ICAO EUR PERFORMANCE BASED NAVIGATION TASK FORCE & EUROCONTROL RAiSG MEETING
(ICAO EUR PBN TF & EUROCONTROL RAiSG)
SECOND MEETING
(Brussels, Belgium, 12-14 March 2014)

Agenda Item 2: Status report on GNSS elements (EGNOS, GALILEO, GLONASS etc.)

GLONASS AND SDCM STATUS
(Presented by the Russian Federation)

SUMMARY
This information paper describes the current GLONASS and SDCM status.

1. Introduction

1.1. In the Russian Federation, works continue on maintenance, development and use of the Russian global navigation satellite system GLONASS, with CSA signal designed for open use by all interested users, including aviation communities.

1.2. Initially, the measures for recovery, maintenance, development and use of the GLONASS were implemented within the framework of the Federal Target Program “Global navigation satellite system” with 2002-2011 operation period. The current Federal Target Program is “Support, development, and use of the GLONASS system in 2012-2020”. The purpose of this Program is to expand the use of and implement national satellite navigation technologies and GLONASS services. The Government of the Russian Federation guarantees funding from the federal budget.

2. Discussion

2.1. On December 8, 2011, after the first of three Glonass-M satellites in slot No.3 of the first orbital plane was put into operation, the deployment of the operational GLONASS constellation was accomplished, and it reached full operation capability with 24 Glonass-M satellites. The satellites were launched from Baikonur on November 4, 2011.

2.2. Despite the Proton launch vehicle crash with three Glonass-M satellites on July 2, 2013, the GLONASS constellation is supported by 24 operational GLONASS-M satellites, which is the nominal number for the GLONASS system. As for 10.02.2014 the GLONASS constellation consists of 24 operational satellites and 3 spare satellites, one in each orbital plane. In addition, the Russian Federation continues flight tests of the advanced Glonass-K satellite located in slot No.21 in the third orbital plane.
2.3. In the future, each launch will be performed to replace satellites, the service life of which has expired or to replace malfunctioning satellites. Today four Glonass-M satellites are ready for launching. During 2014-2015, seven modernized Glonass-M satellites broadcasting CDMA signals in the L3 band (1202.025 MHz) will be manufactured to force CDMA signals deployment. In addition, this year another GLONASS-K satellite will be ready for launching to finish flight tests and will possibly become operational.

2.4. In accordance with the deployment plans for the Russian SBAS — SDCM (System for Differential Correction and Monitoring), the first geostationary SDCM satellite Luch-5A was launched in December 2011. Currently it is located at 167° E. Luch-5B, a geostationary satellite launched in December 2012 and located at 16° W has begun broadcasting in the test mode. The SDCM system passed tests with Luch-5B satellite and is in preliminary operation phase now. After Luch-5A ground uplink station deployment and finishing tests with both Luch-5A and Luch-5B, SDCM normal operation phase will begin probably in April or May.

2.5. To widen the coverage and service area, Luch-5V satellite launch to 95° E is scheduled for April 2014 (Ref. to figure 1).

![Figure 1 — Luch-5A, 5B, 5V total footprint.](image)

2.6. There are 19 monitor stations in the Russian Federation and 4 stations abroad. It is planned to expand the stations network (both in Russia and abroad).

2.7. Earlier it was decided that SDCM would be certified for APV-II, but in case the ICAO decides that APV-II level of performance is not applicable to SBAS, the level of performance for SDCM certification shall be clarified.

3. **Action by the Meeting**

3.1. The PBNTF-ECTL RAISG meeting is invited to consider the information provided.

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