

# Stakeholder's meeting on NASRDA strategic Vision for Communications Satellite in Nigeria & Africa Abuja, 08 March 2011

## Introduction to Astrium



All the space you need



# Astrium team today

## 1. Eric ZEIS

Head of Communication Satellites Proposals  
Astrium Satellites, Toulouse, France

## 2. Owen BOWLES

Regional Sales Director, Communications Satellites  
Astrium Satellites, Toulouse, France & Stevenage, UK

## 3. Ghislain de la SAYETTE

Export Director, Africa  
Astrium HQs, Paris France

# Astrium: part of EADS, a global leader in aerospace and defence

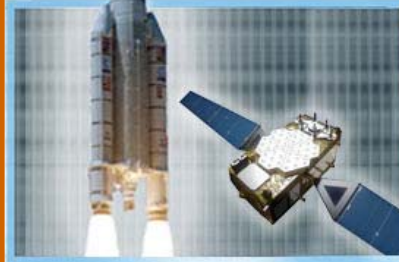
**EADS**



**Airbus**  
**Airbus Military**



**Eurocopter**



**Astrium**



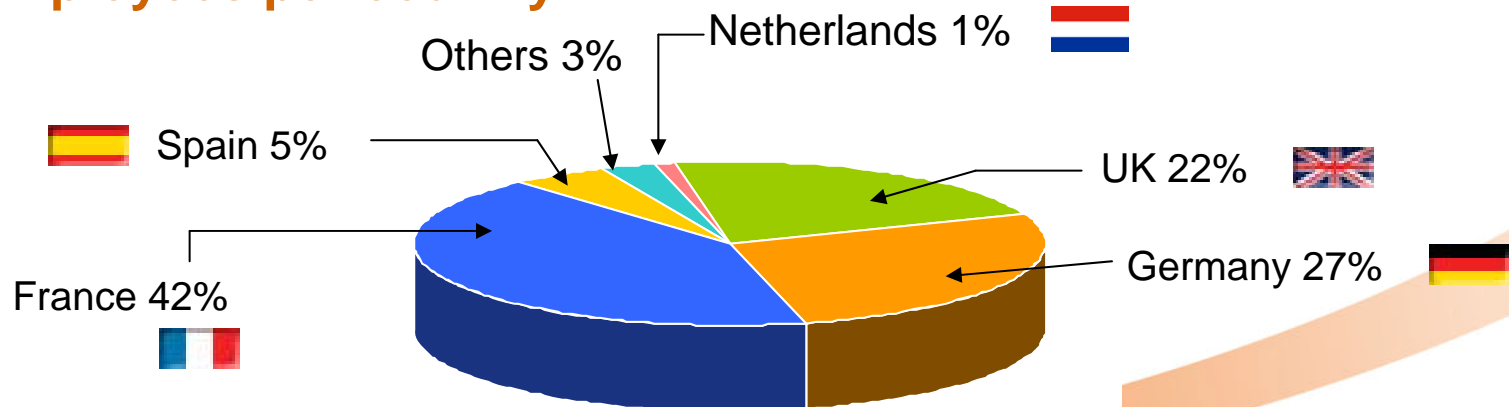
**Cassidian**

# Astrium Facts & Figures 2009

Employees: 15,000  
Sites: F, G, UK, ES, NL  
Turnover: €4.8 billion  
Order backlog: €14.7 billion  
CEO: François Auque



## Employees per country



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# Astrium: the heritage and expertise of the leading European space nations



- Foreign offices**
- EU (Brussels)
  - USA
  - Brazil
  - Russia
  - India
  - South Korea
  - Thailand
  - Malaysia
  - PR China

<b>Additional locations</b>	<b>France</b>
	Limeil-Brévannes (Sodern)
	<b>Germany</b>
	Backnang (Tesat)
	Potsdam (Infoterra)
	<b>UK</b>
	Colerne (Paradigm)
	Corsham (Paradigm)
	Farnborough (Infoterra)
	Guildford (SSTL)
Hawthorn (Paradigm)	
Leicester (Infoterra)	
Newcastle (Infoterra)	
Oakhanger (Paradigm)	
<b>Spain</b>	
Barcelona (Infoterra)	
<b>Saudi Arabia</b>	
Riyadh (GPT)	

