Mohammed Bin Rashid Space Centre

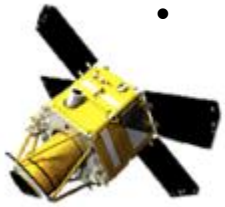
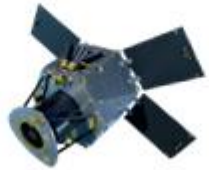
GOVERNMENT OF DUBAI

MOHAMMED BIN RASHID SPACE CENTRE

Introduction to MBRSC

- Started as Emirates Institution for Advanced Science and Technology (EIAST) which was established in February 2006.
- On April 18th, 2015: a decree has been issued to incorporate EIAST in the newly established:
  - Mohamed Bin Rashid Space Center (MBRSC)

- **Vision:**
  - *"To be recognized globally as a center of excellence in the field of space science and technological innovation."*
- **Mission:**
  - *"To enable the UAE to effectively create, use and exploit space science technologies and applications."*


MBRSC's Team

- Highly motivated and dynamic team of 150 young Emiratis
- Average age is 27-28 years of age
- 40% Female staff
- Over 100 engineers focused on Space Systems Development
- The core objective of MBRSC is building this team
- We plan to grow to over 500 during the next 10 years to become the leading space centre in the region

MBRSC Sectors

Main Sectors

Ground Network Support

Ground Station and Satellites Mission Planning

Outer Space Exploration

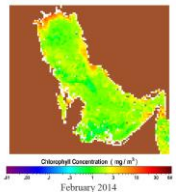
The "HOPE" Probe to the Mars

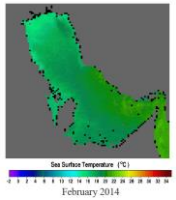
Research, Development & Innovation

Nayif-1

RSAC2014
مسابقة تطبيقات الاستشعار عن بعد
Remote Sensing Applications Competition

Remote Sensing Application competition

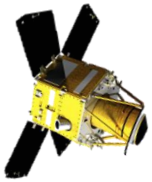




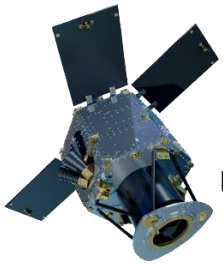
Analysis reports including Change Detection, Vegetation, Classification & Water Quality

Space Systems Developments

Labs & Development Centers



DubaiSat-1 & 2

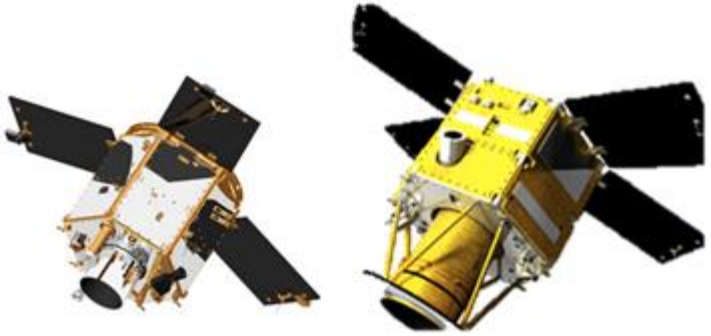


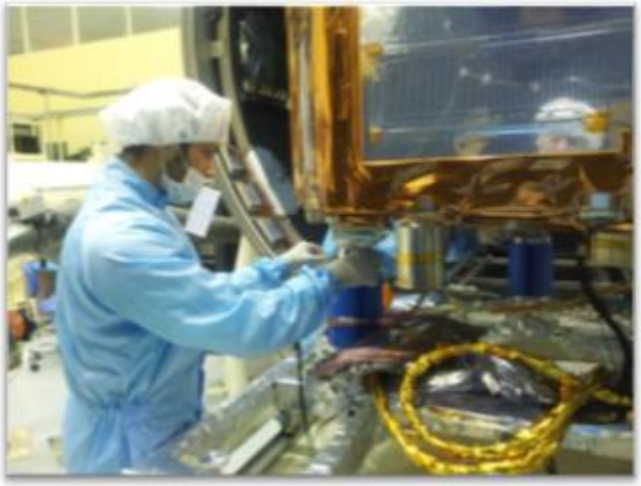
KhalifaSat

DubaiSat-1 & DubaiSat-2 Missions

Main Objectives:

