

Europe-Japan Space forum
8th October 2014

Panel 1-Earth Observation
Airbus Defence & Space contribution

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AIRBUS
GROUP
Employees*: ~ 144,000
Revenues*: ~ €9 bn

* in 2013
** estimate for 2014

AIRBUS
Employees**: ~ 73,500
Revenues*: ~ €39bn

AIRBUS
DEFENCE & SPACE
Employees**: ~ 40,000
Revenues*: ~ €14 bn

AIRBUS
HELICOPTERS
Employees**: ~ 22,400
Revenues*: ~ €6.0 bn


Space Systems




Communication Intelligence & Security



Military Aircraft



Electronics



Airbus Defence and Space



Europe's No. 1 in defence



World's No. 2 in space



More than 40,000 employees



Approximately €14 billion in revenue

Global innovation leader spending more than €3 billion in R&D each year.

Earth Observation

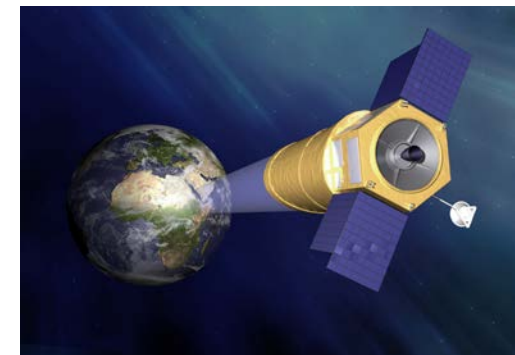
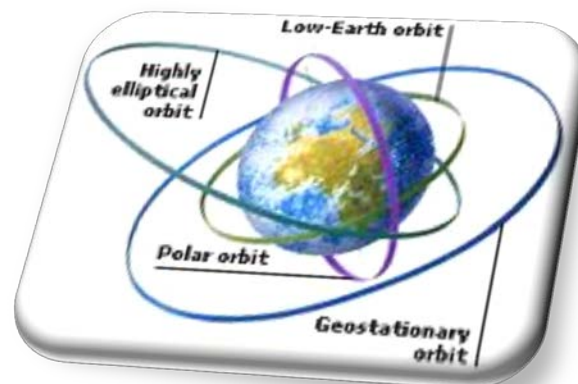
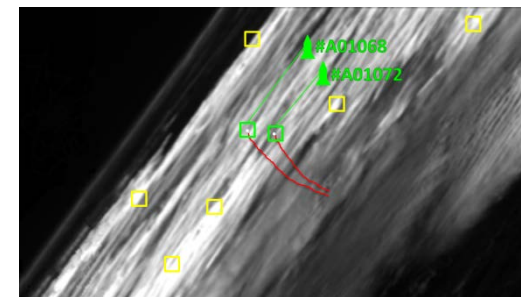
- Airbus Defence & Space has been prime for all European LEO observation satellites
- Prime contractor of all French military Space programmes for reconnaissance/surveillance/Intelligence
- Prime contractor for German SAR programmes
- Full range of system to cover all Earth observation missions

