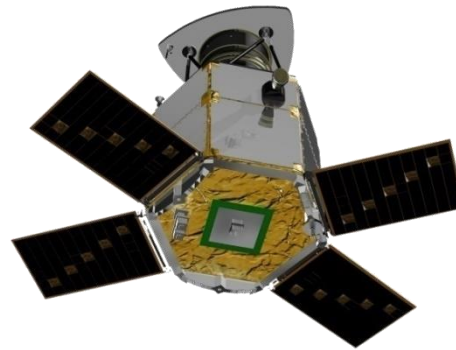


Presentation Appleton Space Conference

ELECNOR DEIMOS



December 2014

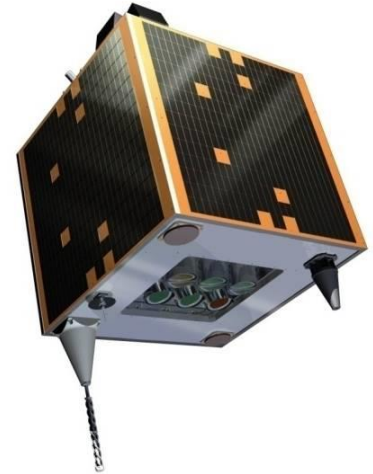
Table of Contents

Main Purpose:

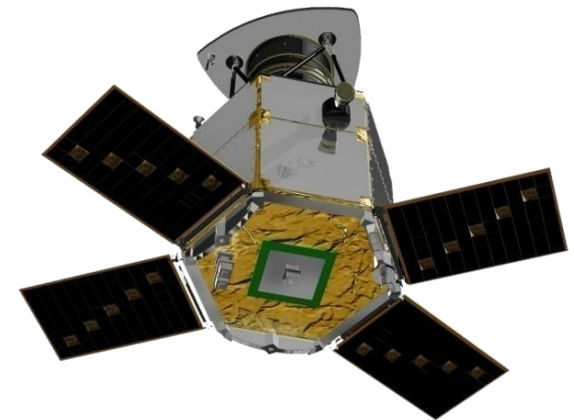
Main benefits for a company like DEIMOS to be based in UK, and particularly in Harwell

Table of Contents:

- Presentation of DEIMOS
- Activities DEIMOS UK
- Why DEIMOS in UK?
- Why DEIMOS in Harwell?
- Conclusions



DEIMOS-1

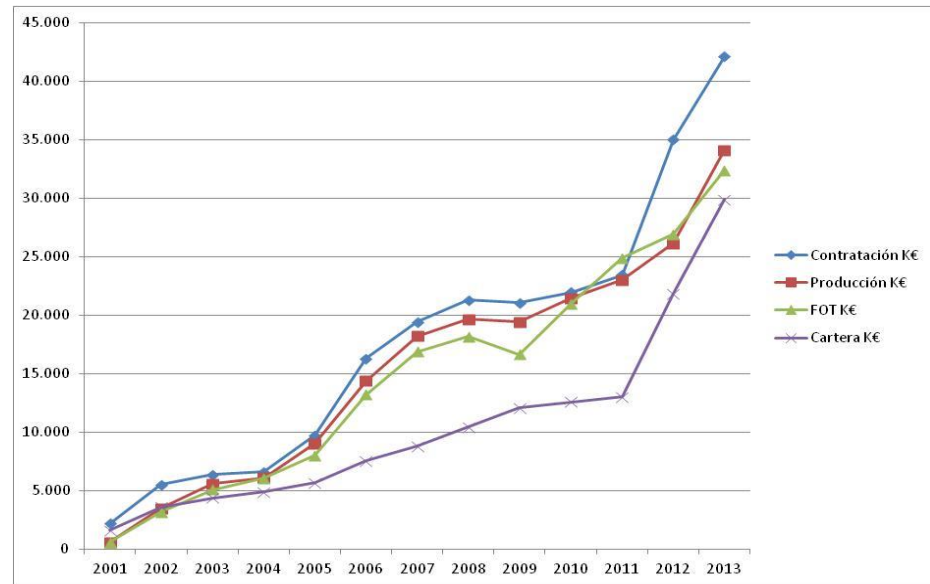


DEIMOS-2

Company Presentation



- ELECENOR DEIMOS is the technology company of the ELECENOR Group, operating in: Aerospace, Defence, Transport, Energy, Environment, etc.
- **Space is our core business and niche of expertise**
- Continuous growth since our creation in 2001
- Turnover 2013 – 35 M€
- Staff: 300 Engineers



