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Empowering Downstream Capabilities

The Journey of Arab Satellite 813 through collaboration

Where I come from

The National Space Science and Technology Center

Established in 2016 jointly by the UAEU, the UAE Space Agency, and the Telecommunications Regulatory Authority (ICT-Fund).

Technology Development Units

- **Satellites Design and Engineering**
- **Assembly, Integration, and Testing facilities**
- **Ground Station Operation**

The center is focusing on:

- Hyperspectral and SAR missions
- LEO PNT

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 [NSSTC.UAE](https://www.instagram.com/NSSTC.UAE)

 [NSSTCUAE](https://www.linkedin.com/company/NSSTCUAE)



The Objectives of Satellite 813



Acquire

A better understanding of **climate change** and develop solutions to significant environmental issues.



Encourage

The **Arab Countries** to step into the field of space science and technology.



Foster

NSSTC space **engineers' and scientists** experience and capabilities



Utilize

The Assembly, Integration, and Testing (**AIT**) **facilities** at the National Space Science and Technology Center

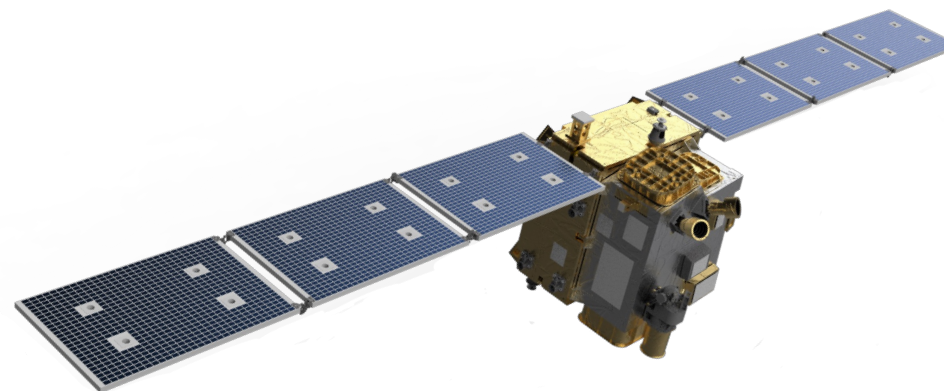
Satellite 813

Specification

Payload: Hyperspectral (VINR & SWIR)

Spectral Range : 400-1700 (nm)

Lifetime: 3 years (Min)



Schedule

Weight: 260 kg

Orbit: LEO - SSO

Launch: May 2025

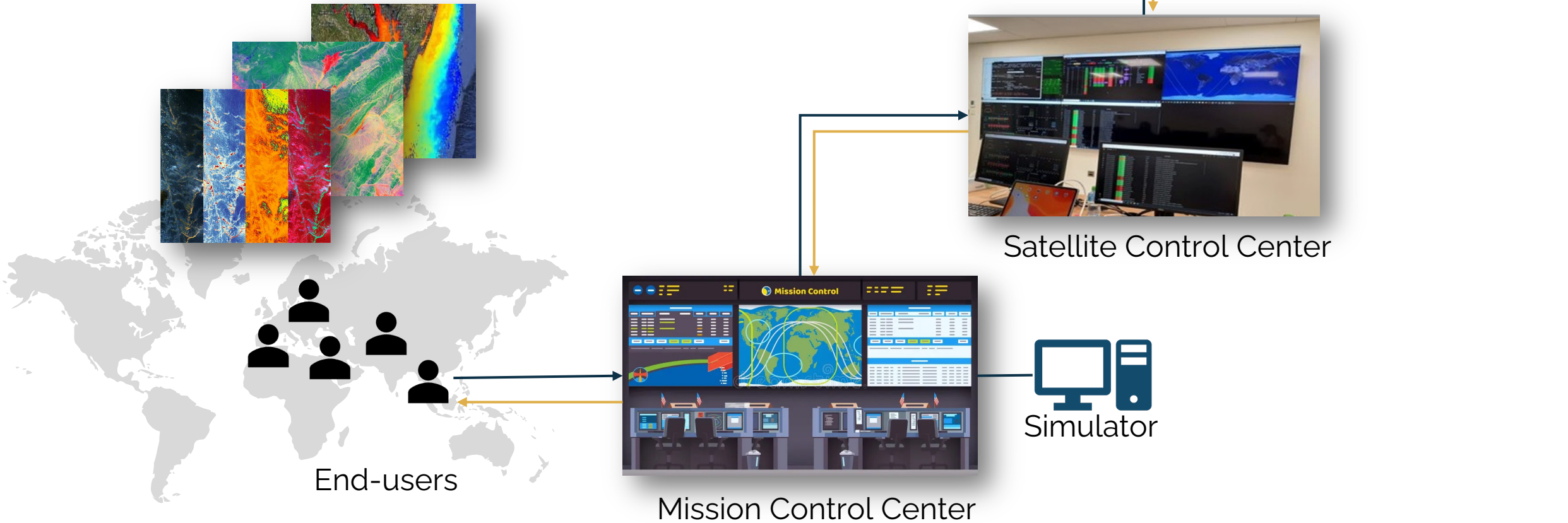
Year	2023												2024												2025						
Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	
Phase 1																															
Phase 2																															
In Orbit																															
Commissioning																															

