



# INTERNATIONAL CIVIL AVIATION ORGANIZATION

## DRAFT AGENDA

### IONOSPHERE AND ITS EFFECT ON GNSS SYSTEM

(Santiago, Chile, 14 to 16 April 2008)

#### Day one 14 April 2008

##### (08:00 - 09:00)

#### 1. REGISTRATION OF PARTICIPANTS AND OPENING CEREMONY

##### (09:00 – 13:00)

#### 2. GNSS APPLICATIONS

- Introduction to the Seminar (*ICAO*)
- GNSS Navigation Sources and Augmentation Systems (*MITRE*)
- GNSS Service Levels for Aviation (*MITRE*)
- GNSS Role in Advanced Aviation Applications (*MITRE*)
- Future capabilities for GNSS and Augmentations (*MITRE*)
- GNSS Applications with Multiple Constellations and Frequencies in the User Domain (*Andrew Hansen, Volpe*)
- Questions Session

##### (14:00-17:00)

#### 3. DESCRIPTION OF IONOSPHERIC EFFECTS ON GNSS SYSTEM

- Ionospheric Effects (*MITRE, two presentations*)
  - (Solar Cycles, Effects on GNSS in low latitude, mid-latitude and high-latitude regions, Delay Errors (Ionosphere Scintillation Depletion Geomagnetic Storms and Tropospheric Effects))
- *Wide Area Observation (Andrew Hansen, Volpe)*
- *Ionosphere analysis (Universidad de la Plata, Argentina)*
- Questions Session

## **Day two 15 April 2008**

### **(09:00-11:00)**

#### **4. APPROACHES TO CORRECTING FOR IONOSPHERIC AND TROPOSPHERIC EFFECTS ON GNSS**

- Approaches to correcting for Ionospheric and Tropospheric Effects on GPS, Galileo, SBAS GBAS GRAS Benefits of Dual Frequency, (MITRE, *two presentations*)
- Ionospheric Observation Network Calibration (*Andrew Hansen, Volpe*)
- Questions Session

### **(11:00-13:00)**

#### **5. MODELING GNSS AND AUGMENTATION PERFORMANCE AND DATA REQUIREMENTS**

- Service Volume Models (SBAS/GBAS/GRAS) Modeling Ionospheric Effect on GNSS availability Modeling scintillation effects on GNSS availability Real-time detection of Ionospheric depletions Performance Estimates for current and future GNSS systems and augmented GNSS systems (SBAS/GBAS/GRAS) (*MITRE, two presentations*)
- Questions Session

### **(14:00-15:00)**

#### **6. MODELING GNSS AND AUGMENTATION PERFORMANCE AND DATA REQUIREMENTS**

- Ionosphere analysis in the CAR/SAM Region (*GMV, Spain*)
- GBAS Iono Threat Models (*Andrew Hansen, Volpe*)
- Sessions Question

### **(1400-15:00)**

#### **7. FUTURE CONCEPTS AND PLANNING**

- Short Term Planning Longer Term Planning (*MITRE*)
- Questions Session

**(16:00-17:00)**

**8. RECOMMENDATIONS ON IONOSPHERE ANALYSIS**

- Recommendation on data collection ,Regional SBAS/GRAS ,Category II/III GBAS, Collaboration with ICAO Regional Offices , Contact with industry standards organizations (RTCA or EUROCAE) and International Working Groups (IWG, SBAS Iono WG) (*MITRE*)
- Questions Session

**Day three 16 April 2008**

**(09:00 – 13:00)**

**9. GNSS IMPLEMENTATION**

- GNSS implementation in the CAR/SAM Region (*ICAO, Two presentations* )
- Results of the RLA/03/902 Project “Transition to GNSS Systems – Augmentation Solution for the Caribbean, Central America and South America” (*AENA, Spain*)
- Navigation Evolution Roadmap (*Dan Salvano, FAA*)
- LAAS, WAAS Implementation (*Dan Salvan, FAA*)
- GNSS implementation in Brazil (*Sergio Corbelli, Brazil*)

**(14:00 - 16:00)**

**10. GNSS IMPLEMENTATION**

- WAAS Operational Implementation: Facility approval and service approval (*Dave Petersen, FAA*)
- LAAS Operational Implementation: Facility approval and service approval (*Dave Petersen, FAA*)
- LAAS System Development (*Carlos Rodriguez, FAA*)
- GBAS Implementation Activity (*Carlos Rodríguez, FAA*)

**(16:00 - 17:00)**

**11. FINAL CONCLUSION AND RECOMMENDATIONS**

- During this section the delegates and the speakers will debate about the agenda seminar and conclusion and recommendation will be expected.

**(17:00 - 17:30)**

**12. RELEASE OF ATTENDANCE CERTIFICATE AND CLOSING OF THE SEMINAR**

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