



**Ministry of Defense and Aerospace Industry  
of the Republic of Kazakhstan**

# **Republic of Kazakhstan Space Activity Development**

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industry of the Republic of Kazakhstan

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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.)

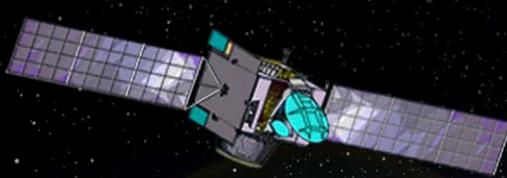


A. Aimbetov in 2015 (9 d.)

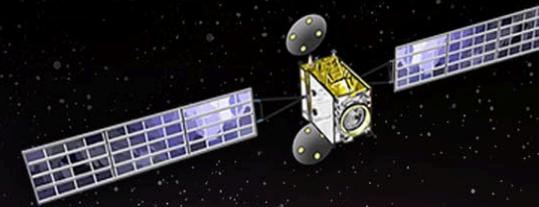


# Space infrastructure of Kazakhstan

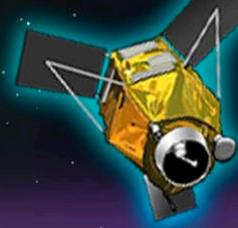
**KAZSAT-2**  
LAUNCHED IN  
2011, KU-  
BAND



**KAZSAT-3**  
LAUNCHED IN  
2014, KU-  
BAND



**KAZEOSAT-1**  
LAUNCHED IN  
2014, HIGH  
RESOLUTION



**KAZEOSAT-2**  
LAUNCHED IN 2014,  
MEDIUM RESOLUTION



BAIKONUR COSMODROME

AIT (SBIK)

GCC AKKOL

GCC KOKTEREK

INFRASTRUCTURE FOR  
DEEP SPACE  
OBSERVATION



## Space Communication System KAZSAT

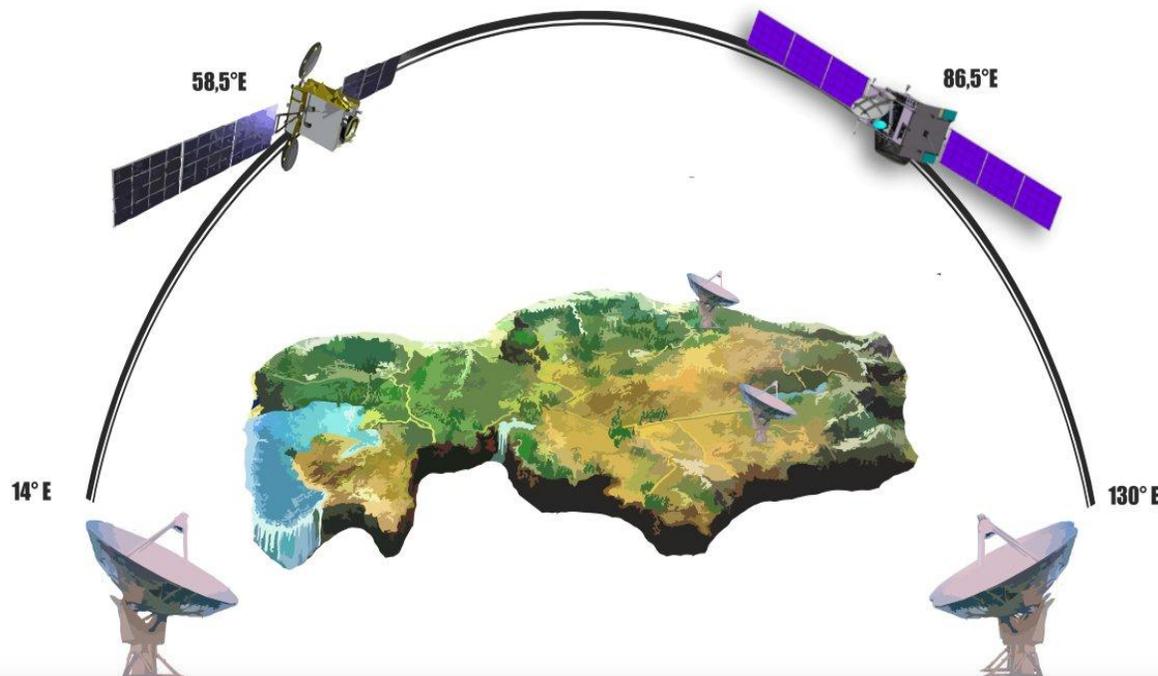
### MAIN PURPOSE:

- 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 %





## EARTH REMOTE SENSING SPACE SYSTEM OF THE REPUBLIC OF KAZAKHSTAN



### MAIN PURPOSE:

- Provision of Earth observation data to Government and private customers worldwide