- **DEIMOS is relevant player in the European Space Programmes:**

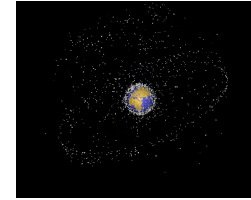
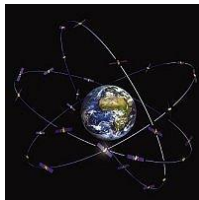
- Mission and Flight Engineering
- GNC/AOCS and Flight SW Systems
- Space Situational Awareness
- Ground Segment Systems
- Global Navigation Satellite Systems



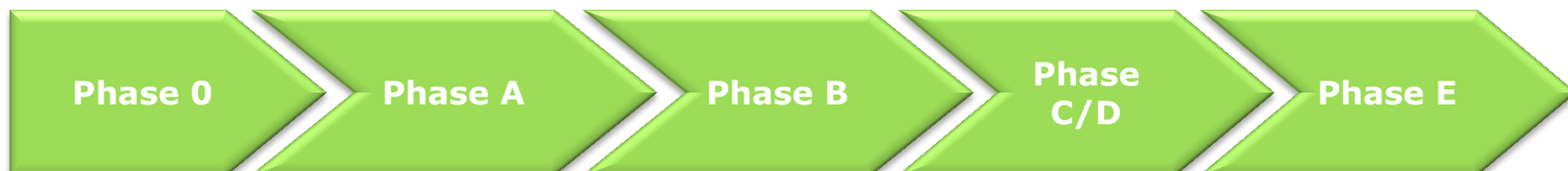
EUMETSAT

- **Company present in all the Space Segments:** launchers, space segment, ground segment, operations and user segment