Phase A: Months 3-7 of 2023 (Yellow bar)
Phase B: Months 8-12 of 2023 (Grey bar)
Phase C: Months 1-4 of 2024 (Grey bar)
Phase D: Months 5-12 of 2024 (Grey bar)
Phase E: Months 1-6 of 2025 (Grey bar)

Key events:
- KOC (Key of Operations) starts at the beginning of Phase A (Month 3, 2023).
- LAUNCH occurs at the beginning of Phase E (Month 1, 2025).

Data Sharing..

- National agencies and stakeholders
- National Academic institutions
- Academic and research institutions in the 14 Arab countries of the ASCG
- International partners





Coastal and inland waters monitoring

- Pigments (e.g., water chlorophyll concentration)
- Colored dissolved organic matter
- Suspended sediment concentration
- Water transparency
- Water surface area

- Different sea-ice albedo types
- Extract melt pond fractions
- Map particle-laden sea ice, and assesses the particulate loading
- Glaciers and snow coverage
- Snow cover index

Glacier and Snow cover monitoring



Agriculture and forestry characterization and monitoring

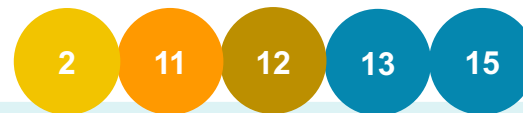
- Leaf biochemical and biophysical characterization
- Distinguish invasive species
- Distinguish plant with disease
- Tracking water stress change in leaves
- Monitoring soil moisture and leaf water content
- Assessing forest health
- Identifying tree species
- Detecting signs of disease or infestation

- Mineral mapping applications
- Organic matter content
- Moisture content
- Salinity
- Texture and surface roughness

