



**58th Session of the UN COPUOS
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The Italian Contribution to the Space Exploration



*Jean Sabbagh
Member of the Italian delegation*



ASI MISSION



ELABORATION OF NATIONAL SPACE STRATEGIES THROUGH THE DRAFTING OF THE NATIONAL SPACE PLAN



PROMOTION AND FINANCING OF SCIENTIFIC AND TECHNOLOGICAL SPACE RESEARCH



SUPPORT OF SPACE EDUCATION AND TRAINING OF STUDENTS AND YOUNG PROFESSIONALS



PROMOTION AND SUPPORT OF NATIONAL AEROSPACE INDUSTRY



ASI

Goals for Space Exploration



ASI OBJECTIVES FOR HUMAN AND ROBOTICS SPACE EXPLORATION



MAXIMISE THE ISS UTILISATION ACTIVITIES AND RETURNS BOTH AT BILATERAL AND MULTILATERAL LEVELS, IN THE AIM TO OPTIMISE THE LARGE INVESTMENT MADE

CONTRIBUTE TO THE DEVELOPMENT OF TECHNOLOGY INNOVATIONS FOR THE FUTURE INTERNATIONAL PROGRAMMES IN EXPLORATION





ASI

Activities in Space Exploration



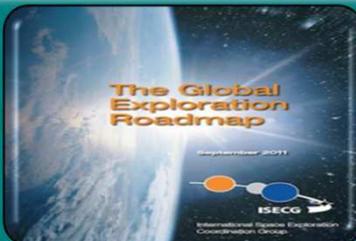
**ASI MANAGES EXPLORATION ACTIVITIES AND PROJECTS IN THE
FRAME OF**



***The International Space
Station (ISS)***



***Robotic Exploration
Missions***



***Global Exploration Roadmap of the
International Space Exploration
Coordination Group (ISECG)***



The Italian Participation to the ISS



Italy has a double access to ISS:



MULTILATERAL
ESA optional
programmes



BILATERAL
ASI-NASA MoU



The Italian Participation to the ISS



Nodes 2 and 3

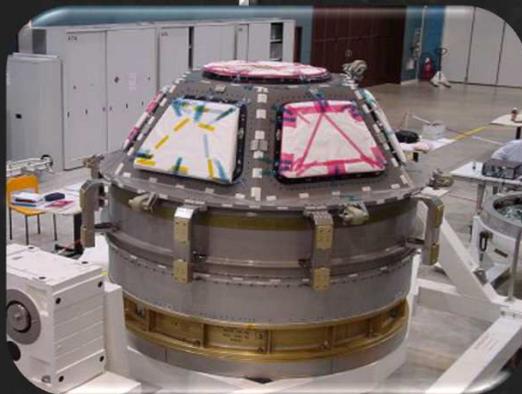


**More than 50% of
pressurized volume
has been built in
Italy**

Columbus/ATV



Cupola



MPLM/PMM





The Italian Participation to the ISS



• *ASI developed and used several human and animal research facilities on-board ISS*

HPA
Sensorised
Glove



ELITE-S2,
motion
assessment



Mice
Drawer
System
(MDS)



Since 2001, five Italian astronauts performed 5 research plans on-board ISS

ALTEA,
dosimeter
&
interaction
of cosmic
radiation
with brain



ACCOMPLISHMENTS ON ISS

- More than 60 investigations, mainly in the field of Life Science (Human Research, Biology)

HUMAN RESEARCH

CHIRO
 BMI (ESA)
 PA (2)
 ALTEINO
 ALTEA CNSM
 ELITE-S₂ (3)

TECHNOLOGY

VEST
 PLEGPAY (ESA)
 APE
 ALTEA SHIELD (ESA)

PHYSICAL SCIENCE

ALTEA DOSI (NASA)
 FOAM
 ENOS
 ALTEA GAP (NASA)
 BIODISS (2#7)

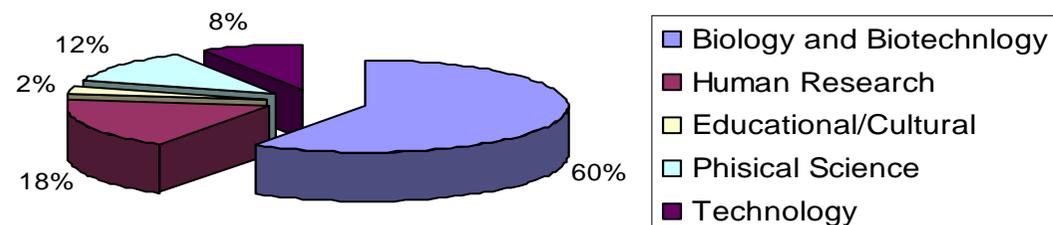
EDUCATION

SPORE

BIOLOGY

APCF (ESA)
 FRTL-5
 MDS (20)
 NIGHT VISION
 VIABLE
 BIODISS (5, 7)

Investigations vs Disciplines





The Italian Astronaut Flights



Since 1992 7 astronauts
of Italian nationality
have flown into Space and
one is currently on board
the ISS





The Italian Astronaut Flights



In space right now



Samantha Cristoforetti



Italia - Europe



ESA (European Space Agency)



Expedition 42

ISS International Space Station

Increment 41-42 Research Plan Summary

Orthostatic Tolerance

Blind & Imagined - Requires the use of ELITE-S2 facility.