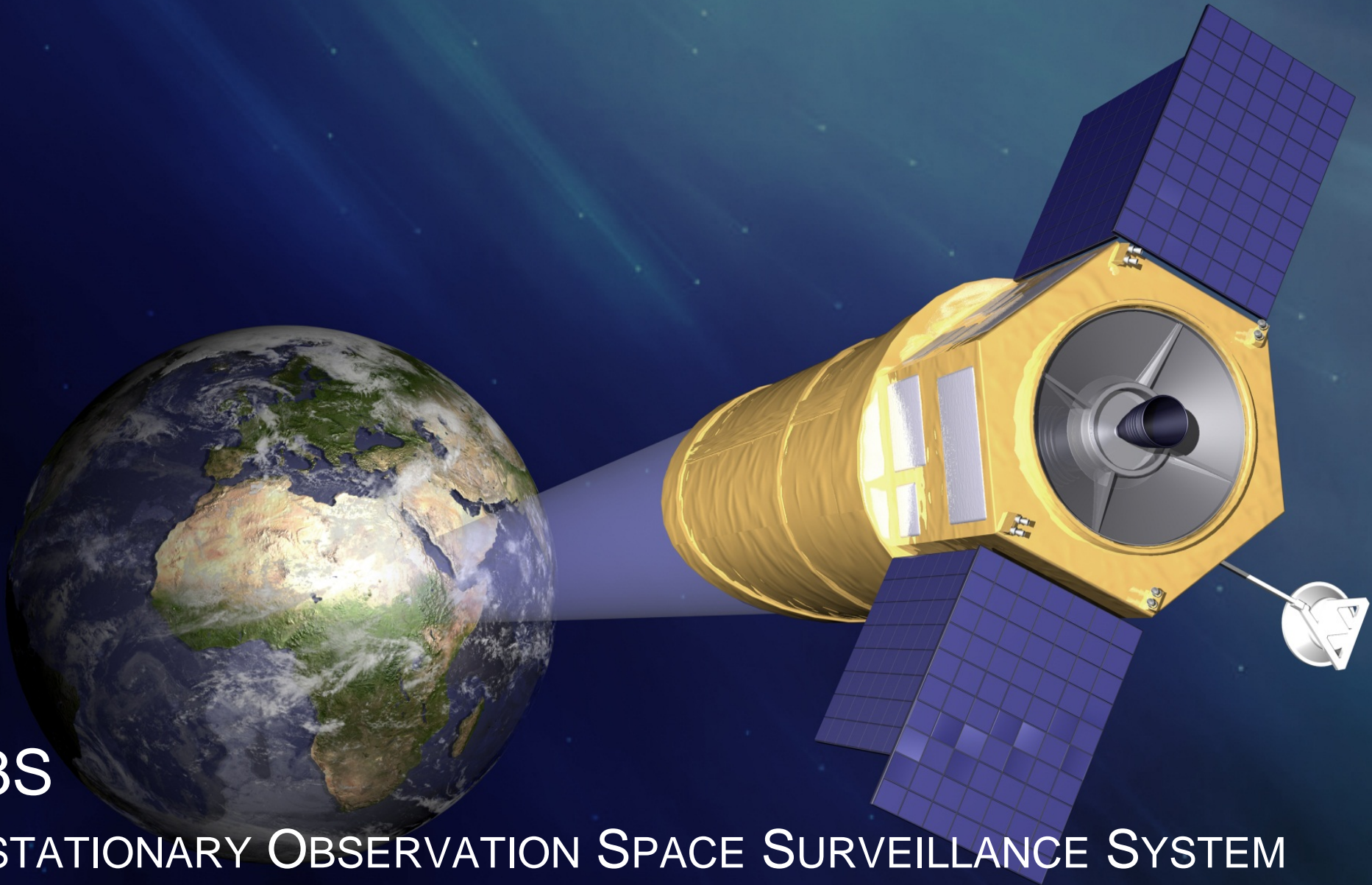


Introduction

Airbus DS proposes four possible cooperation fields to the Japanese industry:

- Permanent geostationary Surveillance
- Ballistic counter-proliferation
- Maritime Surveillance
- Space Surveillance





GO3S

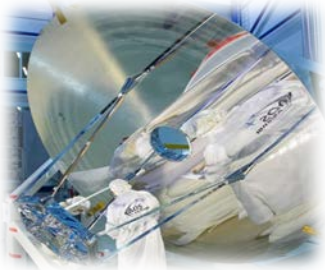
GEOSTATIONARY OBSERVATION SPACE SURVEILLANCE SYSTEM

What is GO3S?

