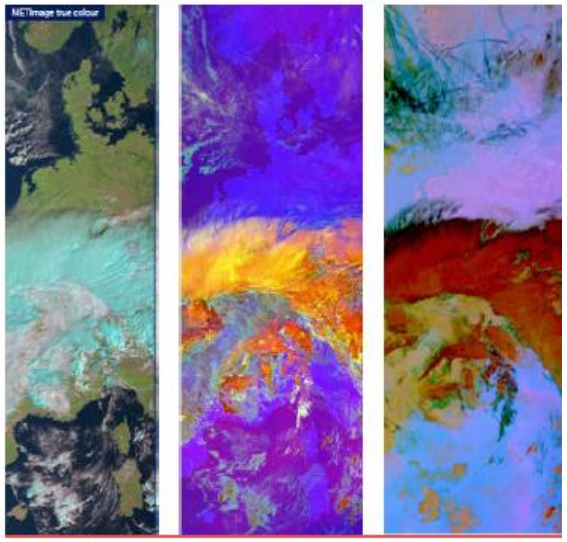

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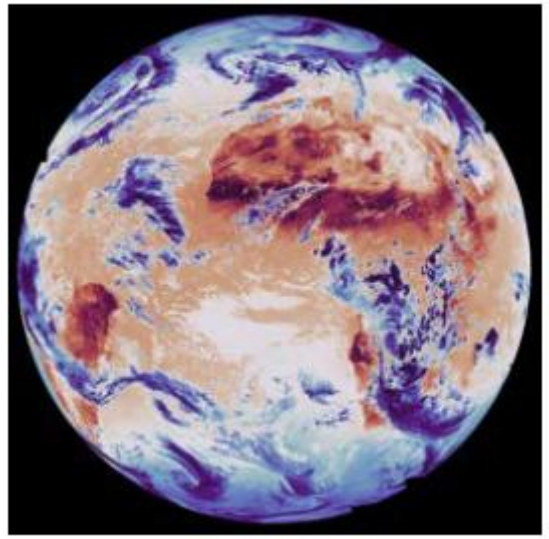