- **Involvement in the Majority of ESA Missions**

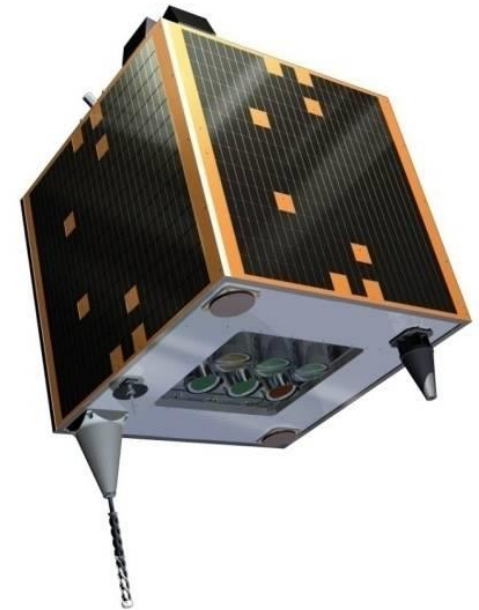
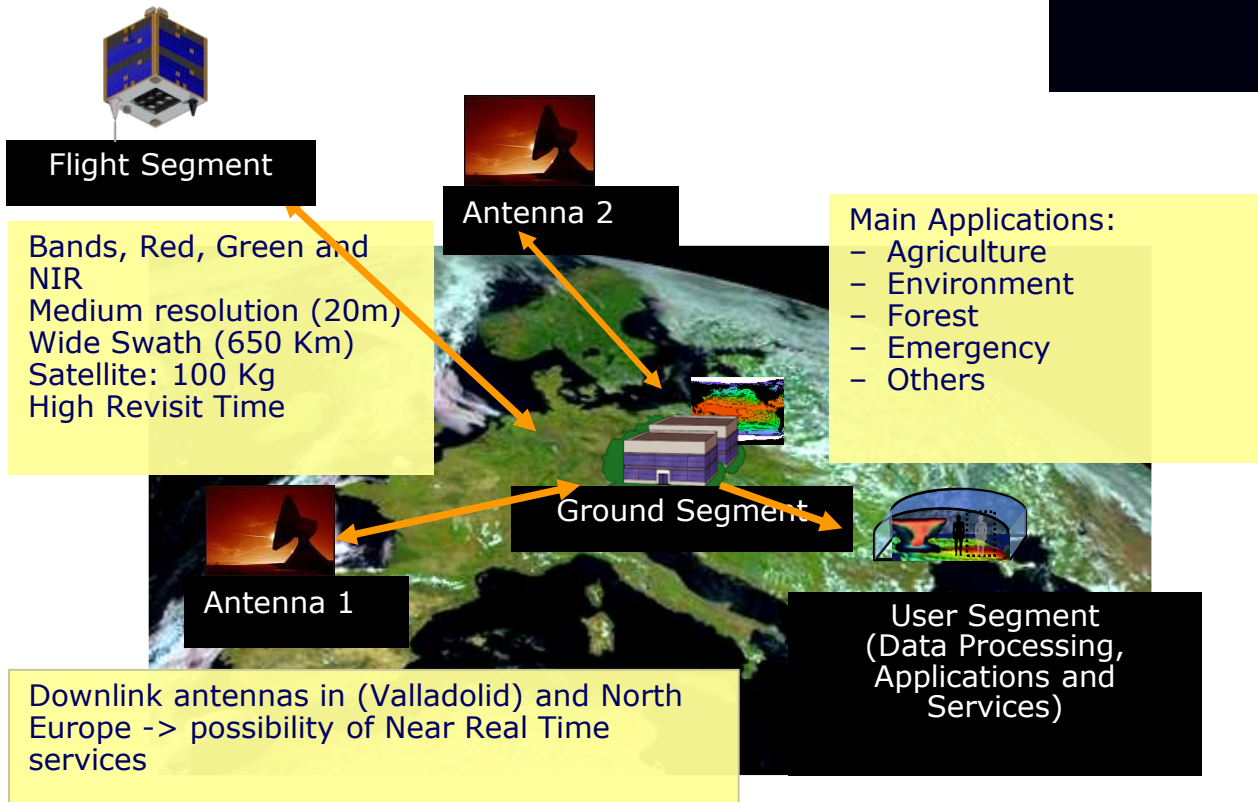


- **Involvement in all Phases of a Space Mission**



DEIMOS EO Missions – DEIMOS 1

- **DEIMOS – 1:** launch 2009
- Break even: first year operations
- Main customers: ESA (Contributing Mission GMES), USDA, PNOT, etc



DEIMOS EO Missions – DEIMOS 2



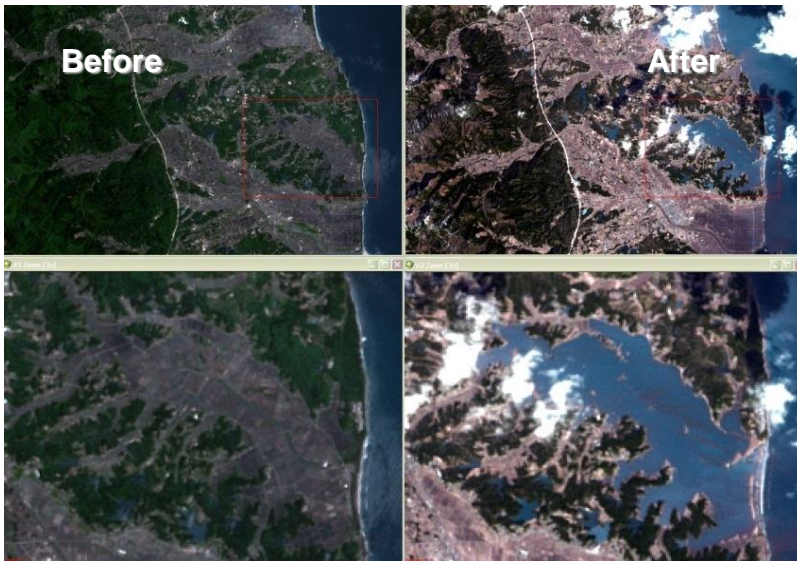
- **DEIMOS -2:** Optical multispectral (panchromatic, R, G, B, NIR)
- 75 cm (pan-s) Resolution – Agile platform
- DEIMOS responsible for:
 - Space Segment Integration
 - Mission & System Engineering
 - Ground Segment Development, based on our product **gs4EO®**
 - Overall Integration & Validation
- Launched: 19th June 2014
- Operational from November 2014



