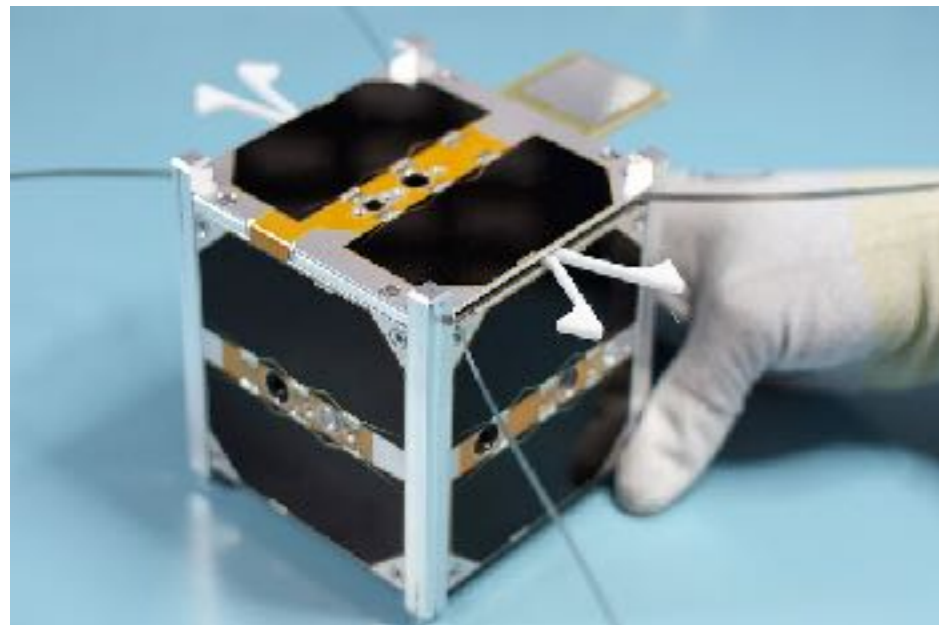


Nová revolúcia v kozmonautike



Norbert Werner

MTA-Eötvös University/Masaryk University

1957 Október 4 - Sputnik I