LYNRED

LYNRED infrared detectors for Space applications

Journées SF2A 2026

Advanced detection systems for astrophysics

2026, June 22nd – 26th

Agenda

1 LYNRED presentation & heritage in Space

2 From Space applications down to Detectors concepts

3 Focus on Science missions

LYNRED

LYNRED

LYNRED presentation & heritage in Space

LYNRED at a glance

About LYNRED

KEY FIGURES AND SHAREHOLDERS

LYNRED LYNRED USA NIT NEW IMAGING TECHNOLOGIES PREMIUM SWIR BY LYNRED +

RESEARCH PARTNER
CEA LETI- ONERA- III-V LAB

> 133 PATENT **FAMILIES**
> 680 PATENTS **FILED**

> 2 MILLION DETECTORS
SHIPPED SINCE 1986

80%
EXPORT

15% REVENUE
INVESTED in R&D

FULL INFRARED
SPECTRUM

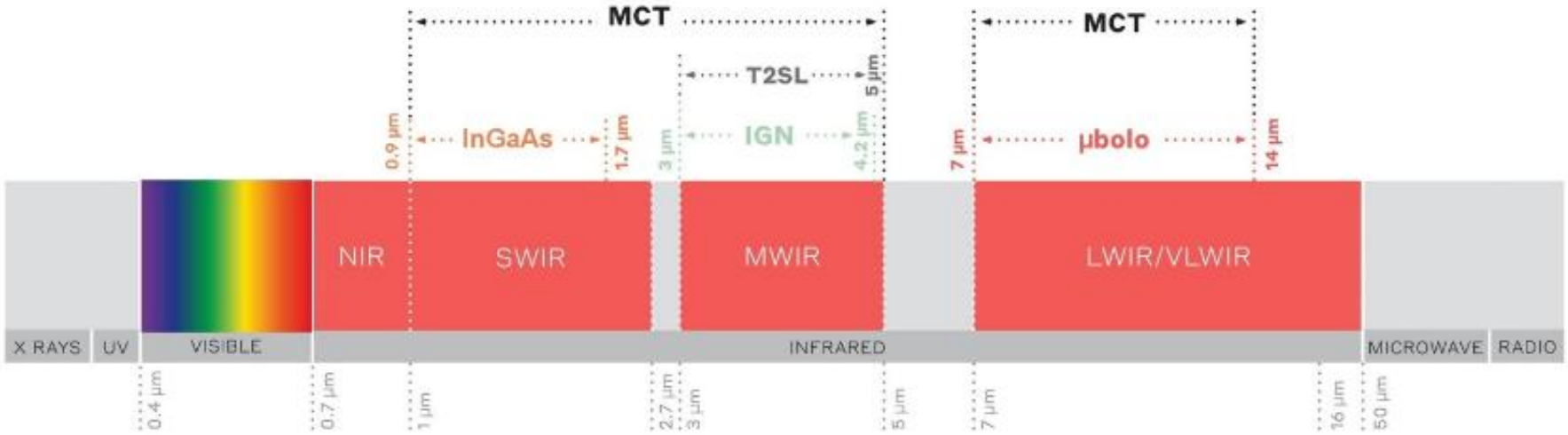
+

GLOBAL IR INDUSTRY LEADER
offering the largest
Infrared product portfolio

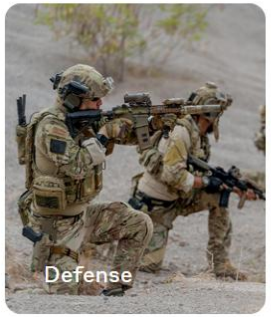
ISO 14001 ISO ISO

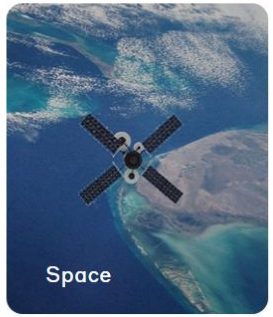
LYNRED

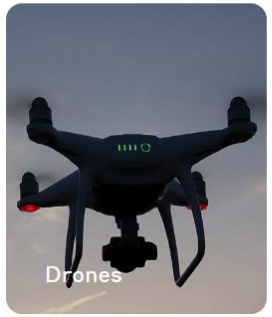
LYNRED Technologies & Markets

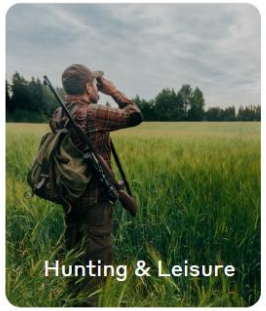


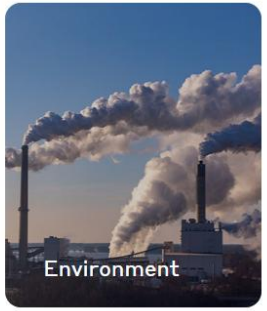
Meeting the needs of most demanding markets

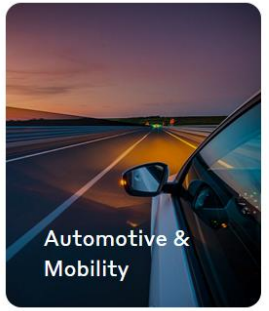












LYNRED heritage in Space

From Space applications down to Detectors concepts

Space Markets and Segments : Earth Observation & Science

TRADITIONAL MARKET & SMALLSAT MARKET

- Applications customized
- Reliability
- Performance

- Applications adapted from our product catalog and from our space heritage/expertise
- Cost effective
- Planning