- Tech and Know-How Transfer for satellite Development
- Continuous Manpower Development
- Meeting the continuous need of spatial information and EO data of the UAE

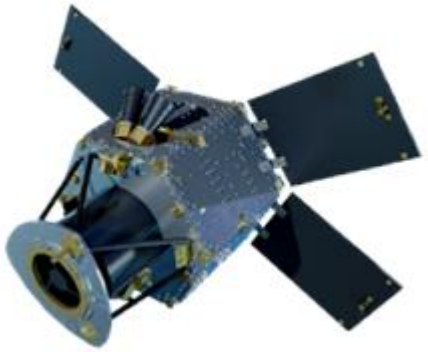




	DubaiSat-1	DubaiSat-2
Altitude (km)	680	600
Mass	~ 200 kg	< 300 Kg
Spatial Resolution	PAN 2.5m, MS 5m	PAN 1M, MS 4m
Data Quantization	8-bits	10-bits
Mass Storage	64 Gbits	256 Gbits
Imaging Modes	Single Strip	Single Strip Fast Multi-Strip Single Pass Stereo
Data Download Speed	30Mbps	160Mbps
Swath Width (km)	20	12
Launch date	29th July 2009	21st Nov 2013

KhalifaSat

- KhalifaSat is MBRSC's 3rd Earth Observation Satellite.
- 100% developed by Emirati engineers.
- The four year programme to develop KhalifaSat began in 2013.
- Completed PDR and SDR.
- Next: CDR meeting in Dec 2015.
- Recently signed a launch agreement with Mitsubishi Heavy Industries, Ltd (MHI); to launch KhalifaSat together with GOSAT-2 onboard H-IIA launch vehicle in Q1 2018.



Nayif-1 CubeSat Mission

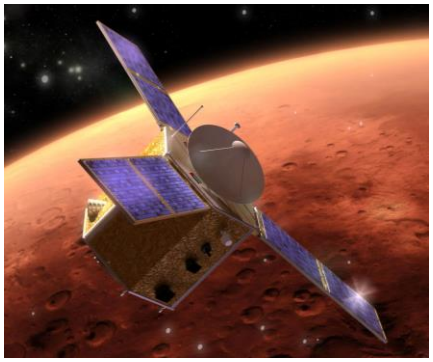
- Nayif-1 is the UAE's first CubeSat Mission that will be launched on Falcon 9 this June.
- It was built in partnership with the American University of Sharjah (AUS) and the implementation partner "Innovative Solutions in Space"
- The main objective is capacity building and inspiring the next set of young students to go towards STEM fields

Key Technical Specifications:

Mission	Amateur Radio
Satellite Class	CubeSat 1U
Dimensions	10x10x11.35 cm^3
Mass	1.32 kg
Power	Max ~2.35W
Communication Footprint	~5000 km
Orbit	Elliptical 400 to 750 km
Launch	2016

Emirates Mars Mission

- The **UAE Space Agency** and **MBRSC** signed an agreement in October 20th, 2014; to build the first Arabic-Islamic Mars space probe.
- The project roles:
  - UAE SA: Finance and Supervise all phases of the project.
  - MBRSC: Design and Build, Launch it and operate and utilize.



- One of the main objectives is to build the UAE's capabilities in science and continue human exploration of Mars.