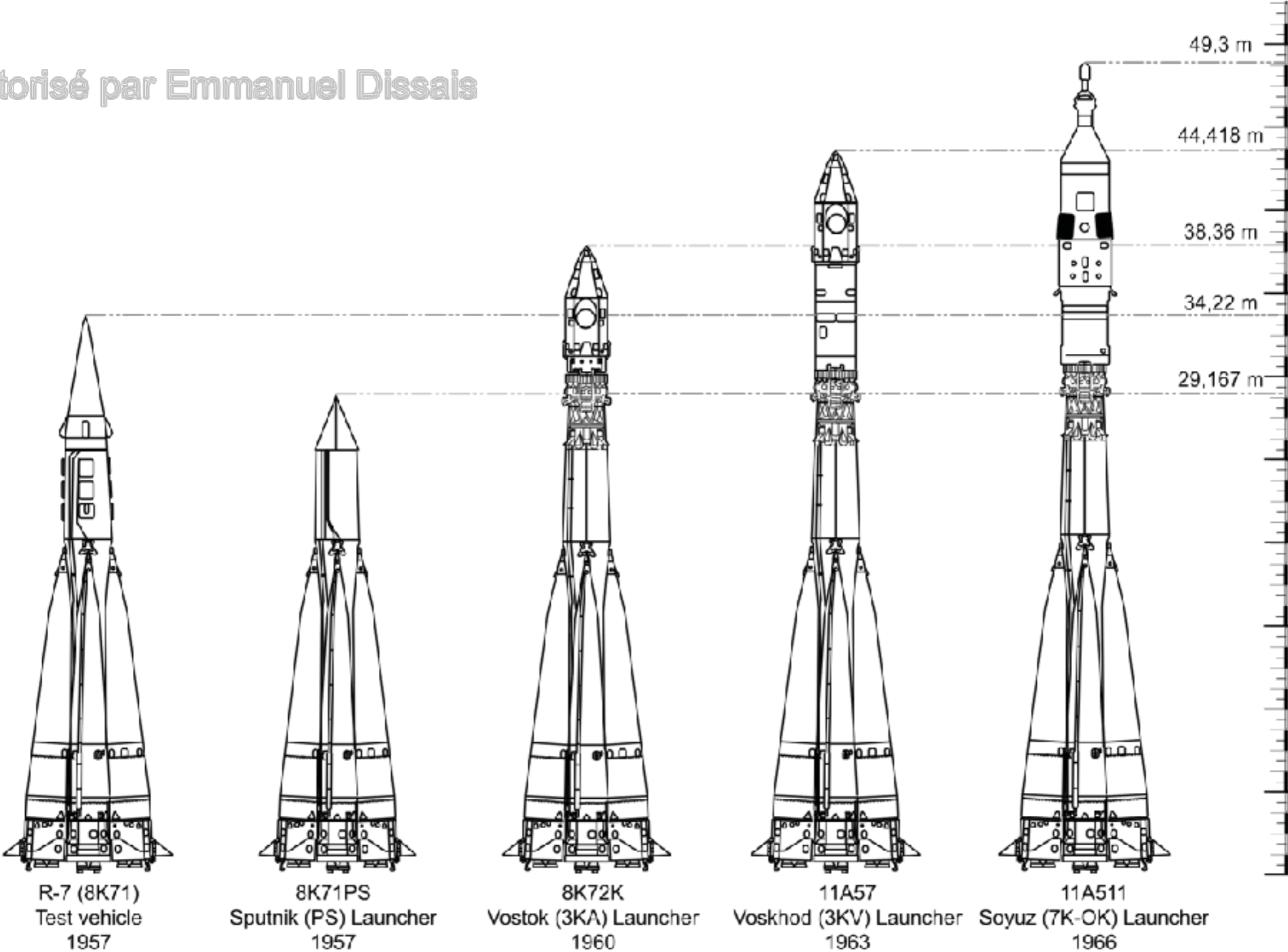
1961 Apríl 12 - Vostok I



1965 March 18 - Prvá “vesmírna prechádzka”



Vectorisé par Emmanuel Dissais

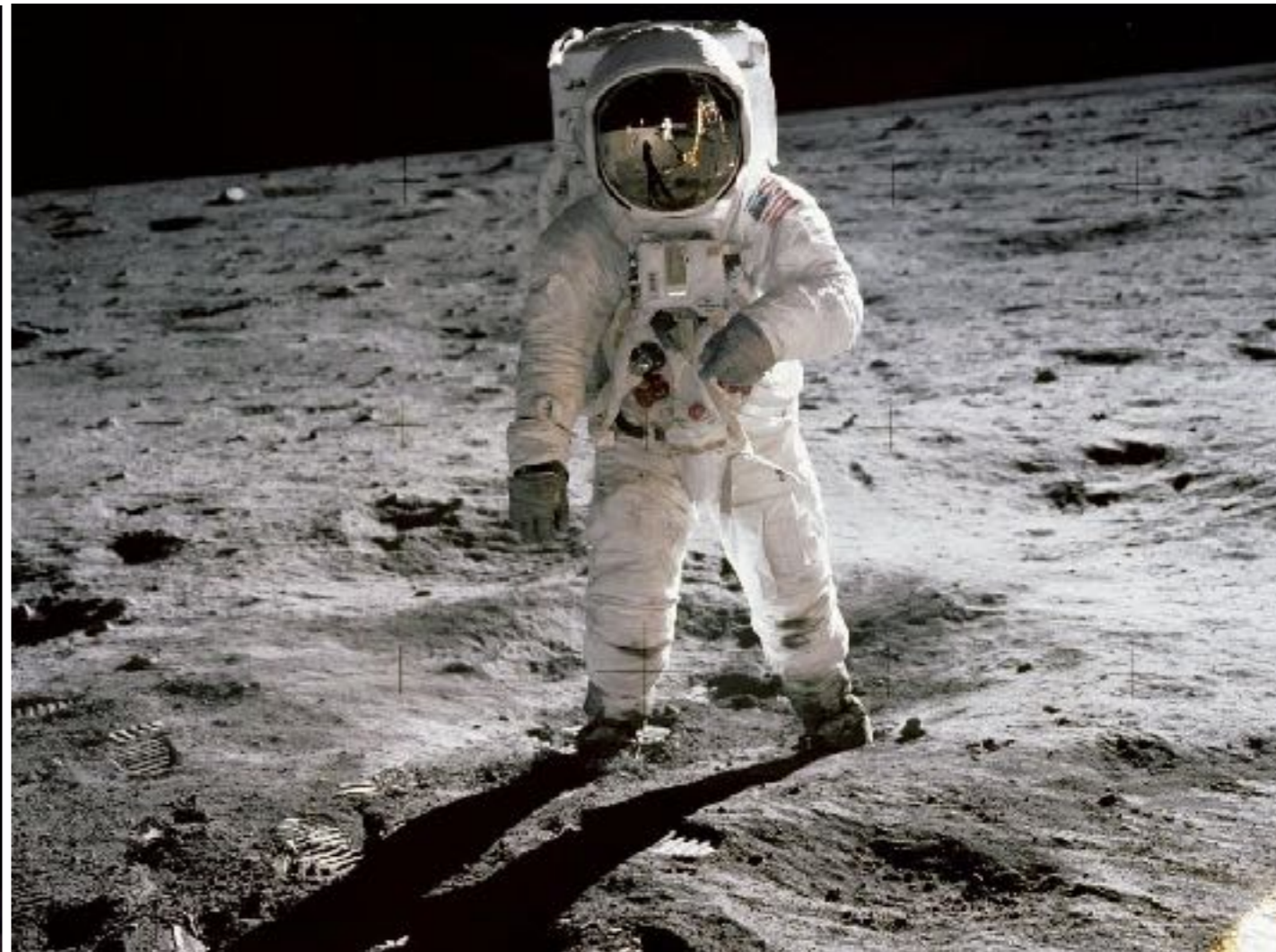








