Republic of Kazakhstan
Space Activity Development

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History of space activities of Kazakhstan

- Kazakhstan is the home for the world's first and largest operational space launch facility – Baikonur.
- 1957 – launch of the first man-made satellite Sputnik 1
- 1961 – start of the first manned and orbital flight by Yuri Gagarin
- 1993 – creation of the National Aerospace agency
- 2007 – creation of the National Space Agency
- 2016 – creation of the Ministry of Defense and Aerospace Industry

T. Aubakirov in 1991 (7 d.)
T. Musabayev in 1994 (125 d.), in 1996 (207 d.), in 2001 (7 d.)
A. Aimbetov in 2015 (9 d.)
KazSat-3
Launched in 2014, Ku-band

KazSat-2
Launched in 2011, Ku-band

KazEOSat-1
Launched in 2014, High resolution

KazEOSat-2
Launched in 2014, Medium resolution

Baikonur Cosmodrome

AIT (SBIRK)

GCC Akkol

GCC Kokterek

Infrastructure for deep space observation

Ministry of Defense and Aerospace Industry of the Republic of Kazakhstan
Space Communication System KAZSAT

**MAIN PURPOSE:**
- Provision of satellite communication services to Government and private customers;
- Provision of Direct-to-home TV broadcasting services.

“KazSat” space communication system consist of:
- Communication satellite “KazSat-2”;
- Communication satellite “KazSat-3”;
- Ground Control Center “Akkol” (main);
- Redundant Ground Control Center “Kokterek”.

*Internal market share – 99.7%*
MAIN PURPOSE:
- Provision of Earth observation data to Government and private customers worldwide

ERS Space System consist of:
- High resolution KazEOSat-1 (1 m)
- Medium resolution KazEOSat-2 (6.5 m)
- Ground Infrastructure of control center, data receiving and storage center.

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Space system for scientific and technological purposes

1. STSAT: technological space system
   ERS microsatellite
   (mass 110 kg), resolution 17 m
   Swath 300km.

2. CubeSAT: small scientific spacecraft
   Based on cubesat technology (mass 5 kg)
   Scientific payload of monitoring the ionosphere

Launch is scheduled for 2018
Assembly, Integration and Testing Complex of Spacecrafts (AITC SC)

- Assembly and Testing of Spacecrafts up to 6 tons with range 3x3x6 m
- Thermovacuum tests (TVAC 2, TVAC 1)
- Measurement of Inertia-mass characteristics (MPM)
- Vibration facility (VIB)
- Acoustic facility (RevAC)
- RF facility (CATR)
- Electromagnetic compatibility facility (EMC)

Special Design and Technological Bureau of Space Technology (SDTB ST)

- Types of testing Spacecrafts — telecommunication, ERS, science-technological, etc.
- Design office
- Precision mechanics as well as coverage control
- Electronics and solar sensors
- Screen-vacuum thermal insulation
- Cable production (space and aviation)
- Laboratory of frequencies and contamination
Development of Scientific research and implementation of its results

Results of scientific research was implemented into production within two infrastructure projects:

1. High accuracy satellite navigation system
2. System of emergency call in case of car accidents
In 1950s created first space port
In 1957 launch of the first satellite
In 1961 flight of the first man to space
Launches since 1957 2700
Launches per year 16
Space port rented by Russian Federation up to 2050
New middle class launch vehicle with first start in 2022

BAIKONUR COSMODROME

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BAITEREK
Kazcosmos with Roscosmos jointly planning to create environmentally safe space missile complex “Baiterek” on the base of Russian launch vehicle.

Commencement period 2022
Today 1,400 highly qualified specialists engaged in space activities

Training of students in the universities of Kazakhstan and in the frame of the international program "Bolashak" at universities abroad

Internship of specialists from Kazakhstan in the implementation of space projects in France, England, Germany and UK
KADEX-2018
V INTERNATIONAL MILITARY EXHIBITION
23–26 MAY 2018
Astana, Republic of Kazakhstan
www.kadex.kz
Thank you for your attention