- Will provide the first truly holistic view of the Martian Atmosphere and try and answer what happened to mars and why.
- The probe will take nine months to make the journey to Mars. The mission is scheduled to arrive in 2021 to coincide with the 50th anniversary of the establishment of the UAE.
- **Programme Partners:**

Laboratory for Atmospheric and Space Physics
University of Colorado **Boulder**

SSL
UC Berkeley

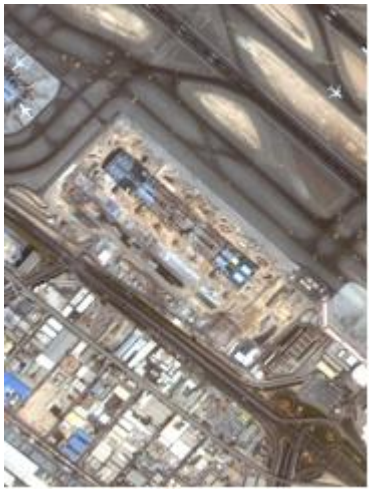
ARIZONA STATE UNIVERSITY

MBRSC Products and Services

Civil Development and Construction

- Site Surveying
- Monitoring Projects Development
- Engineering and Survey

26/08/2009



18/03/2011

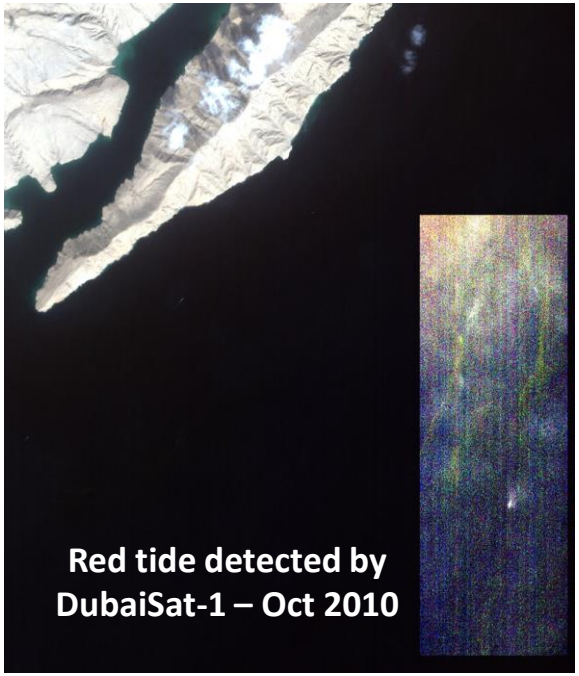
17/11/2012

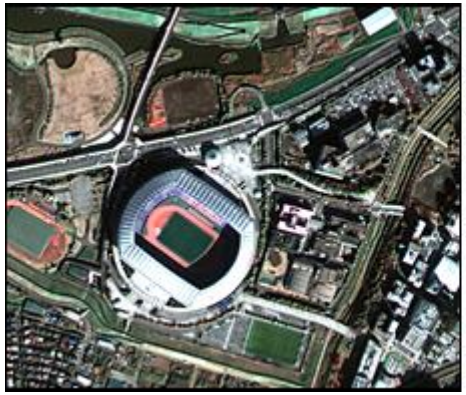
Terminal 3 Project, Dubai International Airport

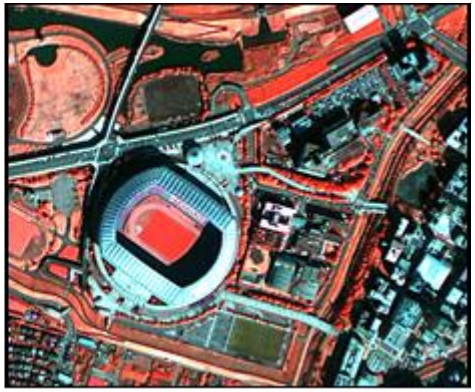
MBRSC Products and Services

Environment

- Detecting oil spills on land
- Monitoring land contamination
- Water quality and water resources monitoring
- Land Cover/Land Change detection







MBRSC Products and Services

MBRSC Products and Services

DubaiSat-2 Image of Dubai detecting Vegetation using NIR band

Image of the moon taken by DubaiSat-2 on 1st of July 2015


Thank You