



SPACE ACTIVITIES OF **UKRAINE**

Today & Tomorrow



MAIN PILLARS

**SERVICES FOR
ECONOMY AND
SOCIETY**



EARTH OBSERVATION

SATELLITE NAVIGATION

TELECOMMUNICATIONS

**SPACE SITUATIONAL
AWARENESS**

**SPACE CAPABILITIES
DEVELOPMENT**



SPACE LAUNCH VEHICLES

GROUND SPACE INFRASTRUCTURE

**FUNDAMENTAL AND APPLIED
SPACE RESEARCH**

PRIVATE BUSINESS DEVELOPMENT

**INTERNATIONAL
COOPERATION**



**GLOBAL & REGIONAL
INTERNATIONAL
PROGRAMS**

BILATERAL COOPERATION

**INTERNATIONAL
ORGANIZATIONS**

SSAUkraine



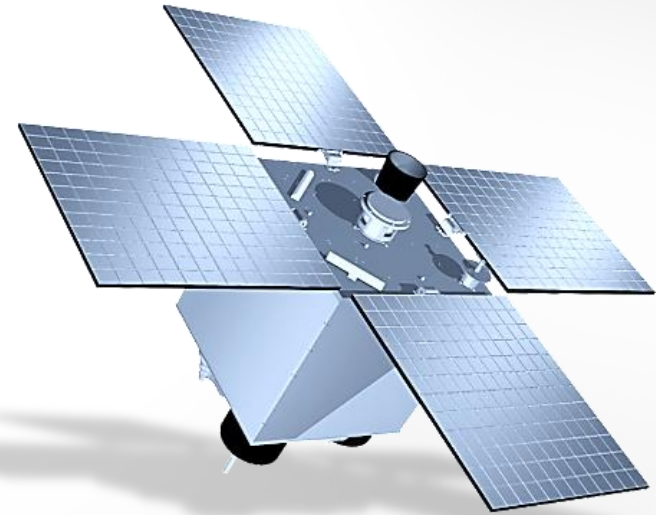
SERVICES FOR ECONOMY AND SOCIETY



EARTH OBSERVATION

EARTH OBSERVATION SYSTEM WITH MEDIUM RESOLUTION

Sich-2-30 ERS satellite, resolution – 7,8 m., mass – 170 kg, orbital altitude – 525 km, orbit inclination – 98 degrees; swath width – 36 km



**Integration into COPERNICUS,
EUROGEOS,
GEOSS, International Programs**

HIGH RESOLUTION SATELLITE CONSTELLATION

launch of 6 microsatellites with resolution of 0,5-1 m. by 2025

**Monitoring land, water,
Atmosphere, climate changes,
Receiving data for economy,
Emergencies, security & defense**



SERVICES FOR ECONOMY AND SOCIETY



SATELLITE NAVIGATION & TELECOMMUNICATION

EXTENSION OF EGNOS/GALILEO EUROPEAN NAVIGATION SATELLITE SYSTEM INTO THE TERRITORY OF UKRAINE

conclusion of the agreement, deployment of
RIMS

POSITIONING, TIMING AND NAVIGATION SYSTEM

expansion of reference stations network to cover
the entire territory of Ukraine for the provision of
high-precision positioning services

BROADBAND SATELLITE INTERNET ACCESS

deployment of a satellite gateway (ground
station) in Ukraine, provision of affordable high
speed internet connectivity in hard-to-reach areas

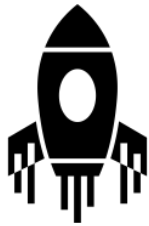


National space facilities control and test center

SSAUkraine



SPACE CAPABILITIES DEVELOPMENT



SPACE LAUNCH VEHICLES



DESIGNED & MANUFACTURED

- **Mayak** Modular LV FAMILY
- Medium-class **Zenit** LV Family
- Small and medium class **Cyclone** LV Family
- Engines and Propulsion Systems

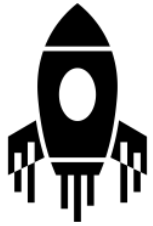
CONTRIBUTION TO DESIGN & MANUFACTURE

- Stage 1 Core Structure for **ANTARES** LV
- Cruise engine for **VEGA** LV

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SPACE CAPABILITIES DEVELOPMENT