LYNRED

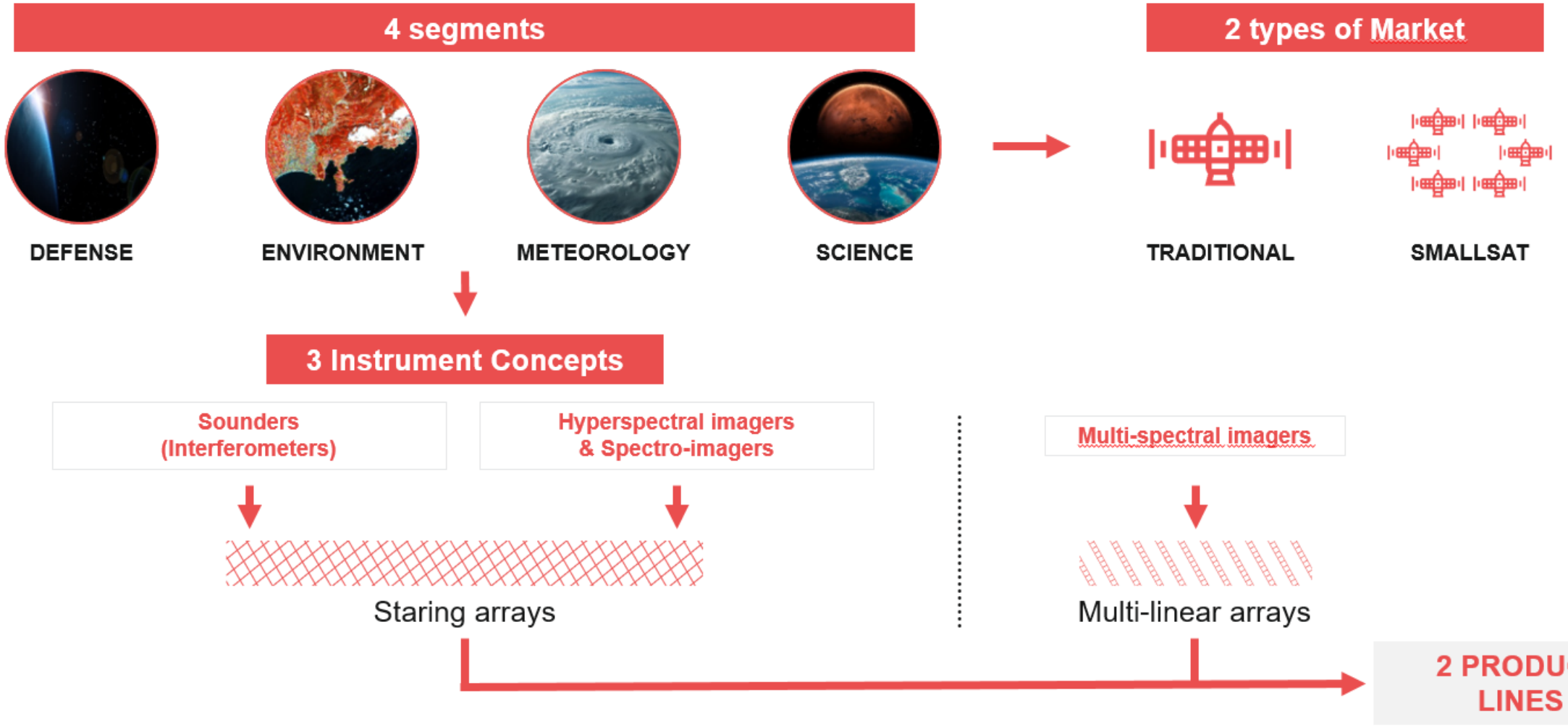
Defense

Environment

Meteorology

Science

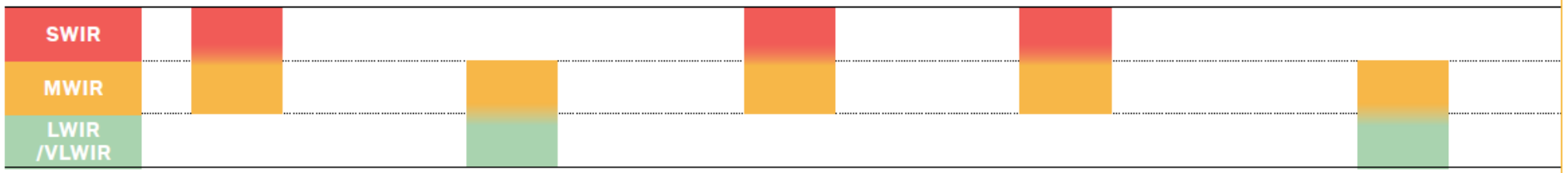
From Space applications down to detector concepts



Infrared Detectors for traditional space missions

LYNRED

DETECTORS OFFER



CAPYORK™
(1200X12X4) 15µm

PEGA™
(600X3X4) 30µm

MULTI-SPECTRAL IMAGERS

NGP™
(1024X1024) 15µm

COBRA™
(1380X640) 20µm

HYPERSPECTRAL IMAGERS
SPECTRO-IMAGERS

IRS™
(160X160) 90µm /
(480x480) 30µm

SOUNDERS
(INTERFEROMETERS)