- **A constellation of phased geostationary Earth observation satellites**
- **3 satellites working independently would cover the world**
- **Providing 14 hours of sensing capacity per day in live video, with permanent visibility of ground stations**
- **Delivering imagery products based on 100x100km footprint scenes**
- **Resolution of 3m with detection of objects <50cms**
- **System lifetime 15 years, operational early 2020s**

An innovative technical concept offering opportunities of industrial cooperation between Airbus DS & Japan

■ Key technologies



- Large Mirror
- Active Optics
- Detectors



- Satellite Concept
- Platform Geo
- High-accuracy AOCS



- Ground Segment
- Operational Concept
- Image processing

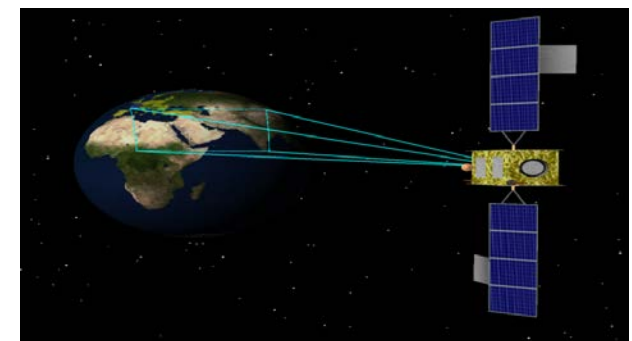
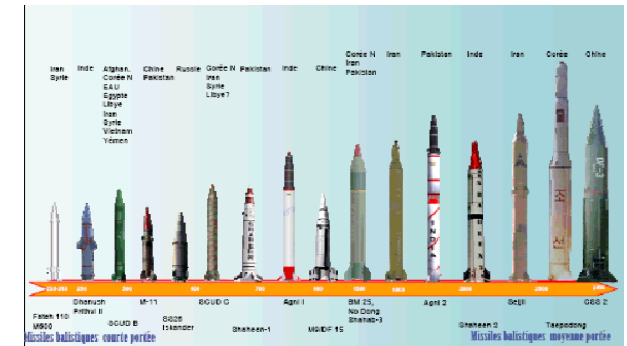
■ Risk-sharing partnering schemes

Permanent surveillance and ballistic surveillance

- Airbus D&S has been prime contractor for the French Space system to demonstrate Early Warning capabilities

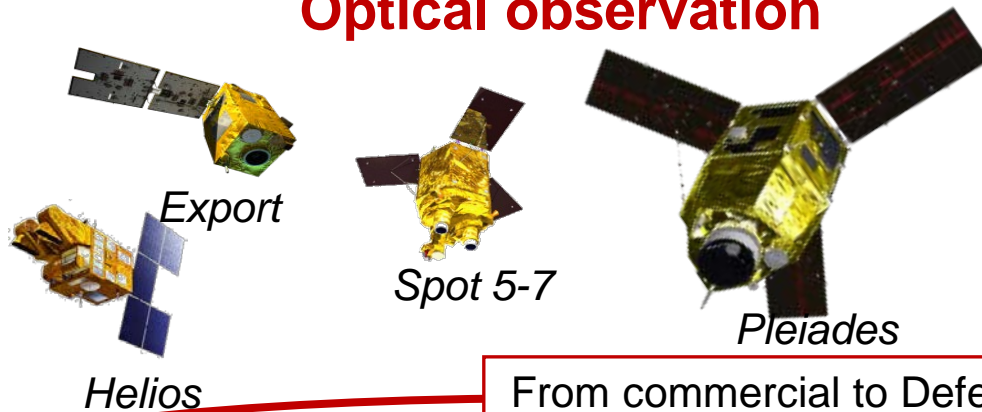
- Airbus D&S has developed key capabilities:
 - ✓ Expert knowledge of the missile threat
 - ✓ Fine knowledge of IR background
 - ✓ EW data processing

- Airbus D&S could partner with Japanese industry to develop a space-based ballistic surveillance and counter proliferation system with several fields of potential cooperation:
 - ✓ key technologies (missile recognition, IR, data background)
 - ✓ Capability studies and development
 - ✓ Operation and data exchange