1969 Júl 20 - Apollo 11



1972 December - Apollo 17

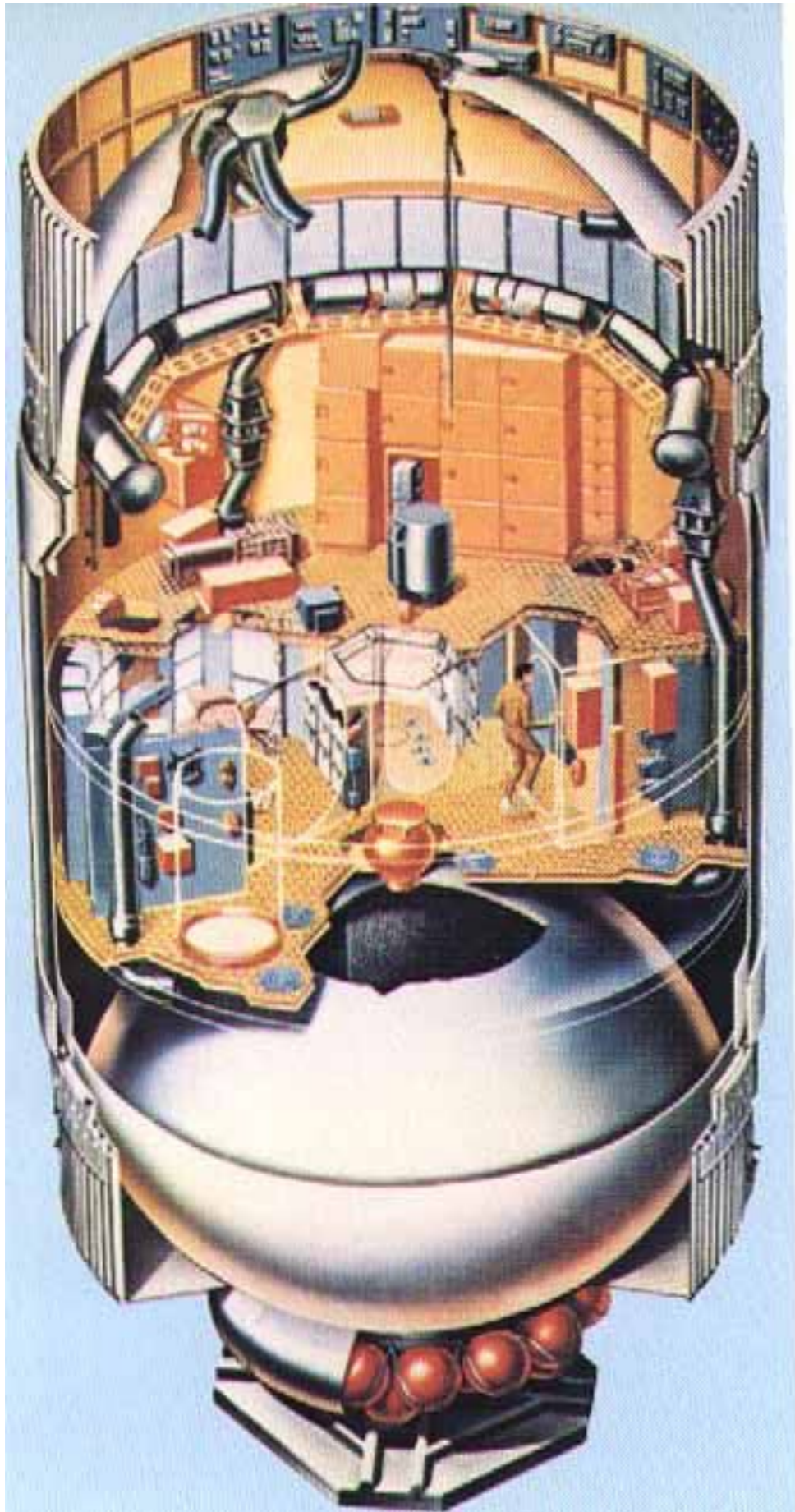


1971 - 1982 Kozmické stanice Salyut 1 - 7