Wearable Monitoring - in microgravity during sleep.

Drain Brain



Increment 42-43 Research Plan Summary

NATO

CYTOSPACE

POP-3D

ISSpresso



ASI Contribution to Robotic Exploration The Solar System



• ITALIAN SCIENTIFIC CONTRIBUTIONS TO ROSETTA MISSION

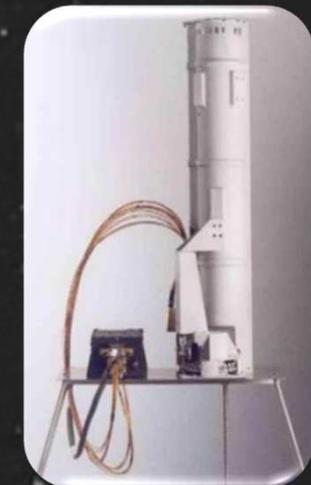
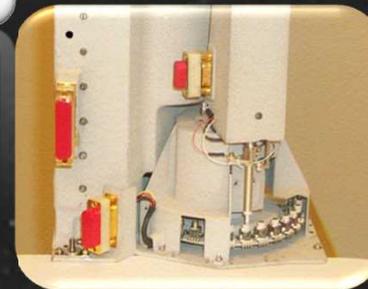
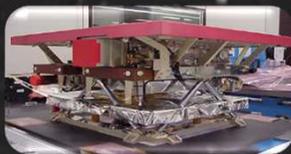
On Rosetta orbiter:

- VIRTIS (Visible Infra Red and Thermal Imaging Spectrometer)
- GIADA (Grain Impact Analyzer and Dust Accumulator)
- OSIRIS WAC (Wide Angle Camera)



On Philae lander:

- SD2 (Sampling, Drilling and Distribution system)
- Solar Array





ASI Contribution to Robotic Exploration The Solar System



**• MAJOR CONTRIBUTION TO ESA-ROSCOSMOS 2
EXOMARS MISSIONS**

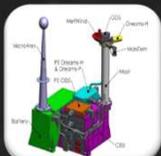
The 2016 Mission with the contribution in:



TGO (Trace Gas Orbiter)



**EDM (Entry Descent Module) Schiaparelli with the
scientific payloads**



**AMELIA (Atmospheric Mars Entry and Landing
Investigations and Analyses)**



**DREAMS (Dust characterization, Risk assessment
and Environment Analyzer on Martian Surface)**





ASI Contribution to Robotic Exploration The Solar System



The 2018 Exomars Mission contribution:



CM (Carrier Module)



RM (Rover Module)



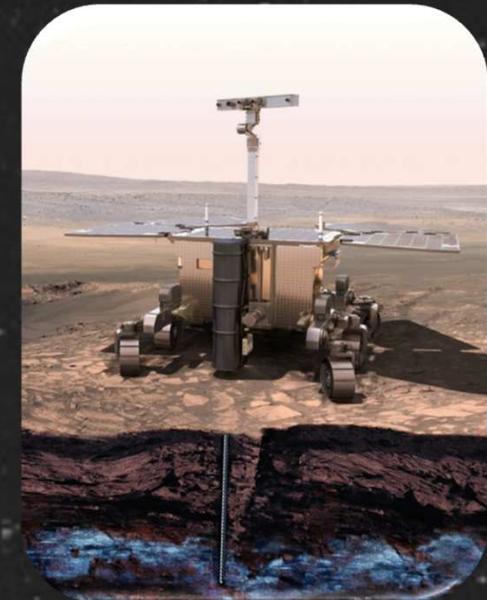
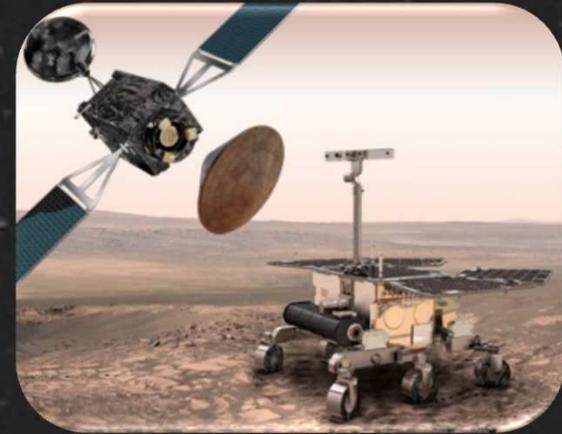
DM (Descent Module)



