IMAGING SOLUTIONS FOR EARTH OBSERVATION

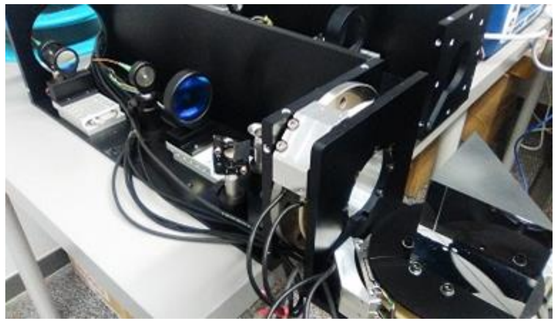
EPIC ONLINE TECHNOLOGY MEETING ON PHOTONICS FOR EARTH OBSERVATION AND MONITORING

04 MARCH, 2024

ASE INTRODUCTION

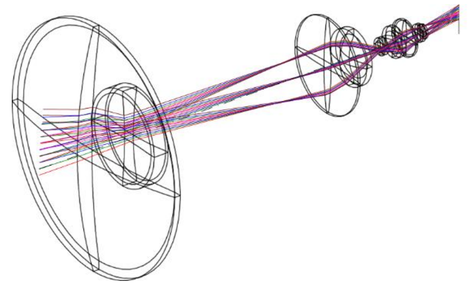
ASE Optics Europe developed a specific know-how for the design, engineering and production of complex and fully integrated optical, optoelectronic, laser and photonic systems for harsh environment applications thanks to the different projects developed for high-demanding applications and sectors:

FUSION & NUCLEAR



SCIENCE & RESEARCH

DEFENSE



SWIR IMAGING

LWIR IMAGING

CHIP-NESE: PRODUCTION READINESS

APPLICATIONS

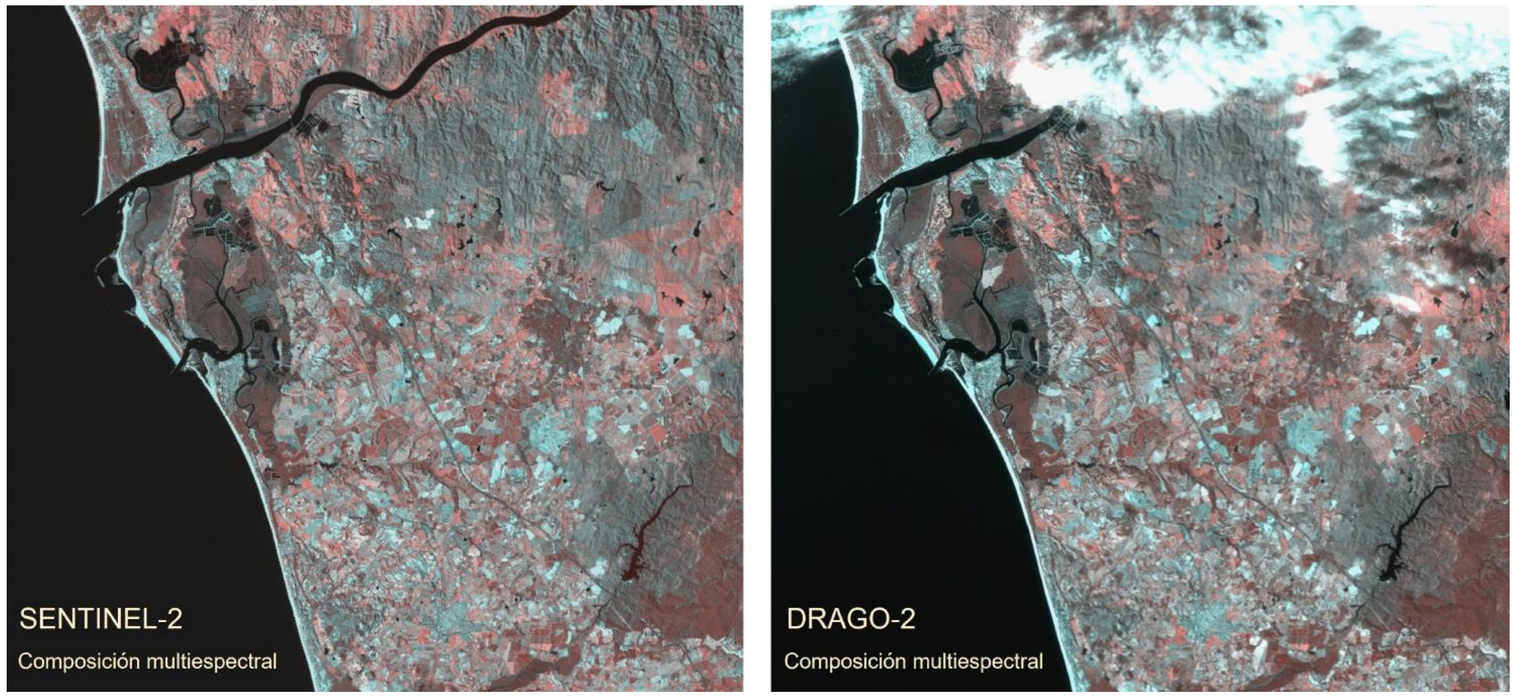
EPIC QUESTION

OUTLINE

SWIR OBJECTIVE – BI-SPECTRAL FOR HUMIDITY

“DRAGO-2 has a different, and more complex objective lens, with a focus six times as long, which gives it much higher resolution”.