- **Disaster Monitoring:** Fire, Floods, Earthquakes, Tsunamis, etc
- **Surveillance:** intelligence, change detection, vessel detection
- **Resources Monitoring:** agriculture, forest, land use, water resources
- **Environment Monitoring:** quality of water, oil spills



Urban Areas



Disaster Monitoring




Forest Monitoring

Technology Transfer

Strong motivation for **Technology Transfer**, since the creation of the company:

- Transport (e.g. Railways)
- Energy
- Environment
- Integrated Solutions



Elcano

- Information Systems
- Station Remote Control
- Train Movement Management
- Control Center
- Support Tools



Kyros

- Positioning of vehicles, persons and objects
- Terrestrial and satellite communications
- Control Center for Security, Productivity and Sport Activities

GNSS Downstream Services –
Location Based Services (more than 5.000 commercial users)

More than 300 railways stations equipped



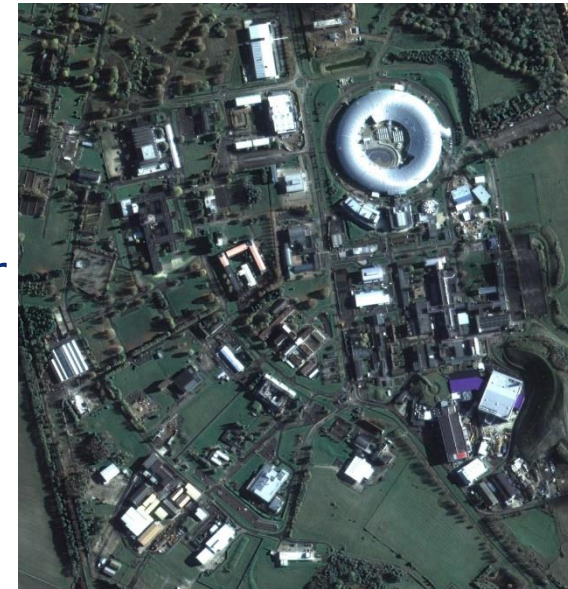
Neptuno

- Business Intelligence for Wind Farms
- Storing and Processing
- Advanced Visualisation
- Videowall, Web,

ELECNOR Wind Energy all around the world

DEIMOS UK (I)

- **Established at the end of year 2013** at the Innovation Centre at Harwell. Exploit all company **expertise in UK** and International Market
- **Continuous growth** since the creation of the company (currently 15 staff)
 - DEIMOS is proud to announce that we are taking over the business of **Magellium UK**. The team and business has been incorporated in DEIMOS UK
 - DEIMOS will be relocating to building R103 (next to Electron) in December
- **Activities already awarded in our initial areas of interest:** Flight Systems, Ground Segment, GNSS and Technology Transfer
- **Flight Systems:**
 - Expertise in Mission Analysis, GNC/AOCS and On-board Software
 - Interest in programmes like: Robotic Exploration, Science, Clean Space, Re-usable launchers, etc.
 - Example activity awarded: **Design for Demise**



Harwell – DEIMOS-2



DEIMOS UK (II)

- **Ground Segment:**

- Capabilities to build a complete Ground Segment System based in our suite of product **gs4EO**[®]