1973 - Kozmická stanica Skylab

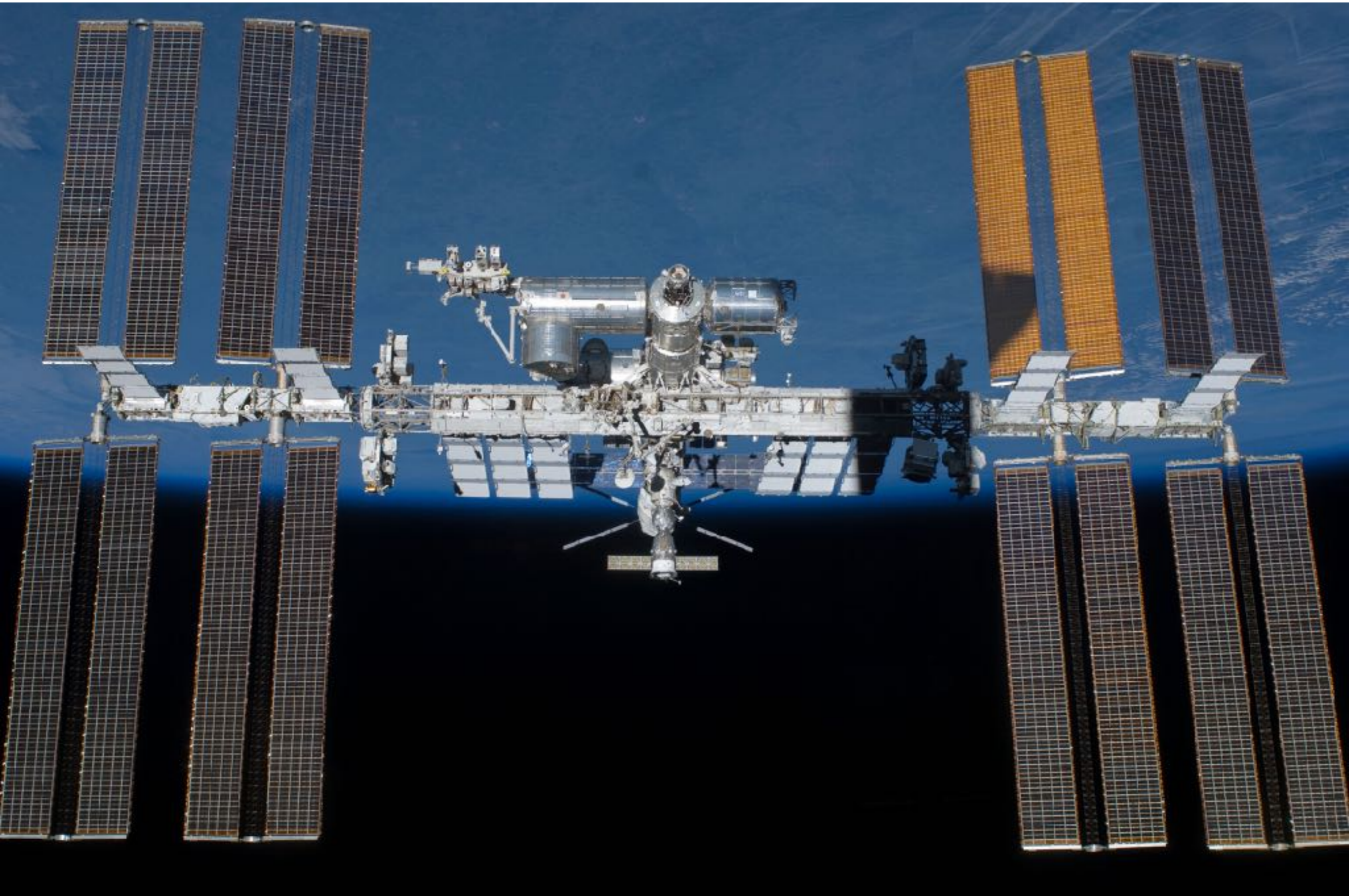




1981 - 2011: Raketoplán







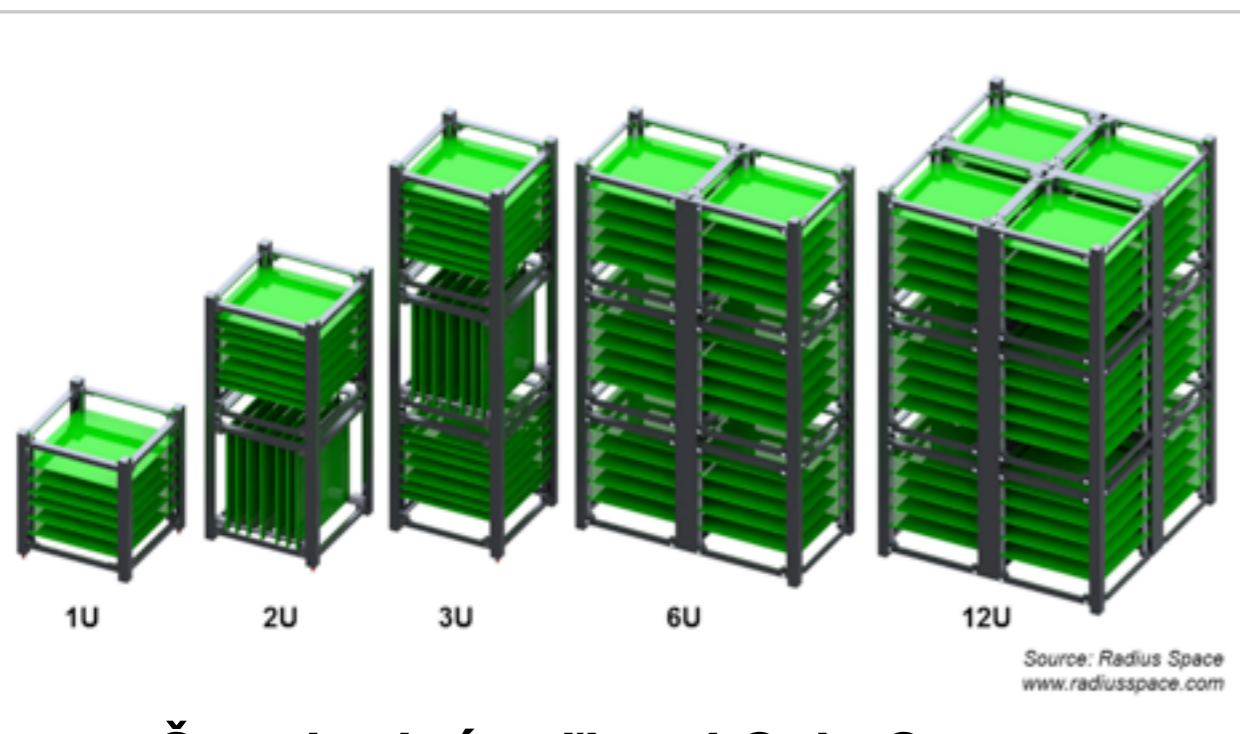
NOVÁ ÉRA MALÝCH DRUŽÍC (CUBESATOV)