Alba Peláez, optical engineer at IACTEC-Space



Comparison between an image of the mouth of the Guadiana River from the Sentinel-2A satellite, taken on 30/12/2023, and another image of the same region obtained with the DRAGO-2 camera on the ALISIO-1 satellite on 12/01/2024. Credit: ESA / IACTEC-Space

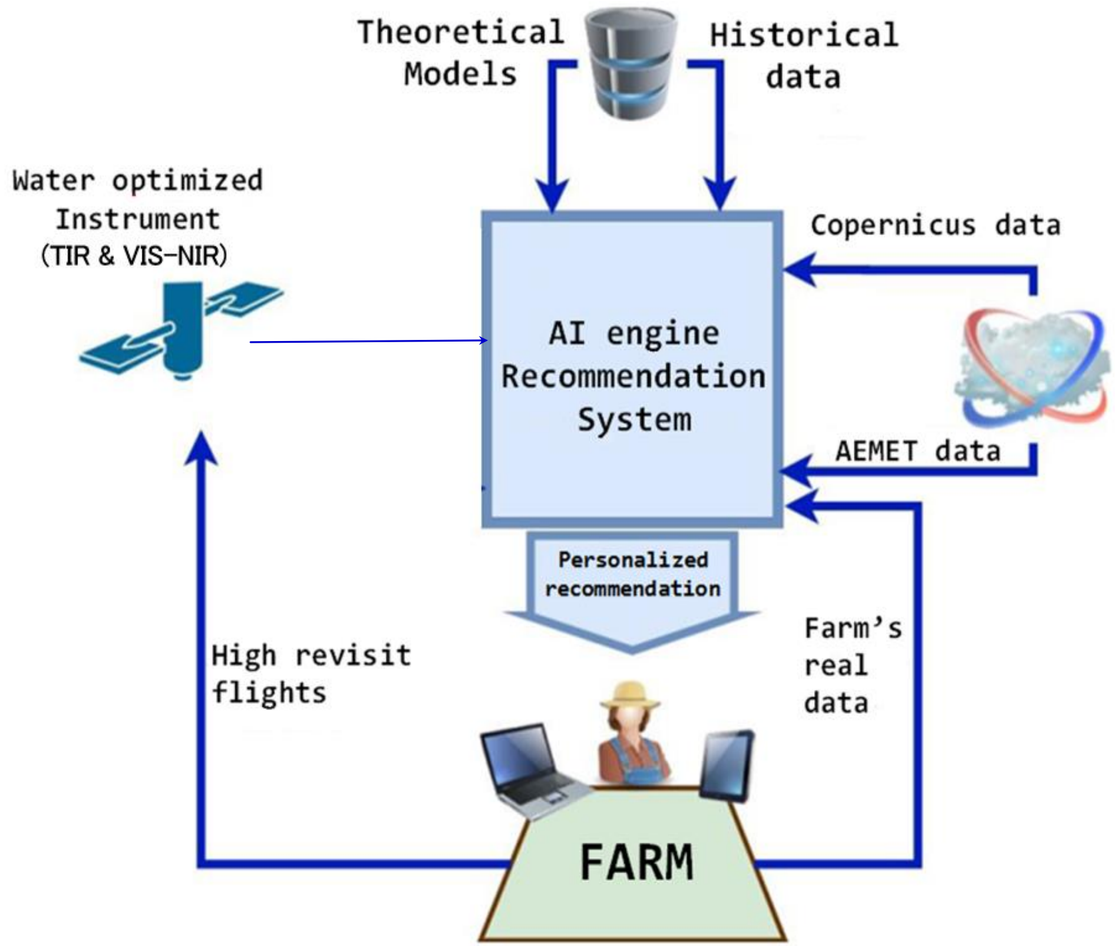
Cubesta architecture: 1U

ASE Optics has managed to design and build a customized infrared lens that did not exist on the market, robust for use in space and with dimensions and weight that enable it to be used on small satellites.

Alfonso Yñigo, systems engineer of IACTEC-Space

MORERA SYSTEM: FROM SENSOR TO THE CROP

- MORERA Architecture Characteristics
  - Modular and scalable system
  - Artificial Intelligence core with Big Data integration capabilities
  - Data fusion: Copernicus, remote sensing, AEMET, sensors in field, historical data, etc.
  - Personalized & User-friendly application with added value (at Farm level)
  - New Space compact instrumentation for remote sensing