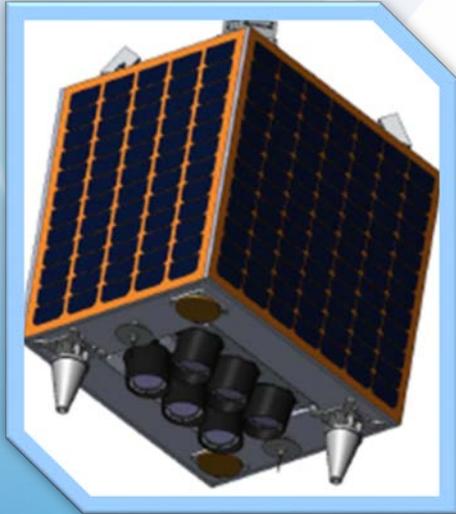
### ERS Space System consist of:

- High resolution KazEOSat-1 (1 m)
- Medium resolution KazEOSat-2 (6,5 m)
- Ground Infrastructure of control center, data receiving and storage center.

ARCHIVE – 593 MLN. SQ.KM



## 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

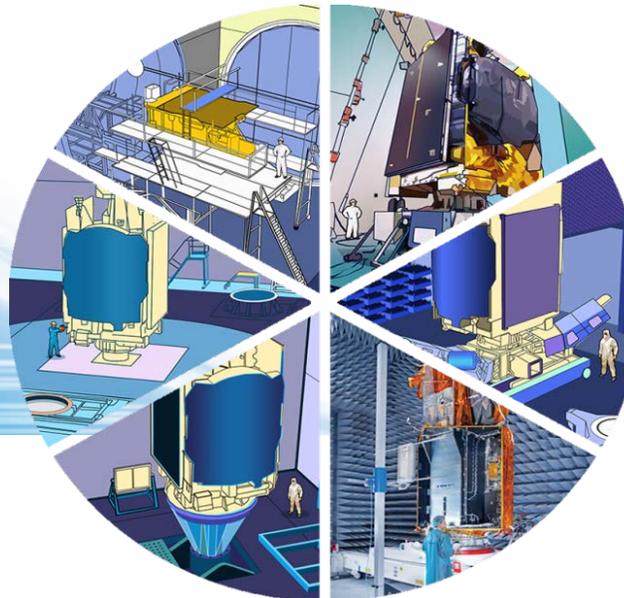


## AITC SC

ASSEMBLY, INTEGRATION AND  
TESTING COMPLEX OF  
SPACECRAFTS

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)



## SDTB ST

SPECIAL DESIGN AND  
TECHNOLOGICAL BUREAU OF  
SPACE TECHNOLOGY

TYPES OF TESTING SPACECRAFTS  
– TELECOMMUNICATION, ERS,  
SCIENCE-TECHNOLOGICAL AND  
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