Drill Sampling Systems



Ma_Miss instrument (MArs Multispectral Imager for Subsurface Studies)





ASI Participation to Robotic Exploration The Solar System



CASSINI



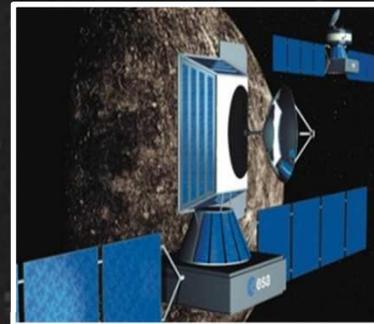
Antenna
still
transmitting
data from
Saturn

MRO



SHARAD,
radar for
water on
Martian
surface

DAWN



VIR ,
mission for
Observation
of asteroids

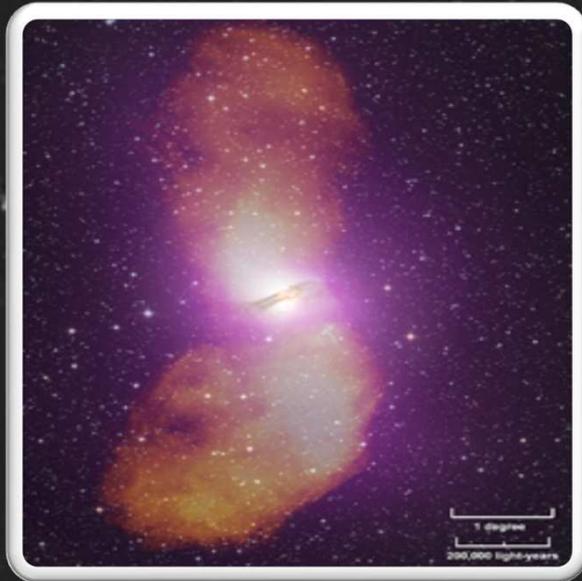
JUNO



JIRAM (Jovian
InfraRed
Auroral
Mapper)
KaT (Ka-Band
Translator)



ASI Participation to Robotic Exploration Deep Space



- AMS, on board of the ISS, seeker for antimatter

High Energy Astrophysics

- Fermi/Glast NASA mission
- SWIFT NASA mission
- Agile national mission





The Italian Participation to the ISECG



ISECG is a voluntary, non-binding international coordination forum of 14 partner agencies who contributed to the Global Exploration Strategy

ASI shares, with ISECG partners, a vision for concerted human and robotic space exploration missions focused on solar system destinations

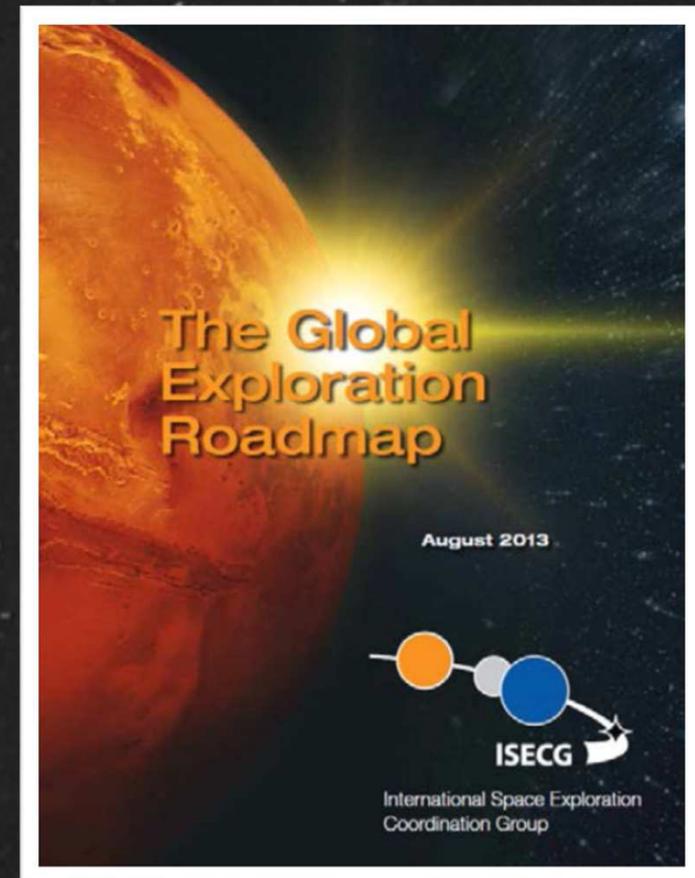




The Italian Participation to the ISECG



ASI contributed and continue to contribute actively to the elaboration of GER, the major ISECG product, which reflects the international effort for sustainable exploration approaches to Moon, near-Earth asteroids, and Mars.





THANK YOU