skCube

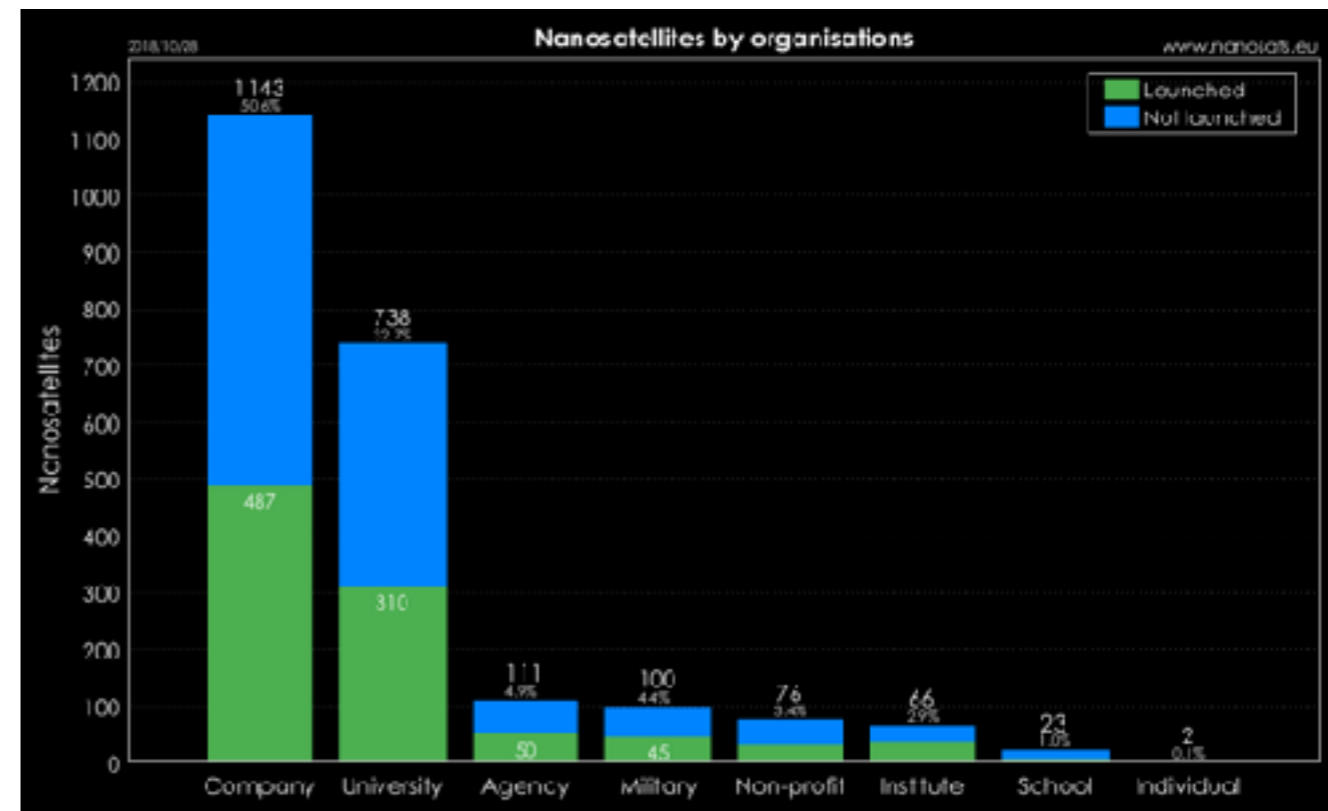
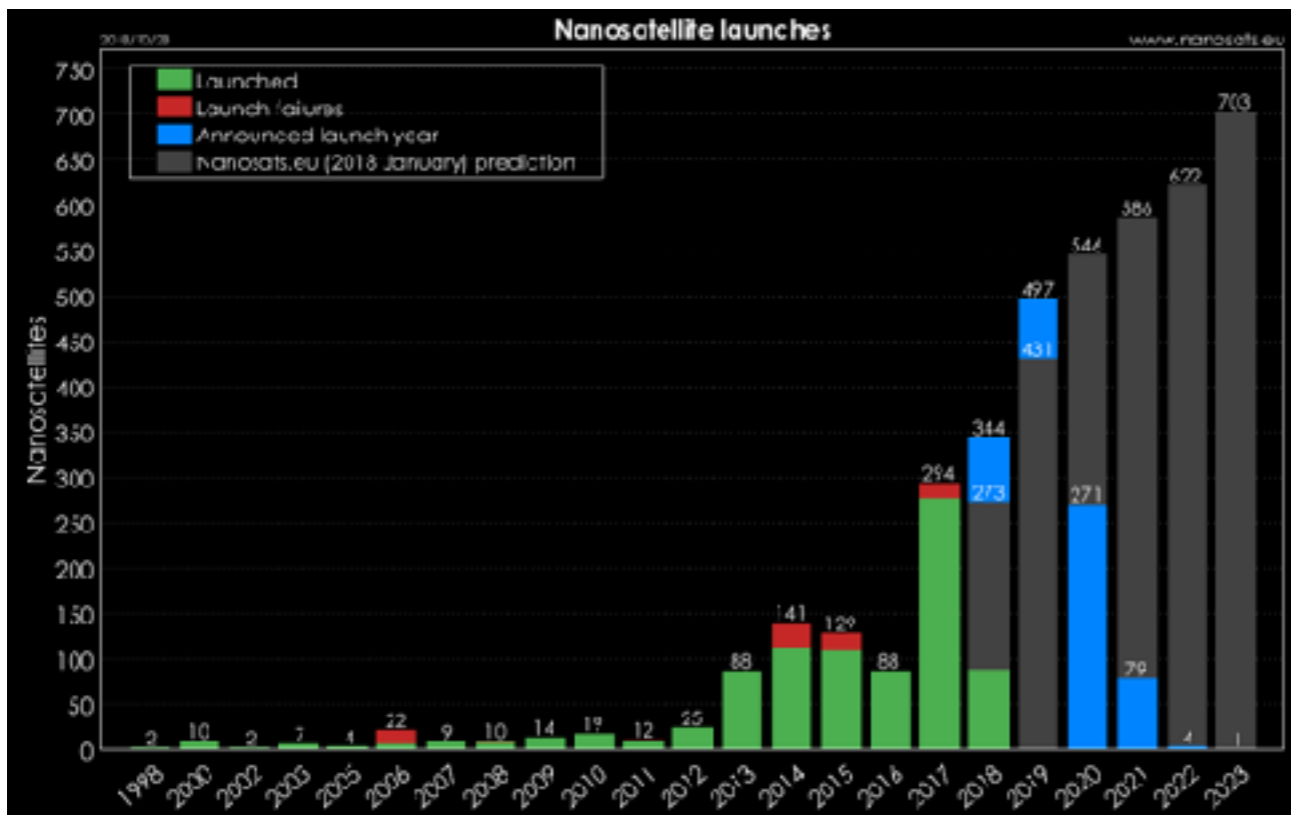