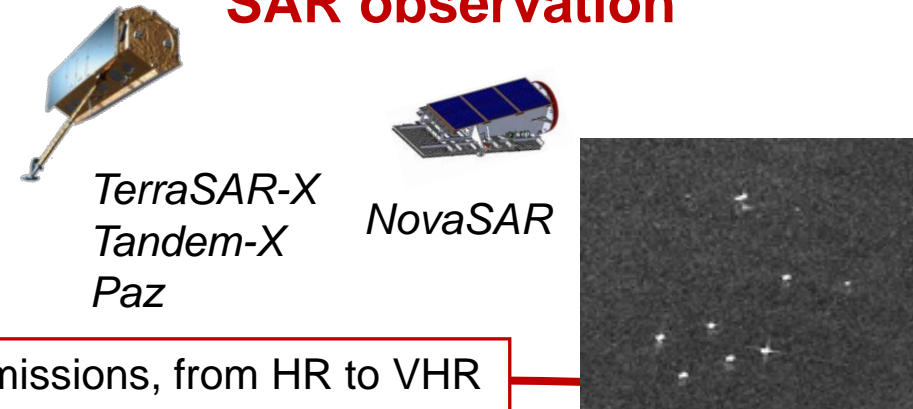


Airbus D&S experience in Spaceborne maritime surveillance

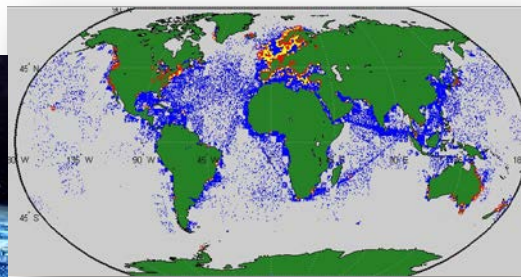
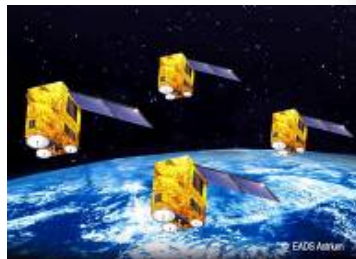
Optical observation



SAR observation

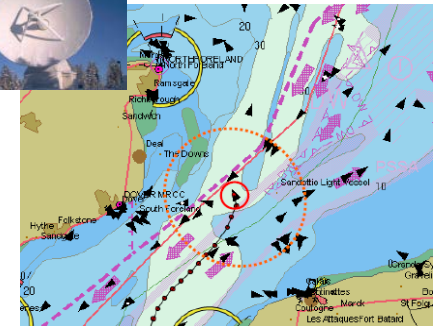


From commercial to Defence missions, from HR to VHR
From low cost microsat to HP 1-3 T class sat

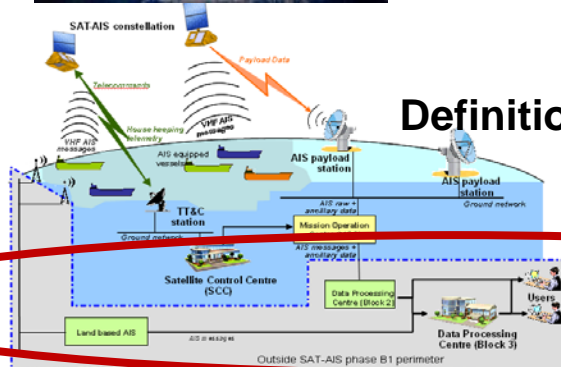


Sigint/AIS

Definition studies for CNEs & ESA



Integrated maritime situation



Which cooperation in Spaceborne maritime surveillance ?

- Identify common and distinctive competences & experience (satellites, launchers, on ground data processing, operations).
- Define a common mission and system architecture.
- Develop and test hosted payloads to be validated on existing platforms
- In the longer-term, build and operate a common optical/SAR/AIS constellation

Airbus DS Space Surveillance experience

SpaceTracker

A remote optical tracking sensor of GEO/ MEO space objects for services to satellite operators



Active Laser ranging

High accuracy for LEO tracking and Discrimination of objects in Space



Operational Architecture Laboratory

- Optimization of network sensors deployment & inter-connecting
- Understanding and definition of the operational needs



Airbus DS Space Surveillance solutions could be adapted and further developed to answer Japan's needs through cooperation with Japanese Space actors.

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Thank you

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