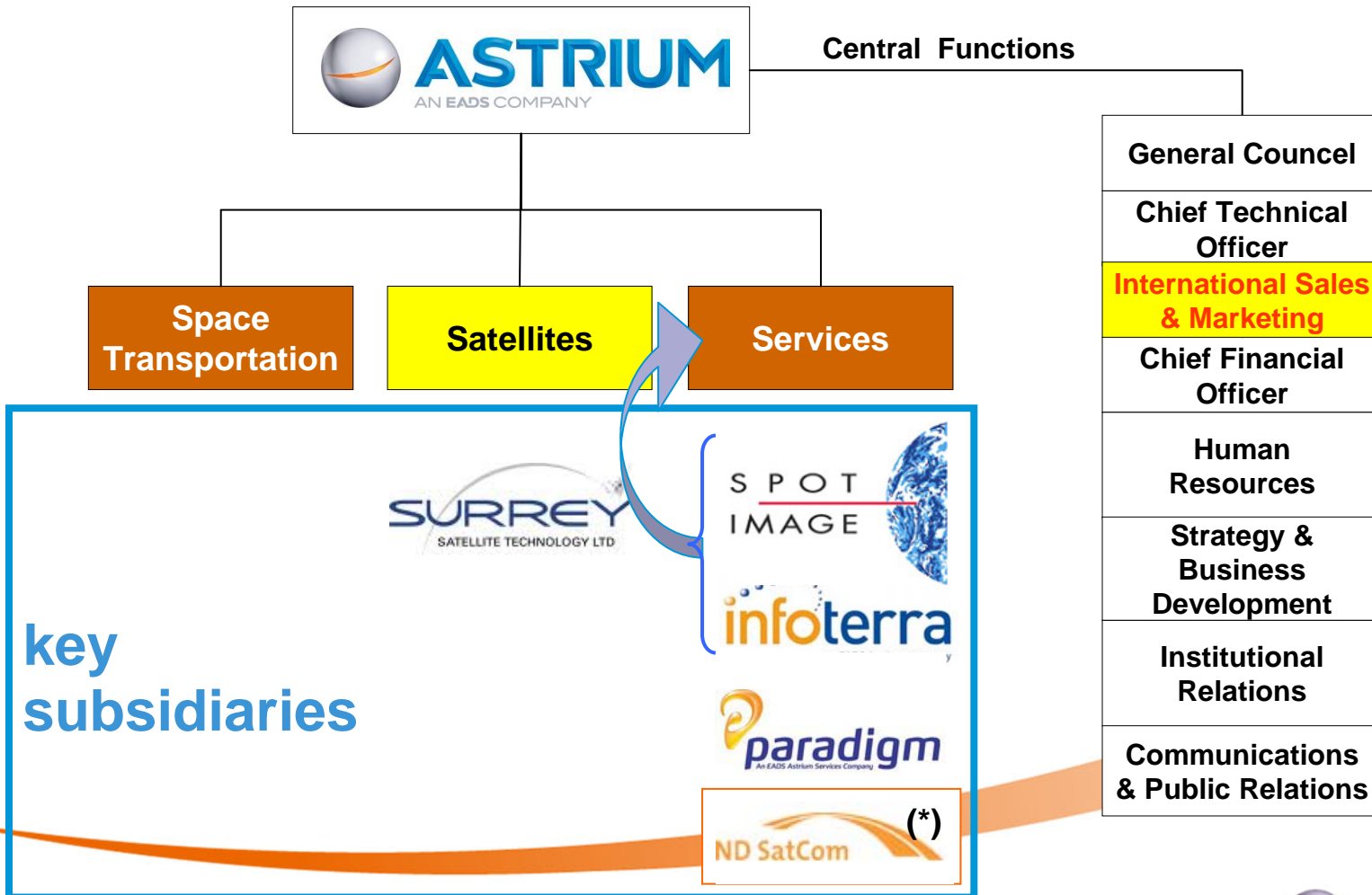
All the space you need



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# Astrium: an integrated European company

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# Astrium's activities: 3 key areas

## Astrium Space Transportation

The European  
prime contractor  
for civil and  
military space  
transportation  
and manned  
space activities



## Astrium Satellites

A world leader  
in the design  
and  
manufacture of  
satellite  
systems



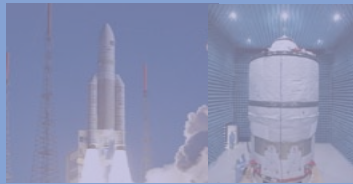
## Astrium Services

At the forefront of  
satellite services  
in the secure  
communications,  
geo-information  
and navigation  
fields