CubeSat vypúšťaný z vesmírnej stanice



Štandardné veľkosti CubeSatov

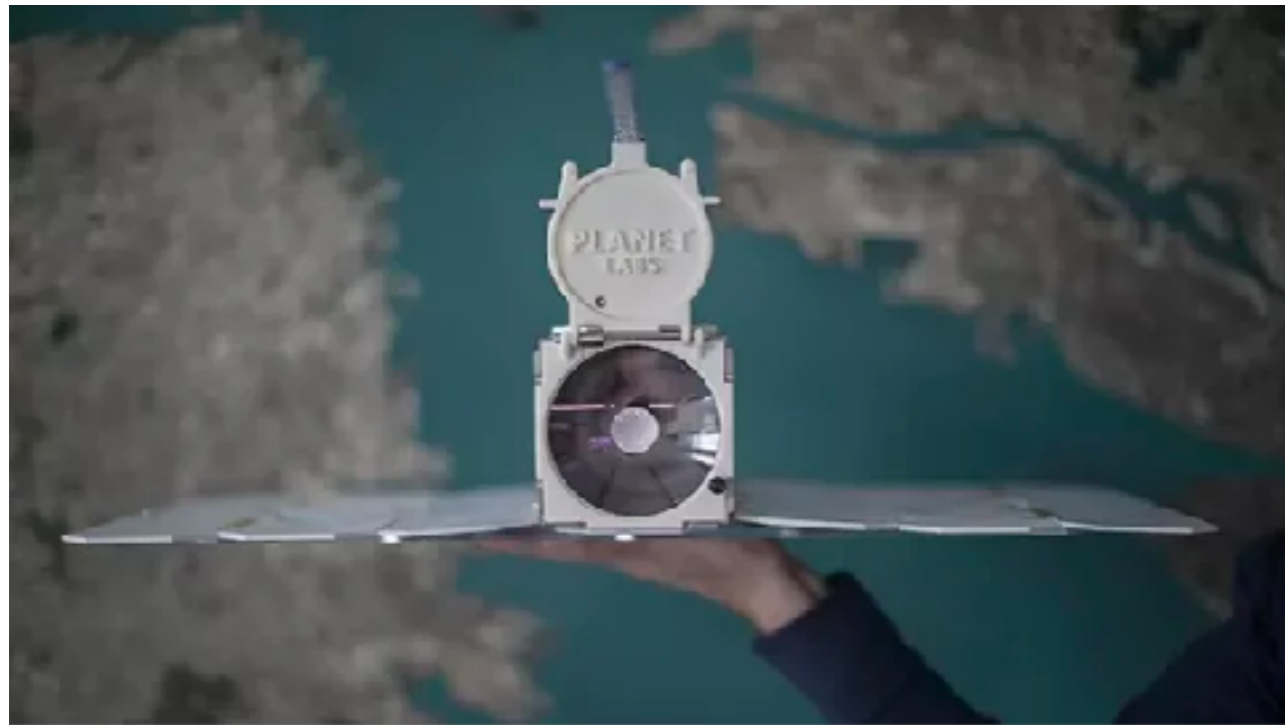
NOVÁ ÉRA MALÝCH DRUŽÍC (CUBESATOV)



Tri epochy vývoja CubeSatov:

- 1) Projekty vysokoškolských študentov a nadšencov
- 2) Demonštrácia nových technológií pre vesmírne aplikácie
- 3) Prelomová veda a komerčné využitie v plnom rozsahu

Väčšinu CubeSatov stavajú súkromné spoločnosti a univerzity, nie vesmírne agentúry





