

Rapporteur: Mr. Renato FILJAR, Croatia

- 14:30 – 14:50 ▪ Study of a geomagnetic storm effect on the ionospheric scintillation and total electro content (TEC) over the SCINDA station in Abidjan, *Mr. Olivier OBROU, Cote d'Ivoire*
- 14:55 – 15:15 ▪ Developing GNSS applications industry and understanding the legal issues involved, *Mr. Sethu Nandakumar MENON, United Arab Emirates*
- 15:20 – 15:40 ▪ GNSS geodetic applications in Algeria, *Mr. Salem KAHLOUCHE, Algeria*
- 15:45 – 16:05 ▪ The ground-based infrastructure of high accuracy satellite navigation system in the Republic of Kazakhstan, *Mr. Abdikul ASHUROV, Kazakhstan*

16:10 *Coffee Break*

16:40 Discussion Session 1: Use and Implementation of GNSS Technologies

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

Mr. Mohamed Ahmed TARABZOUNI, Saudi Arabia

- Issues and concerns, requirements of implementation, mechanisms and resources of implementation, experience in the use of the GNSS signal in specific applications

18:00 *Adjourn*

Day 3, 18 January 2011

09:00 Presentation Session 5: Education and training on GNSS

Chairperson: Ms. Ferdaous CHAABANE, Tunisia

Rapporteur: Mr. Mozammel SARKER, Bangladesh

- 09:00 – 09:20 ▪ UN-affiliated Regional Centres for Space Science and Technology Education, *Ms. Antonella BINI, United Nations Office for Outer Space Affairs*
- 09:25 – 09:45 ▪ The Moscow State University of Geodesy and Cartography education system and the GNSS applications, *Mr. Andrey KUPRIYANOV, Russian Federation*
- 09:50 – 10:10 ▪ An initiative for developing a training structure on GNSS and geomatics at national and regional level, *Mr. Alexandru BADEA, Romania*
- 10:15 – 10:35 ▪ GNSS education and training programme in Thailand, *Ms. Pirada TECHAVIJIT, Thailand*
- 10:40 – 11:00 ▪ Space weather effects on GNSS performance and operation: a fundamental component of GNSS curriculum, *Mr. Renato FILJAR, Croatia*

11:05 *Coffee Break*

11:30 Discussion Session 2: Education/training opportunities in the use of GNSS

Moderators: Ms. Antonella BINI, United Nations Office for Outer Space Affairs

Mr. Andrey KUPRIYANOV, Russian Federation

Type and level of training/education required; specific GNSS fields requiring education/training; available GNSS-related materials/software and curricula.

13:00 Lunch Break

14:30 – 18:00 Technical Visit/City Tour

Day 4, 19 January 2011

09:00 Presentation Session 6: GNSS applications and technology development: Case studies

Chairperson: Mr. Nasr ALSAHHAF, Saudi Arabia

Rapporteur: Ms. Pirada TECHAVIJIT, Thailand

- 09:00 – 09:20
- Improvement of the ellipsoid height for the maps of Uzbekistan based on GPS data, *Mr. Erkin MIRMAKHMUDOV, Uzbekistan*
- 09:25 – 09:45
- Developing GNSS applications in Morocco: projects, research, training and action plan, *Mr. Mustapha AMGHAR, Morocco*
- 09:50 – 10:10
- Monitoring major landslides using GPS: case study Hammana region, Lebanon, *Mr. Chadi ABDALLAH, Lebanon*
- 10:15 – 10:35
- GPS measurements of current crystal movements along the Gulf of Suez, Egypt, *Ms. Nadia ABO-ALI, Egypt*
- 10:40 – 11:00
- Satellite-based navigation systems and their application in Kyrgyz Republic, *Mr. Azamat DYIKANBAEV, Kyrgyz Republic*

11:05 Coffee Break

11:30 Presentation Session 6: GNSS applications and technology development: Case studies (continues)

Chairperson: Mr. Chadi ABDALLAH, Lebanon

Rapporteur: Mr. Azamat DYIKANBAEV, Kyrgyz Republic

- 11:30 – 11:50
- GNSS and its application in the context of Bangladesh, *Mr. Mozammel SARKER, Bangladesh*
- 11:55 – 12:15
- Planned differential GPS system at Yangon International airport, *Mr. Thet LWIN, Myanmar*
- 12:20 – 12:40
- GNSS performance in times of natural disasters: a Chilean 2010 earthquake case-study, *Mr. Renato FILJAR, Croatia*
- 12:45 – 13:00
- Organization of the work of the working groups

Working Groups Sessions (in parallel)

Discussion points:

- *plans/ framework for a functional partnership that could be established in order to present GNSS technology and to strengthen regional information and data exchange networks on the use of GNSS technology and its applications;*
- *where should the efforts be focussed on in terms of GNSS use/education/training*
- *possible follow-up projects/initiatives*

Working Group 1: Capacity Building and Institutional Strengthening

Working Group 2: Geodetic Reference Network

Working Group 3: Specific global navigation satellite systems applications

13:00 *Lunch Break*

14:30 Working Groups Sessions (in parallel)

Informal discussions/drafting of session reports and recommendations in groups lead by co-chairs of sessions

16:00 *Coffee Break*

16:30 Working Groups Sessions (continues)

Informal discussions/drafting of session reports and recommendations in groups lead by co-chairs of sessions

18:00 *Adjourn*

Day 5, 20 January 2011

09:00 Discussion Session 3: Round table to finalize the recommendations/observations

Assess the practical benefits of the follow-up actions resulting from the workshop and its contribution to the ICG and its working groups

- Summary report of discussion sessions: presentation of proposals and recommendations consolidated at the discussion sessions

11:00 *Coffee Break*

11:30 Plenary Closing Session

- Summary reports of presentation sessions
- Concluding Remarks, *United Nations Office for Outer Space Affairs*
- Concluding Remarks, *United Arab Emirates*

13:00 *Adjourn*