

«Current state and prospects of development of commercial application GLONASS/GNSS in the Russian Federation»

United Nations SYMPOSIUM TO STRENGTHEN THE PARTNERSHIP WITH INDUSTRY COMMERCIA APPLICATIONS OF GLOBAL NAVIGATION SATELLITE SYSTEMS 17 February 2014. Andrey Kupriyanov "GLONASS/GNSS Forum Association"

GLONASS/GNSS Forum





The association includes about 80 enterprises, growth for the

year 10%

*State Policy Basic Principle

- GLONASS is a part of the critical state PNT infrastructure providing national security and economy development
- Creating, developing and sustaining the PNT infrastructure is a State responsibility
- No direct user fees for civil GLONASS services
- Open, free access to GLONASS information necessary to develop and build user equipment
- GLONASS use in combination with other GNSS to increase reliability of navigation
- Mandatory GLONASS use for Governmental and critical applications
- International cooperation on GNSS compatibility and interoperability and worldwide use



Federal GLONASS Program is a basis for GLONASS sustainment, development and use 3





* Major principles of the GLONASS-2020 Concept Sustainment, Development, Use

Sustainment

- State commitments on performance (constellation, availability, accuracy, reliability)
 - Launch program until 2020 with spares on-orbit and on the ground

Development

- Constellation improvement
- New signals implementation
- Accuracy and availability improvement
- Interference protection improvement
- New capabilities implementation
- Service area extension

Use

- Governmental use support
- Private activity encouraging
- Make GLONASS as worldwide utility





INTRODUCTION OF THE GLONASS TECHNOLOGIES ON TRANSPORT











- Introduction of monitoring systems and traffic management and "Safe Bus" information services as an effective solution to urban transport problems
- The terminals installed in municipal buses, in real time will provide dispatchers with full information on the speed of vehicles and the movement direction. Each "safe bus" is equipped with surveillance cameras, sensors of the number of passengers, indicators of smoke and the button of an emergency call for immediate communication with the dispatcher in an emergency.



* In 2013 the number GLONASS, GLONASS/GPS equipped vehicles were more than 2 million









PROJECT "ERA-GLONASS"



State "ERA-GLONASS" system: the main criterion – reliability







Synchronization of communications networks





* Intelligent Transport Systems



The next level of mass service – precision positioning

The development of ground infrastructure of high-precision navigation system





Since the late 80s the Russian Federation has begun to apply commercial satellite equipment and technology. At the first stage it was receivers with code measurements for maritime and ground navigation, survey. Meritime and aviation application were under IMO and ICAO requirements and regulations.



Commercial application of precision technology and equipment were first of all in survey, cadastre, land and ground infrastructure inventory. The major sector of application were oil&gas, survey and mining.

The methods of field applications were static, pseudo kinematic.



The next step was Development, improvement of technology equipment for commercial application

- RTK-kinematics in real time, kinematics with moving base base stations, transmission of differential corrections

Development of commercial (regional, local) reference networks for various applications based on GLONASS/GNSS





-monitoring of ground infrastructures, oil and gas pipelines, geophysical survey and other work on the continental shelf

-machine control - road construction with centimeter accuracy, using technology and real-time reference stations, digital maps



* Increasing Informational content coordinate and time providing rolling stock









Precision agriculture. Mining









Ассоциация «ГЛОНАСС/ГНСС-

* Areas of application of GLONASS

- Positioning of power lines masts ;
- Monitoring of hydroelectric power stations;
- Control of transport mobile means of emergency services in real time;
- Tracing of power lines by means of geo information systems and technologies of aerial photography;
- Synchronization with help of technologies of satellite navigation.











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