- **Satellite Navigation:**

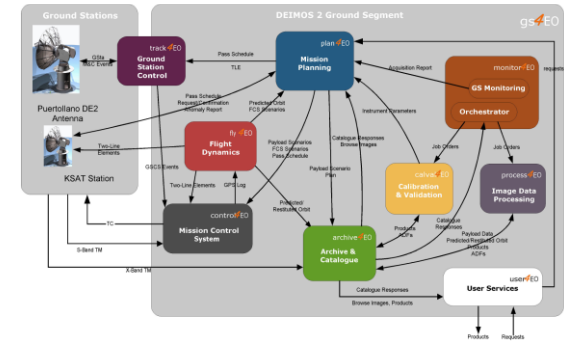
- Expertise in GNSS architectures, performances (navigation, integrity), GNSS receivers, etc
- Example activity awarded: G2G ODTs (Galileo Evolution – Intersatellite links)

- **Technology Transfer:**

- Interest in Location Based Services (Kyros), Railways and Wind Energy in UK
- Integrated Applications – **SUMO** (maintenance of offshore renewable energy with Iberdrola UK, Scottish Power and the Satapps Catapult)

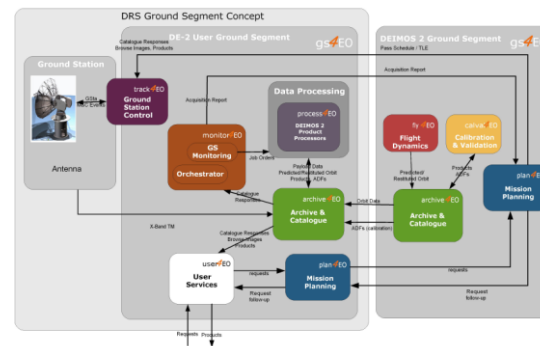
- **EO Downstream Services:**

- Reinforced with the incorporation of the former Magellium UK team
- Agriculture, Land Use, GIS, Forest, Disaster Monitoring



International Market (I)

- **DEIMOS actually commercialises products all around the world:**
 - Portfolio of products clearly defined
 - Commercial network all around the world
 - DEIMOS UK playing key role in Export (e.g. Far East, UK influence countries)
- **DEIMOS Commercial Products**
 - **Space Programmes Engineering and Consultancy**
 - **Data from our own missions**
 - DEIMOS-1 (20 mts resolution and 600 Km swath)
 - DEIMOS-2 (75 cm resolution and 12 Km swath)
 - **Added Value Products and Services**
 - Intelligence, Maritime Surveillance, Crisis Management, Agriculture, Forest, etc
 - **Ground Station and Processing Chain of DEIMOS-1 and DEIMOS-2**



- **DEIMOS can see potential in the UK space market:**

- Ambitious long term strategic plan for UK space sector in both upstream and downstream
- UK Space stakeholders supporting this strategic plan: UKSA, TSB, Catapult, etc
- Important Contribution of UK in ESA Programmes of high interest to DEIMOS (e.g. EO, GNSS, MREP, etc)
- Interest of UK in the Space Applications and downstream services
- Highly qualified engineers and world class Universities and Research Institutions
- Encouragement from UK Space Agency, UK Trade & Investment and Catapult to establish a DEIMOS UK company
- Support from UKTI & UKSA to access international markets

Why DEIMOS in Harwell?

- **Harwell is a highly attractive campus for space companies:**
 - Strong promotion of Harwell campus
 - Large number of space stakeholders present in or near to Harwell:
 - ESA centre established at Harwell, including the Telecom directorate
 - ESA Business Incubation Centre
 - Satellite Applications Catapult
 - RAL Space
 - UKSA
 - Good links to local universities
 - Large number of new companies located in Harwell
 - Strong interactions between companies and space stakeholders
 - Support to companies located in Harwell to develop their capabilities and potential

Conclusions

- DEIMOS is fully committed to developing the company's UK capabilities from its base at Harwell
- DEIMOS has ambitious plans to grow our business from the UK, addressing the UK local market, European market and International market
- DEIMOS UK is fully integrated in the business strategy of DEIMOS
- DEIMOS UK has recently **incorporated the former Magellium UK team** and business, to reinforce our strategy in EO applications and services
- DEIMOS UK is currently a team of 15 staff, with capabilities to continue growing in the short term
- DEIMOS UK is already delivering activities in: Flight segment, Ground Segment, GNSS and Technology Transfer