CRYOGENICS OFFER

COOLER-LESS

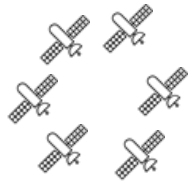
CRYO XS R™

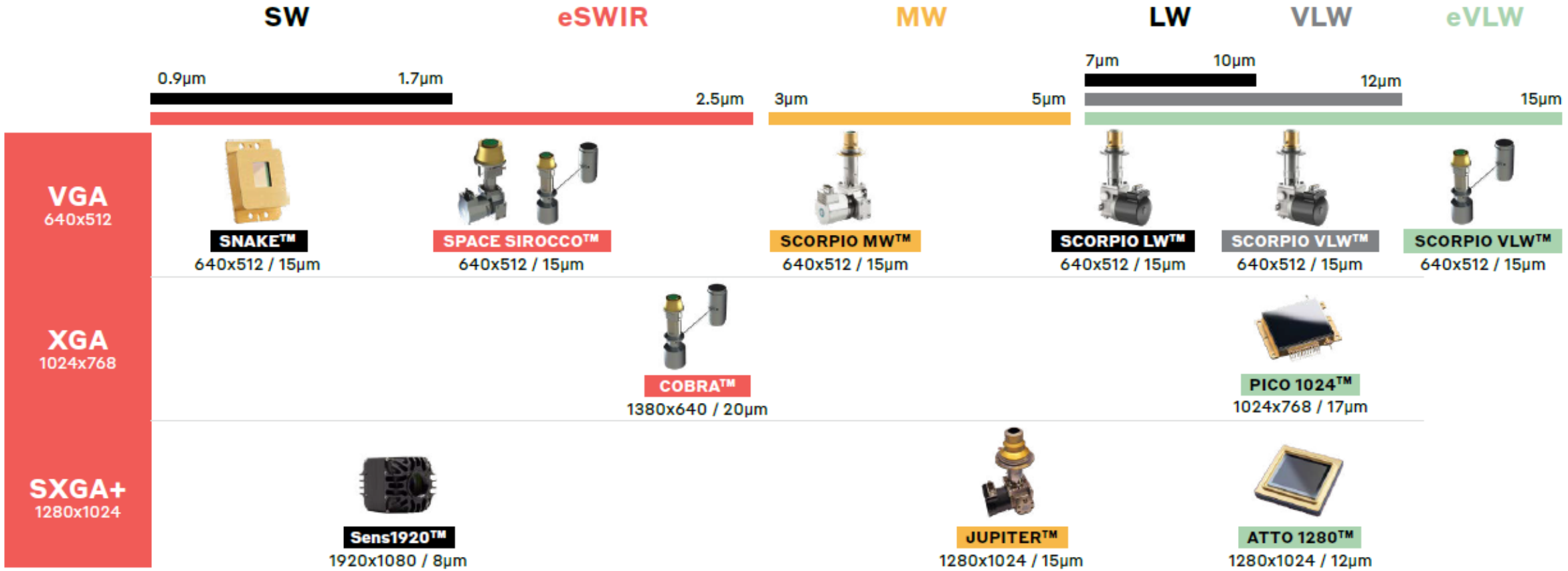
CRYO XS PT™

SMALL

LARGE

Infrared Detectors for New Space missions





LYNRED

Focus on Science Missions

LAUNCHED IN 2019

CHANDRAYAAN-2 ▸ IIRS ▸ NEPTIS SENSOR

MISSION / INSTRUMENTS:

- Chandrayaan-2 / Imaging IR Spectrometer (IIRS)
- Segment: Science
- Orbit: Lunar
- Spatial resolution: 80 m

APPLICATION OBJECTIVES:

- Spectrometry: exploration and mapping of the lunar south pole surface (mineralogy and volatile compounds). Measurement of reflected solar radiation.

KEY DETECTOR CHARACTERISTICS:

- Technology: HgCdTe
- Spectral bands: SWIR – MWIR (0.8µm to 5.3µm)
- Format / Pixel Pitch: 500 × 256 / 30µm