SPACE LAUNCH VEHICLES



RD-870

**ADVANCED LIQUID
ROCKET ENGINES
FAMILY**



**LIGHT SPACE
LAUNCH VEHICLE
ZENIT-1**

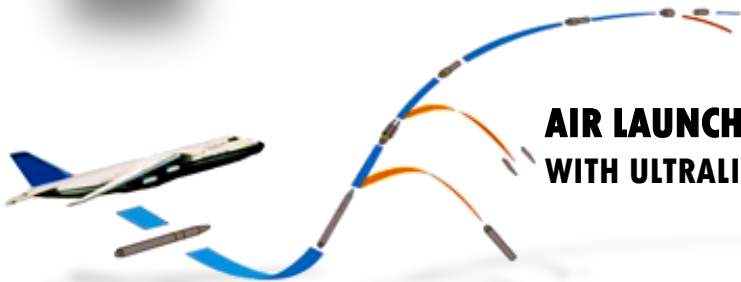
PROSPECTIVE PROJECTS



**MEDIUM SPACE
LAUNCH VEHICLE
CYCLONE-4M**

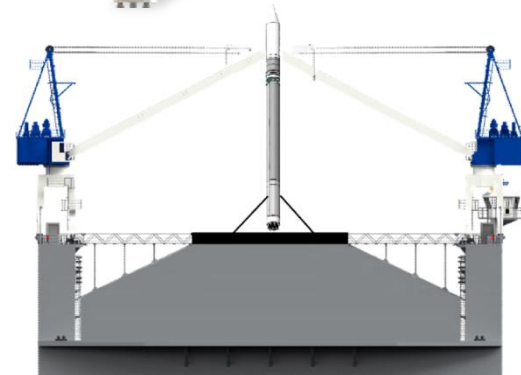


**HEAVY SPACE
LAUNCH VEHICLE
ZENIT-7N**



**AIR LAUNCH SYSTEM
WITH ULTRALIGHT SLV**

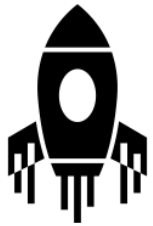
**SEA-BASED LIGHT
SPACE LAUNCH
VEHICLE
ZENIT-1SL**



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SPACE CAPABILITIES DEVELOPMENT



FUNDAMENTAL AND APPLIED SPACE RESEARCH

CURRENT ACTIVITIES

SPACE WEATHER (monitoring of the ionosphere and the influence of atmospheric aerosols into the climate and ecology)

RADIOASTRONOMICAL RESEARCH and **SPACE BIOLOGY**

ADVANCED PLANS

MICROSAT MISSION (study of the Earth's ionosphere)

AEROSOL MISSION (study of atmospheric aerosols)

CHOVEN SMALL TRANSPORT MODULE (delivery of payload to the lunar orbit)

LUNAR MODULE (soil sampling and analysis)

MICRO- AND NANOSATELLITE PLATFORMS (for earth observation, scientific and experimental-technological satellites)

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SPACE CAPABILITIES DEVELOPMENT



GROUND SPACE INFRASTRUCTURE

11 BRANCHES



Spacecraft control



Reception of special data



Space monitoring and analysis



Areas of activities



Collection and processing ERS data



Navigational field control Uniform timing service



Geophysical and seismic monitoring

MAIN CENTERS

**Center for Special Information
Reception & Processing and
Navigation Field Control**

**Western Center of Radiotechnical
Surveillance**

Main Special Monitoring Center

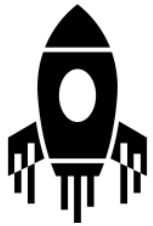
**Space Research and Communications
Center**



NATIONAL SPACE FACILITIES CONTROL AND TEST CENTER



SPACE CAPABILITIES DEVELOPMENT



PRIVATE BUSINESS DEVELOPMENT

Conditions for private space business in Ukraine



Market gap for space technology services



Open tenders within national space program



Liberalization of activities for private business



Corporatization of state-owned enterprises



Well-developed educational base



Extensive technological & professional human resources

PRIVATE SPACE BUSINESS IN UKRAINE

Earth Observation & Data Analysis
Rocketry & Engine Building
Satellite Tools & Payloads
Moon Research



INTERNATIONAL COOPERATION

USA

ARTEMIS
ANTARES LV

**INTERNATIONAL REGIMES
OF NON-PROLIFERATION
AND EXPORT CONTROL**

MTCR, HCOC,
WASSENAAR
ARRANGEMENT

EU

COPERNICUS
GALILEO/EGNOS
HORIZON-EUROPE
VEGA LV

**BILATERAL
AGREEMENTS**

27 COUNTRIES, EU
AND ESA

**INTERNATIONAL
ORGANIZATIONS**

UN COPUOS, GEO,
CTBTO, ISECG, CEOS
ETC

**INTERNATIONAL
PROJECTS**

CYCLONE-4M, IONOSAT-
MICRO

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THANK YOU!



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