# Astrium's activities: focus on Astrium Satellites

## Astrium Space Transportation



## Astrium Satellites

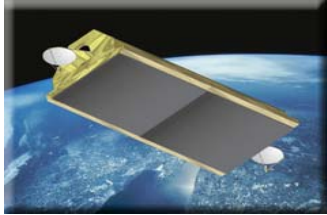
A world leader  
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systems



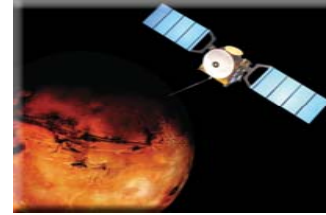
## Astrium Services



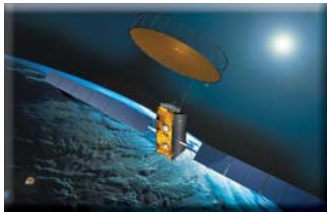
# Astrium Satellites: providing customer solutions in all sectors



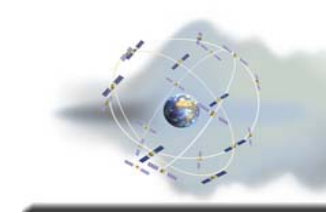
Earth observation



Space science



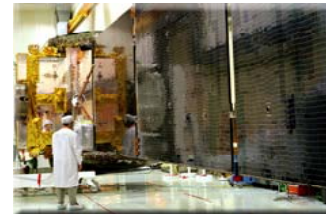
Telecommunications



Navigation



Military systems



Subsystems,  
equipment &  
operations

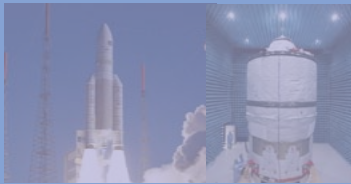
# Astrium Satellites: an impressive track record of highly reliable spacecrafts & equipment

- A world leader in Earth observation satellites (Optical & Radar)
  - *SPOT, HELIOS, Pléiades, FORMOSAT, THEOS, ALSAT-2 (Algeria), SEOSat-Ingenio (Spain), SSOT (Chile), VNREDSat-1 (VietNam)...*
  - *Terrasar-X, Tandem-X, PAZ (Spanish radar)*
- Prime contractor for over 80 communications satellites
  - *INMARSAT, EUTELSAT, ASTRA, ARABSAT, YAHSAT, AMAZONAS, AVANTI (Hylas)...*
- A key player in the European satellite navigation system Galileo
- A major provider of military space systems
- The European leader in space science programmes
- A world-class supplier of space vehicle equipment

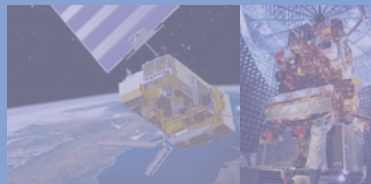


# Astrium's activities: Focus on Astrium Services

## Astrium Space Transportation



## Astrium Satellites



## Astrium Services

At the forefront of  
satellite services  
in the secure  
communications,  
geo-information  
and navigation  
fields



# Astrium Services

*connect, protect and inform*



## TELECOM SERVICES

Services to national MoDs, governments and multinationals



The **unique one-stop-shop** provider for commercial and military band services

## SECURE SATCOM SYSTEMS

Systems and Ground Segments to MoDs



The **UK leader** for space secure communications systems & ground segments

## GEO-INFORMATION & NAVIGATION SERVICES

Services to governments and commercial users



The **European leading provider** of geo-information products and services



**High precision positioning** services, GNSS augmentation to 2cm

# Telecom Services

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- **Own space infrastructure:** Military grade UHF/X Band satellites
- **Own ground infrastructure:** **Teleports** in Toulouse and UK: 130+ FSS satellites visible; **24/7 Support centres** in UK and France; SATCOMBw Step 2 for Bundeswehr
- **Bandwidth available capacity:** C, Ku **EMEA coverage**; lease **up to 1000MHz** of commercial capacity at a given time
- **Smart financing, PFI**



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- **Defence:** end-to-end secure solutions; welfare service for troops, bandwidth capacity provision...
- **Corporate:** VPN, VoIP, Internet access, Video conferencing, E-storage, SCADA applications...
- **GSM operators:** GSM backhauling, Internet trunking...

