

The UAE Space Sector



April 2018

Why Space?!

(There is race to space: 60 countries have space activities)

- **Strategically:** Fourth domain of power/dual usage
- **Economically:** Support smart economy, diversification
- **Social benefits:** Communications, navigations, earth observation
- **Inspiration:** Attract young people to STEM education
- **Innovation:** Space is a platform for innovation
- **Cooperation:** Space is a model for successful int. collaboration/cooperation



The UAE Space Journey: From Dream to Reality

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The Journey started 1973: education, satellites programs, space agency, mission to Mars more to come.

UAE Space Sector

UAE have the biggest diverse Space Sector in the region:

- **4 major actors:** UAE Space Agency, YahSat, Thuraya and MBRSC
- **7 satellites** in orbit (2 FSS ComSat, 2 MSS ComSat 2 Remote Sensing)
- **6 more satellites** in projects (including Mars Mission “The Hope”)
- **3 Space Research Center** (8 CubeSats with Academia)
- **UAE space workforce** (\approx 500 employee, \approx 50% local)
- **UAE is a Regional Hub:** Space services, technologies, education & events

\$5.5 Billion worth of space investment with around **10%** annual growth.



UAE SPACE AGENCY

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- Established in Aug 2014, First SA in the region
- Federal entity equivalent to an authority
- Focus on regulation/coordination
- Small agency (60 professionals)
- Has an Int. advisory committee

Primary Objectives:

Regulate the Space Sector (National Space Policy, Strategy, Law and regulations)

Develop UAE Human Capital for the Space Sector

Funds/Support National Space Projects R&D (including the Mars Mission “The Hope”)

Set-up National and International Partnerships



UAE Satellites Communications

Al Yah Satellite Communication Company

- Established 2007, two Communication Satellites
- Provide Commercial, Gov. Civil and Military Services
- Covers more than 100 countries across the Globe
- Third Satellite to cover South America (Brazil 2017)



Thuraya Satellite Communication Company

- Established 1997, two Communication Satellites
- Provide Global Mobile communication Services
- Covers more than two thirds of the Globe



Earth Observation & Remote Sensing

Mohammed Bin Rashid Space Center (MBRSC)

- Established 2015, Evolved from EIAST that established in 2006.
- Both a developer and manufacturer of Earth Observation Satellites, DubaiSat-1 and DubaiSat-2
- Plans to launch its 3rd Earth Observation Satellite , KhalifaSat_2018



Space Reconnaissance Center (SRC)

- Governmental center that provide services to Gov. entities
- Established early 1990s



UAE Space Research & Development

Sharjah Center for Astronomy & Space Sciences - SCAC

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- Established 2015 – the University of Sharjah and Includes:
 - 17inch Optical Telescope and Housing Dome
 - State of the Art Planetarium , Space and Astronomy Museum
 - Various Laboratories are being setup to conduct space research

UAE Space Research Center – UAE University at AlAin

- Currently Being Established with a budget of 100M AED
- Will include CubeSat facilities and other Laboratories



Yahsat Masdar Space Research :

- CubeSat Design, Manufacture and Testing Facilities
- Space Concentration Program – Including CubeSat Projects
- MSc in Space Technology



UAE Mars Mission “The HOPE”

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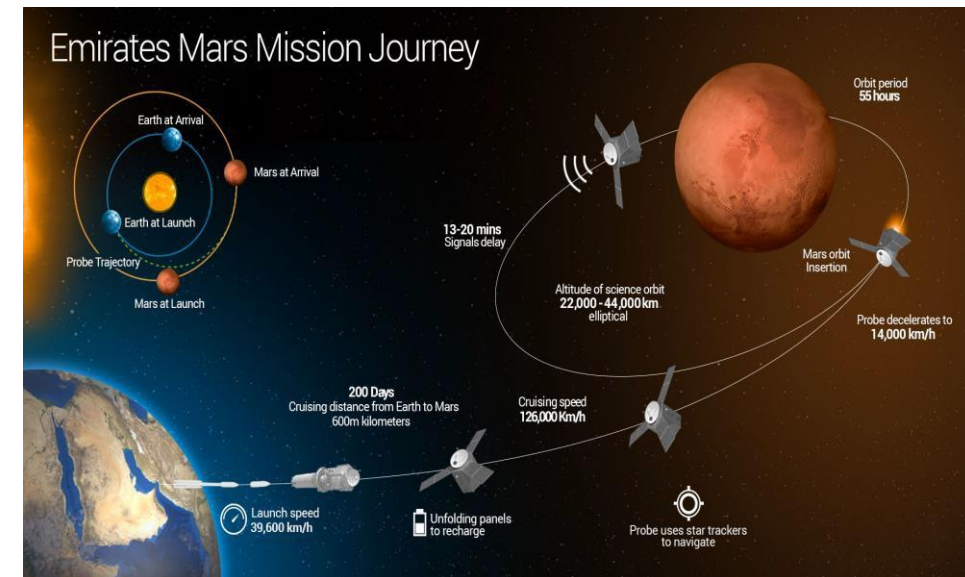