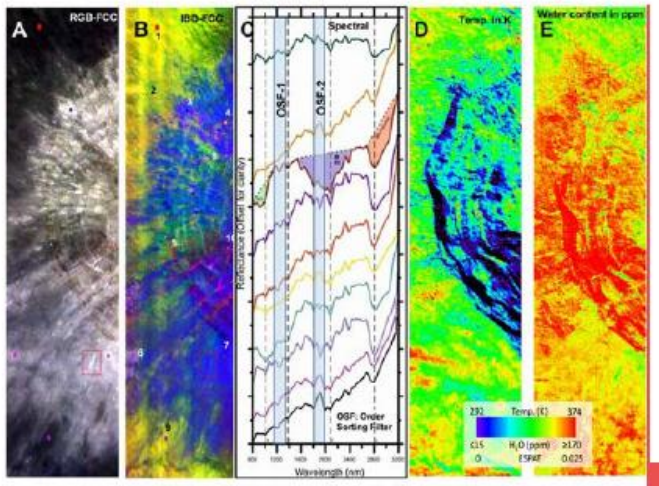
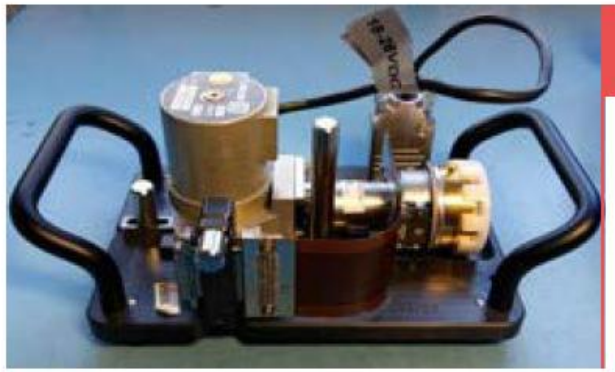


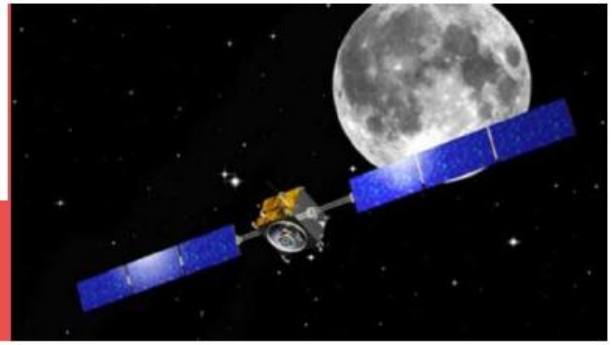
Figure 7.5: A. Ch-2 IIRS RGB-FCC. Coloured boxes indicate Regions of Interest (ROIs); B. IBD-Albedo-based FCC. ROIs are marked as 1-10; C. Mean spectral plot corresponding to the ROIs; D. Temperature map; E. ESPAT vis-à-vis H_2O content map of crater Aristarchus.

INDRASAT sensor



NEPTIS sensor

Artist's view of the CHANDRAYAAN-2 satellite (Courtesy: ISRO)



LAUNCHED IN 2016

EXOMARS 2016 ▸ NOMAD AND ACS ▸ MARS AND SCORPIO SENSORS

MISSION / INSTRUMENTS:

- ExoMars 2016 / NOMAD and ACS, both onboard the TGO (Trace Gas Orbiter)
- Segment : Science
- Orbit: Martian (400 km)
- Solar occultation from 88° N to 90° S

APPLICATION OBJECTIVES:

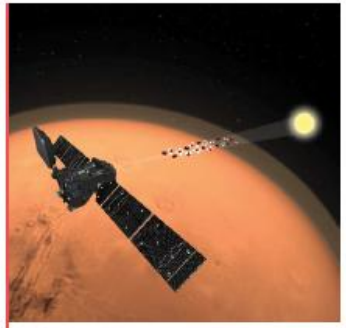
- Spectrometry: study the presence and origin of trace gases in the Martian atmosphere, particularly methane, whose potential biological origin is to be investigated

KEY DETECTOR CHARACTERISTICS:

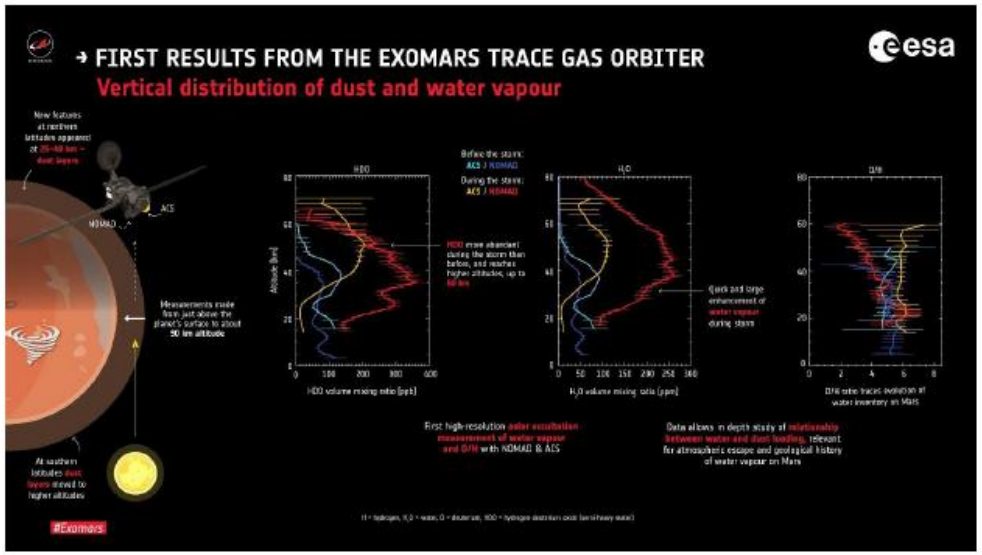
- Technologie : HgCdTe
- Spectral bands:
  2 MARS MWIR (2.2µm and 4.3µm) and
  1 SCORPIO MW (2.3µm – 4.6µm)
- Format / Pixel pitch: 320 x 512 / 30µm
  640 x 512µm / 15µm