Vstup komerčních hráčů - SpaceX Falcon I

September 2008







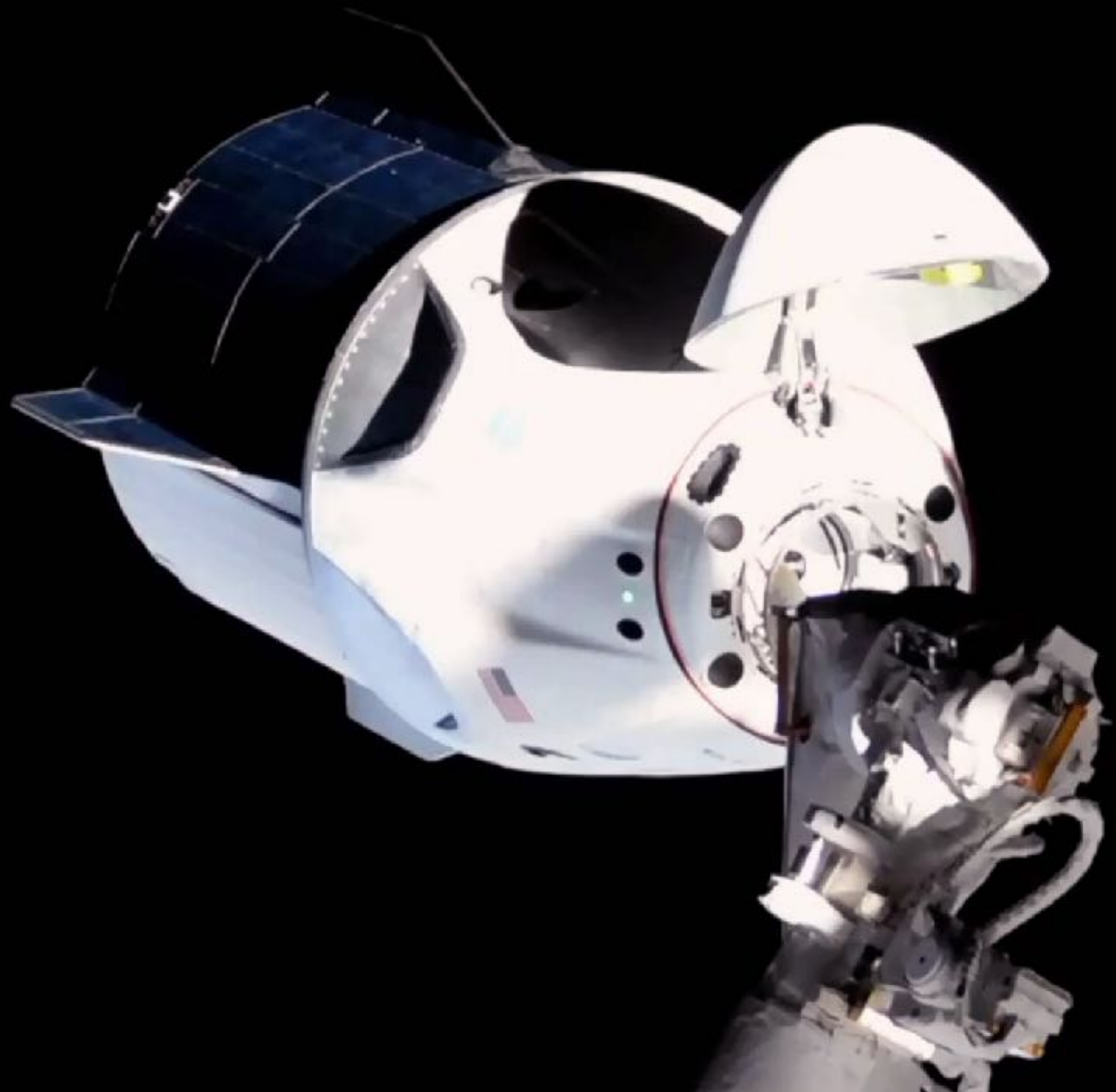
natgeotv.com



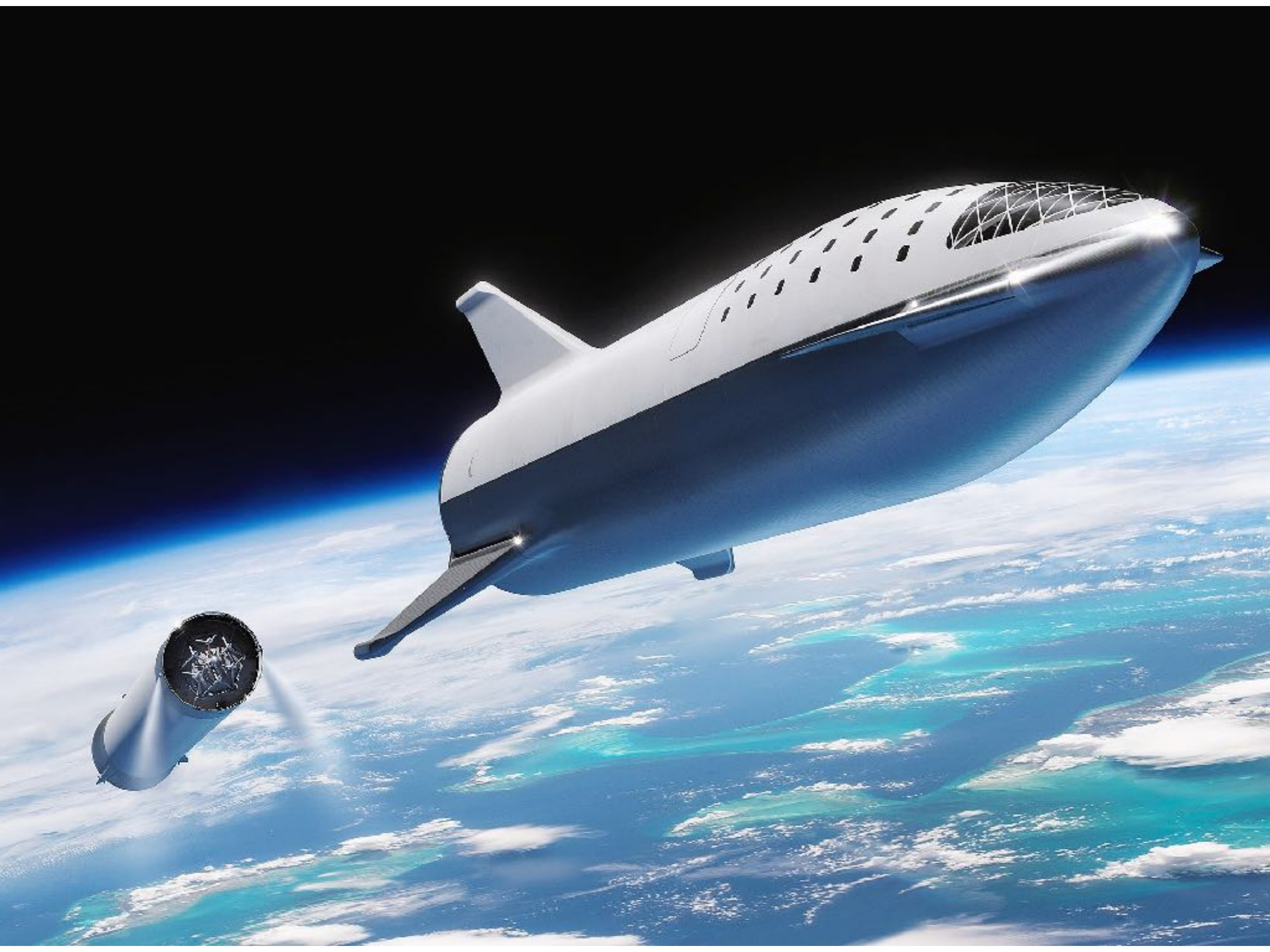




















N202VG

VIRGIN GALACTIC aabar

Virgin



BLUE ORIGIN

BLUE ORIGIN
MISSION 8

T- 0:05

BLUE ORIGIN



NASA - SLS





Antares

Soyuz

Ariane 5

Atlas V

Vulcan

Falcon 9

Falcon Heavy

Delta IV Heavy

New Glenn 2-stage