Geology and soil characterization



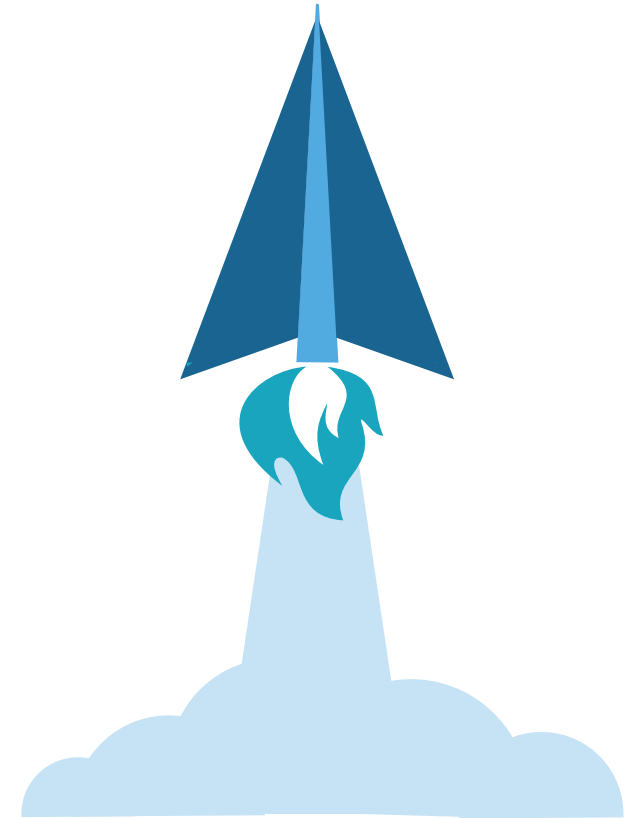
Land Cover land use



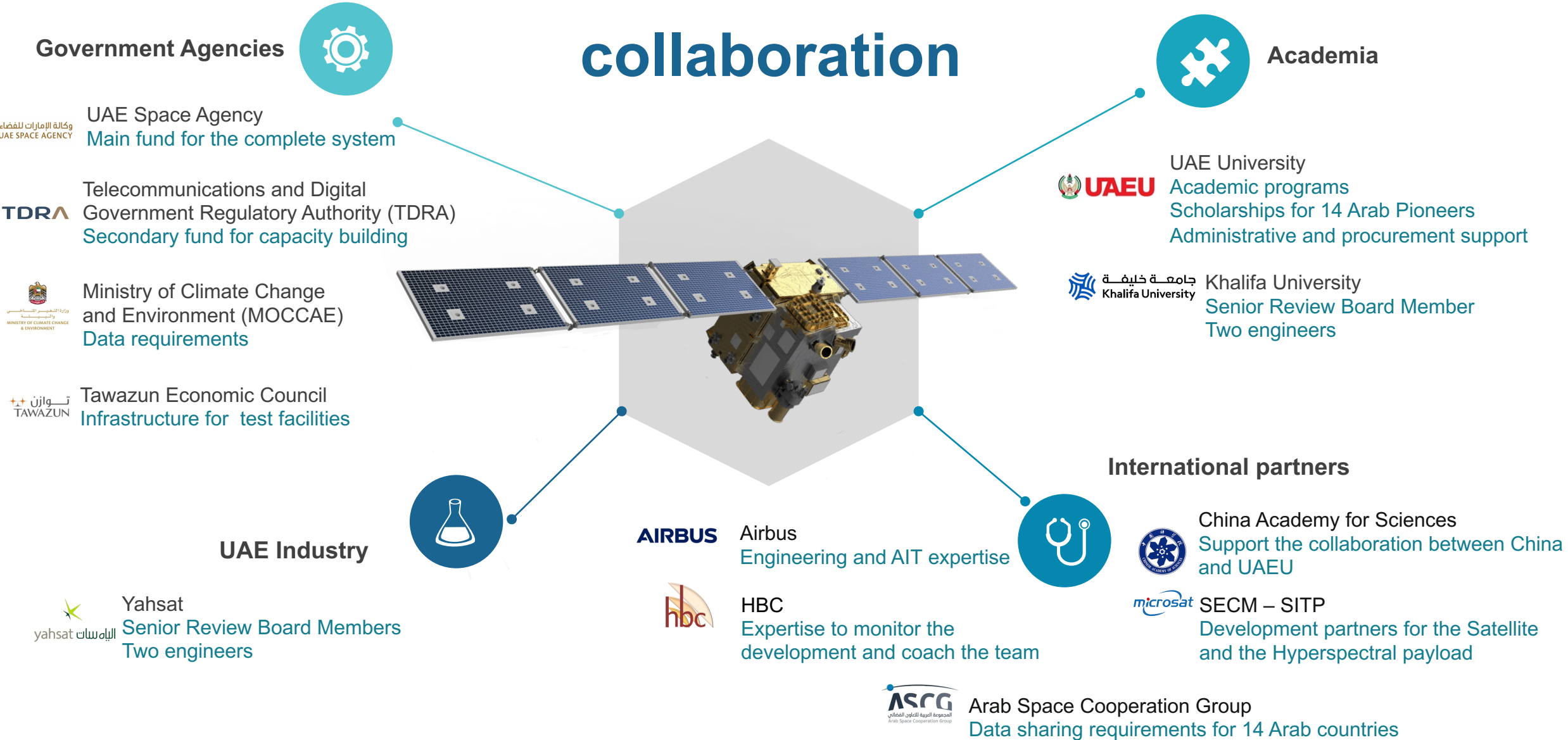
- Distinguish between different land features and use types
- Monitoring the interaction between human activities and the Earth's environment

Fostering downstream sector expansion..

- ✓ **Strategic Funding and Investment**
- ✓ **Policy Creation and Regulatory Support**
- ✓ **Enhancing Research and Development**
- ✓ **Education and Skills Development**
- ✓ **Facilitate Partnerships and Collaborations**
- ✓ **Infrastructure Development**



Satellite 813.. collaboration





THANK YOU