MARS sensor for NOMAD

SCORPIO sensor for IKI



Artist's view of the ExoMars TGO (Trace Gas Orbiter)



LAUNCHED IN 2014

HAYABUSA-2 ▸ MASCOT ▸ NEPTUNE SENSOR

MISSION / INSTRUMENTS:

- Hayabusa-2 Probe / MASCOT Lander / MicrOmega
- Segment: Science
- Orbit and landing on asteroid 1999 JU3 Ryugu

APPLICATION OBJECTIVES:

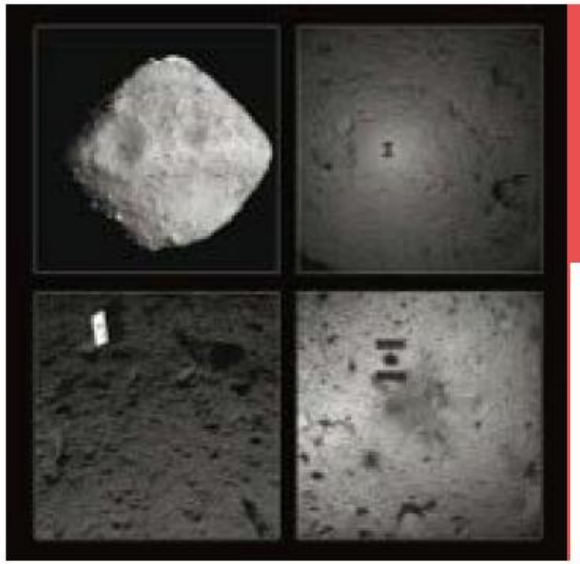
- Study of the asteroid Ryugu and return of samples to Earth.

KEY DETECTOR CHARACTERISTICS:

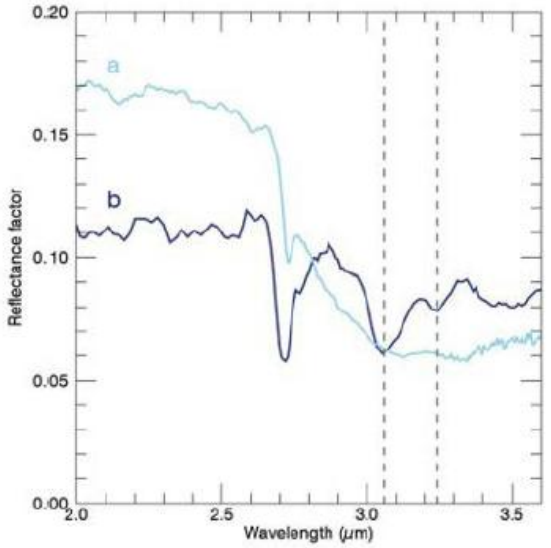
- Technologie : HgCdTe
- Spectral bands: SWIR (0.8µm to 3.7µm)
- Format / Pixel pitch: 500 x 256 / 30µm

"MicrOmega also performed perfectly (including your Neptune detector). It was powered on and operated a total of seven times during the 17 hours of operation. We congratulate and thank you for the quality of your detector, which performed flawlessly at 320 million kilometers from Earth."

Vincent HAMM, IAS Project Manager



Top left: Asteroid Ryugu imaged by Hayabusa-2.
Top and bottom right: Shadow of the Hayabusa-2 spacecraft. Bottom left: Deployment of the MASCOT lander (Courtesy: JAXA, 2018).



Left: microscopic image showing OH-rich (top) and NH-rich (bottom) inclusions. Right: infrared spectroscopic analysis of these grains performed with the MicrOmega instrument (© Pilorget et al.)

Thanks
for your attention

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