New Glenn 3-stage

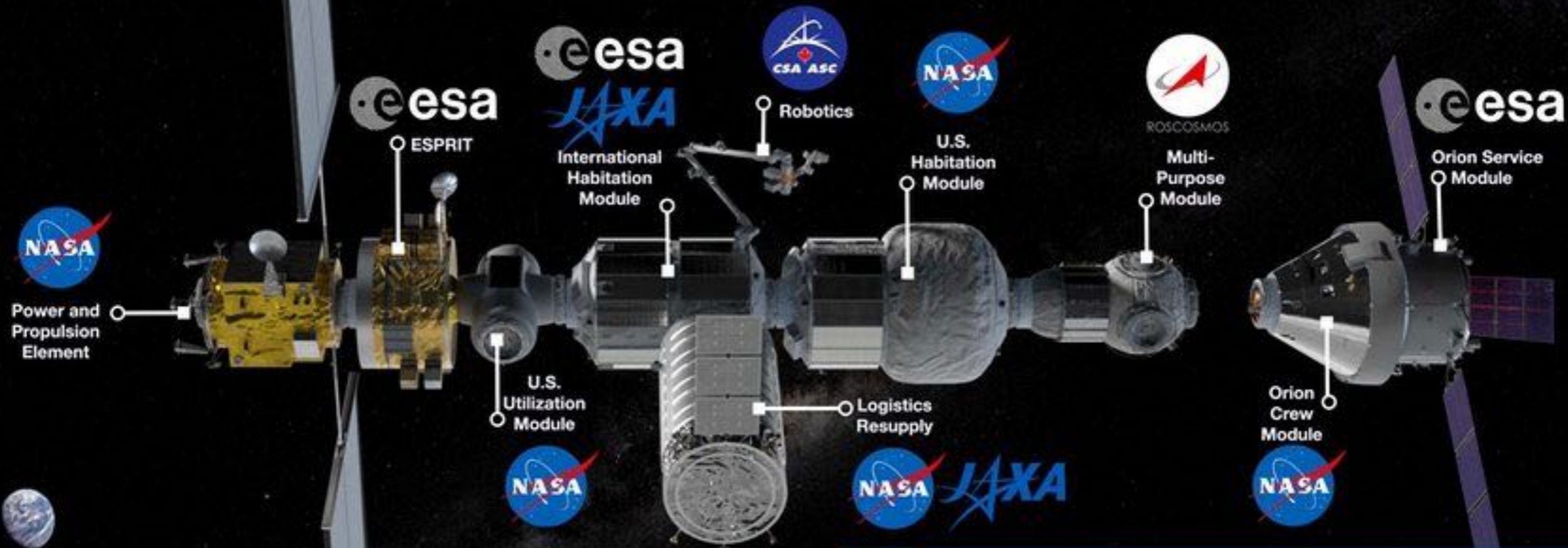
New Glenn Landed Booster

Saturn V

SLS

BFR

GATEWAY CONFIGURATION CONCEPT



EXPLORE
MOON to MARS

A DEEP SPACE HUB FOR SCIENCE AND EXPLORATION COLLABORATION

 Command Module for Lunar Surface Assets	 Internal and External Payloads	 Internal and External Robotics
 Mixed Fleet Deliveries	 Human Lunar Surface Systems	 International Crew