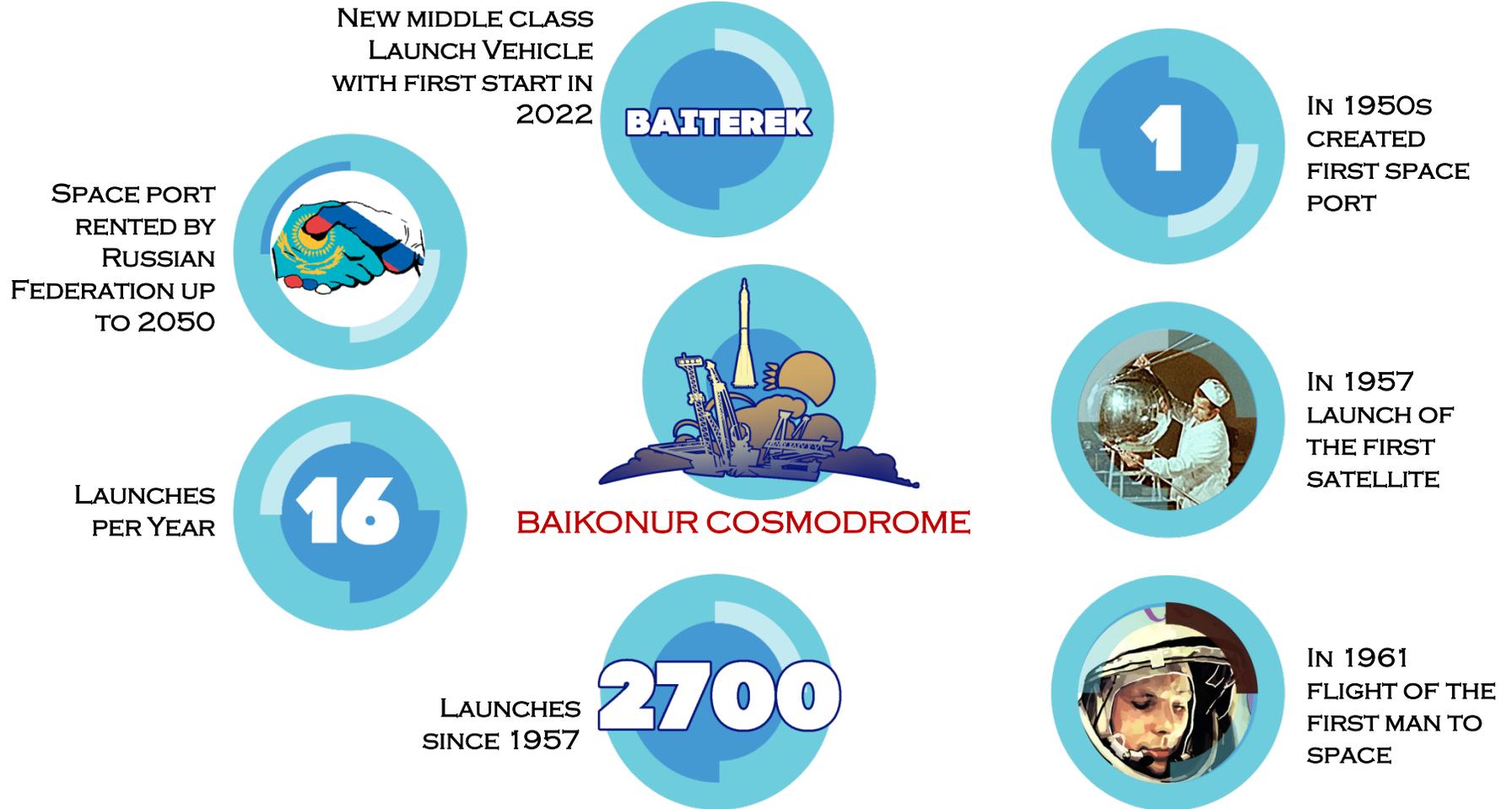


### 2. System of emergency call in case of car accidents





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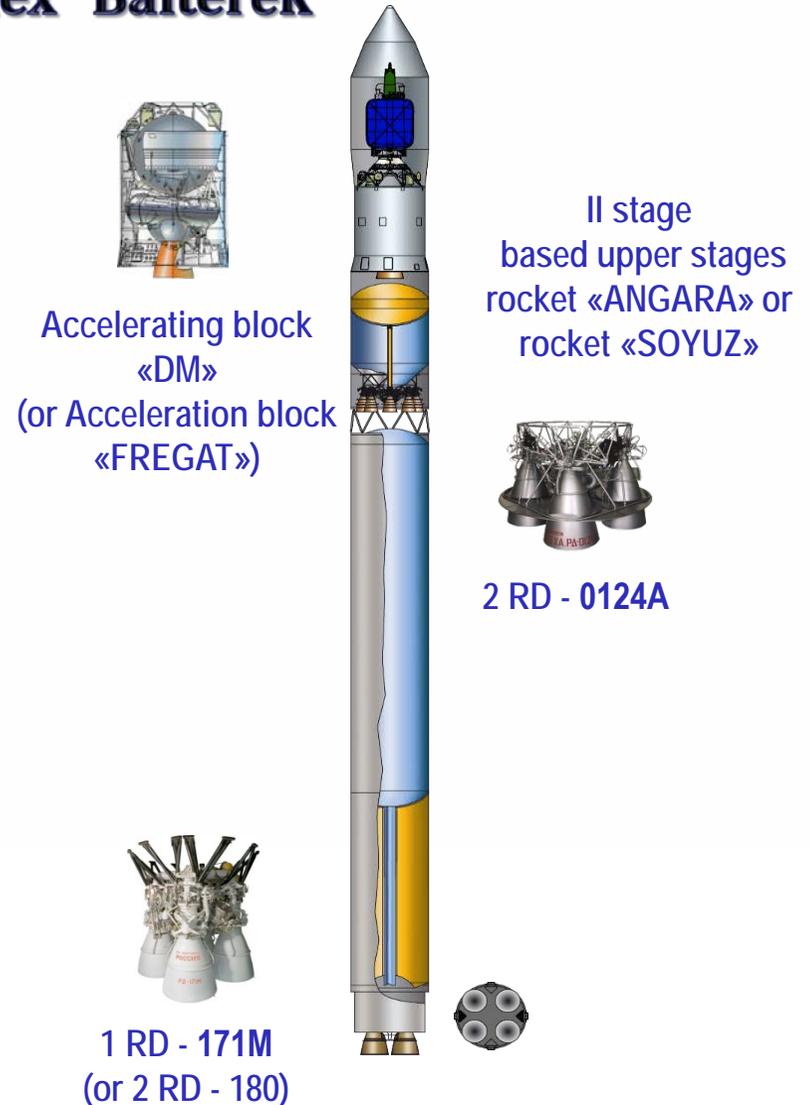




## Space missile complex "Baiterek"

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

Commencement period 2022





## Staffing of a Space Industry

- 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](http://www.kadex.kz)



**Thank you for your attention**