Main Objectives:

- Inspiring young people
- Unifying Efforts (Common Goal)
- Building knowledge / R&D Culture
- Building Int. cooperation
- Global contribution to humanity
- Position UAE in the global space

UAE Mars Mission

- Mars Orbiter/Atmosphere study
- Unique Science Mission
- UAE SA Funding & Oversight
- Project Subcontracted to MBRSC
- Local & Int. Cooperation



2015

Defining Science Objectives

2016 - 2017

Spacecraft Designing

2018

Manufacturing

2019

Assembly & Testing

2020

Launch & Trip to Mars

2021 - 2024

Arrival & in Mars Orbit Observations

UAE (Mars 2117)

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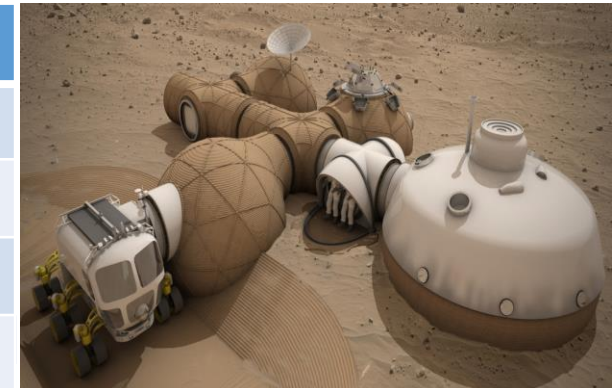


UAE announced in Feb 2017 a hundred year project (Mars 2117) where UAE through partnership will established a small city on Mars by the year 2117.

Main Objectives:

- Inspiring, Building knowledge / R&D Culture
- Solving current challenges:
 - Water Security
 - Food Security
 - Environmental issues
 - Energy Issues
- Bridge to the future
- Position UAE in the global space map

Similarities	UAE	Mars
Water	✓	✓
Food	✓	✓
Energy	✓	✓
Environments	✓	✓



UAE Astronauts Program

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UAE announced in April 2017 an initiative to send first Emirati astronaut to ISS

Main Objectives:

- Inspiring young people a cross the region
- National Pride / Prestige
- An integrated part of UAE space program
- Position UAE in the global space map



Int. Space Regulation & Cooperation

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- **The UAE is:**
 - Implementing the **UN space treaties** (four treaties)
 - UAE has issued its **National Space Policy** in late 2016
 - UAE is drafting **Space Strategy** and **Space law**
 - UAE SA is active member of **COPUOS, ISECG, IAF, The Charter**
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• **The UAE Space Agency has signed MoU/Space agreements with most major Space Agencies .**



UNITED NATIONS
Office for Outer Space Affairs



UAESA Education Program

Building Human Capital

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Main Goal:

To Develop and support UAE Nationals to join the UAE Space Sector

Programs:

- Scholarships and Sponsorships
- Internship, Research and Training
- Raising Awareness



Scholarships and Sponsorships

To increase the number of UAE nationals receiving space related education

Scholarships: Provides full funding, academic advising and monitoring, training and development for students pursuing undergraduate or graduate degrees abroad at one of the top100 Universities in the world.

Sponsorships: Provides academic advising and monitoring, training and development, and a monthly bonus/incentive for students at local Universities.

Degrees: B.Sc./M.Sc./Ph.D.

Majors: Science, Technology, Engineering, Math, Law

Countries: US, UK, Canada, Australia , Russia, Japan, China, S. Korea, India



Internships, Research and Training

NASA International Internship (NASA I²)

The NASA International Internship Program (NASA I²) provides an environment for U.S. and non-U.S. university undergraduate-level or graduate-level students to work collaboratively on NASA-relevant research with a NASA mentor.

Research Funding: Local Universities and labs, small space projects

Training Programs: *i.e.* Lockheed Martin - Space Fundamentals UK Academy

Workshops: In country Workshop and development programs for Teachers and Students

Camps: *i.e.* Hamilton Space School, NASA, Space Camp



Raising Awareness: Schools and University levels

To inspire and raise awareness among young nationals to pursue STEM and Space related majors

- Collaborating with local universities to introduce new degree programs (*i.e.* M.A. Space Law ,Sharja University; M.Sc. Space Science, Masdar/MIT; B.Sc. Space Technology, UAEU)
- Injecting Space related topics in K-12 curriculums
- Astronaut visits and lectures
- Discovery of Young Talents
- Competitions (Mini Cube Satellite, High Altitude Balloon)
- School Visits (*i.e.* Career Fairs and Workshops)



School Initiatives

GEMS First Point School in Dubai UAE Mars Mission Technology Area "HOPE"



Thank you

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