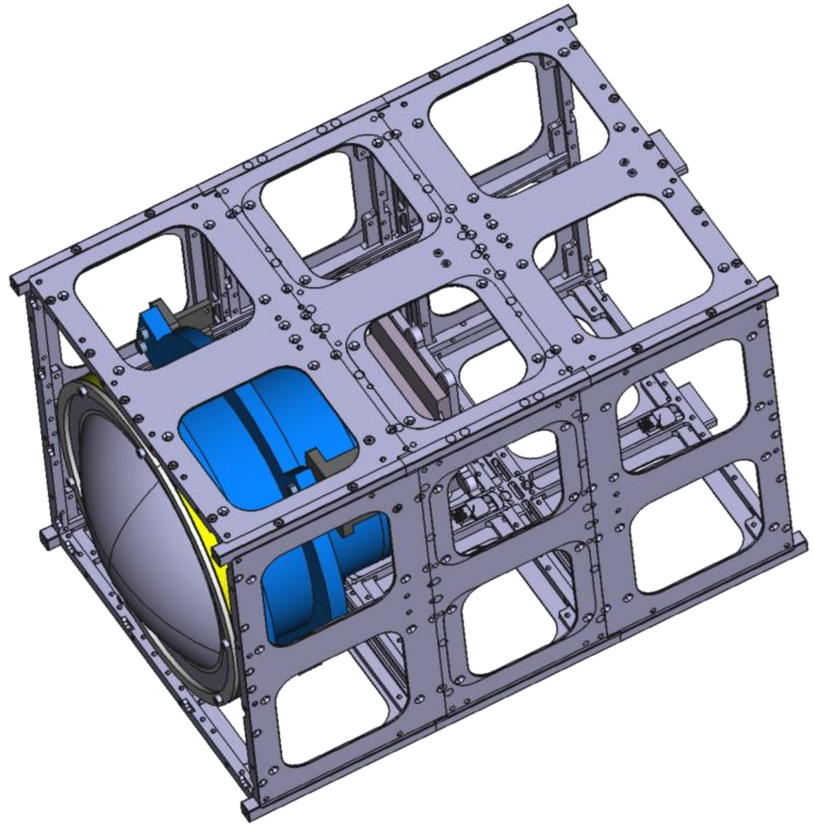
MORERA: LWIR PAYLOAD

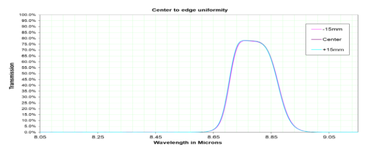
- LWIR objective
  - EFL 170mm
  - f/1.1

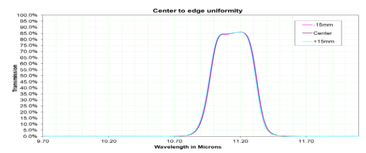
- NUC mechanism

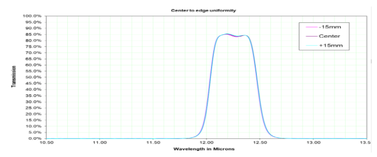
- Filters subassembly
  - 3 subwavebands: 12.25, 11.0 & 8.8 µm
  - 3 lines 4.2 x 32.2mm

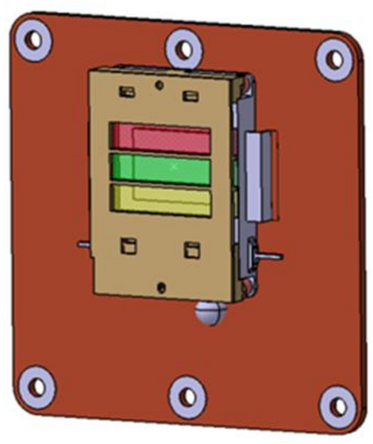
- FPA
  - Uncooled LWIR detector 1024x768x17 µm











CHIP-NESE: DEVELOPING PRODUCTION CAPABILITY IN SPAIN

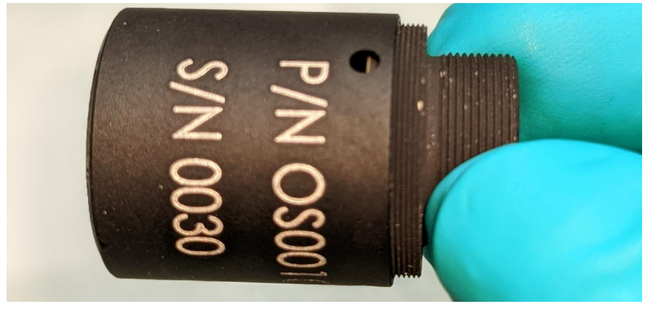
PERTE Chip Microelectrónica y Semiconductores

Financiado por la Unión Europea NextGenerationEU

GOBIERNO DE ESPAÑA

- Extremely light weight
- AI on-board image processing
- Integrated photonic chips

- Very light weight optical payload
  - Objective EFL 150mm, <50grams
  - Lightweight sensor



COMMERCIAL APPLICATIONS

- Sustainable agriculture
- Mining support
- Archeological site location
- Green-house gas detection
- Natural disasters / Climate change
- Anti-pirating on seas

EPIC QUESTION

- What can we do for you?
  - Fast development of optical systems for EO and SSA
  - Image processing
  - Optronic product cycle

- What can you do for us?
  - Space-qualified high transmission AR coatings
  - On-sensor hyperspectral stripe coatings
  - Extreme light weight sensor solution: LWIR and/or SWIR

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