# Secure Satcom Systems

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- **Military satellite communications systems:** complete systems, satellites, terminals, ground control...
- **Systems engineering: large turnkey solutions,** consultancy...
- **Network management systems:** comprehensive suite of network management tools for maximum potential during changing operational requirements
- **Through life logistics support:** worldwide
- **Industrial and International teaming for specific projects**



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- **Defence:** complete space, ground, network and user terminal infrastructure; military secure sites
- **SCOT:** world's most widely fitted naval wideband SATCOM terminal, combat proven, flexible architecture
- **Land:** Comms on the Move (COTM), manportable, quick deploy fly-away systems & transportable terminals
- **Air:** Airborne terminals, UAVs & manned aircraft, X, Ku and Ka band
- **Modems:** bandwidth efficient, anti-jam, flexible, upgrade over the air

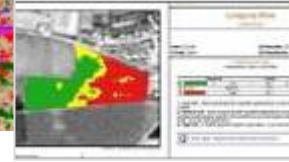
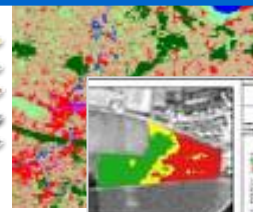
# Geo-Information Services

CAPABILITY



## Geo-information products and services

- EO data acquisition – space, air, & field
- Optical and radar – Spot, Pléiades, TerraSAR-X
- Wide range of imagery held in one archive



## Added value services

- Application-specific datasets
- Information and interpretation – GIS
- Innovative and powerful processing

SOLUTION

- **Defence & Security:** site monitoring, mapping, disaster recovery
- **Maritime surveillance:** illegal fishing, homeland security, pollution
- **Agriculture:** crop forecasting, land use, water & fertilizer optimisation
- **Oil & Gas:** well positioning (seeps), geological mapping, surface movement monitoring
- **Insurance:** flood simulation, risk analysis
- **Mapping & cadastre**
- **Telecommunications networks planning**

# Astrium Geo-Information Services a multi-sensor provider



**Multisource, multi-resolution**

**Optical & radar satellites, airborne imagery,  
from 25 m down to 50 cm**

**SPOT 4&5, FORMOSAT-2, KOMPSAT-2, TerraSAR-X,  
Envisat, TandemX, ...**

**digital aerial photography (optical & Lidar)**

**Wide range coverage and high revisit capacity**

**From 60 km swath down to 15 km**

**Daily revisit capacity (F2, Pléiades 1&2 and SPOT 6&7  
coming soon)**

All the space you need

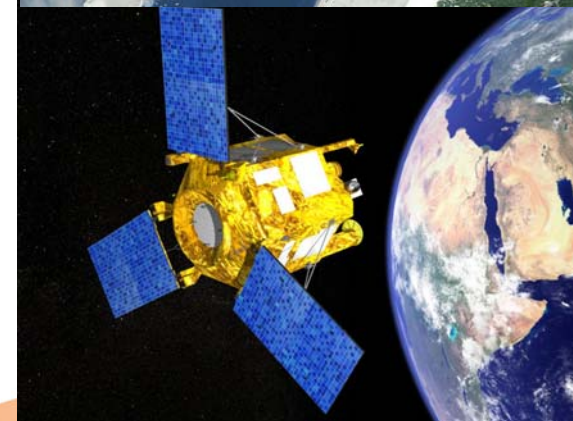
# Focus on SPOT 6 & 7

## Strengthening high-resolution satellite capability

High-resolution, large coverage optical satellites  
financed and operated by Astrium / Spot Image

- Two 2m-resolution optical satellites, planned for launch in 2012 & 2013
- Phased on the same orbit and offering outstanding agility for applications requiring broad coverage
- Worldwide coverage and reactive tasking (up to 6 programming plans per day)
- Multi-application: cartography, security, agriculture, civil engineering, etc
- Secured continuity to SPOT 5

Assuring the delivery of top quality imagery



# Navigation Services

CAPABILITY



## GNSS Augmentation – Precise Positioning

- Ground based (AXIONET): accuracy +/- 2cm in real time
- Satellite based (reseller of NAVCOM): accuracy +/- 10 cm worldwide



## Track & Trace solutions

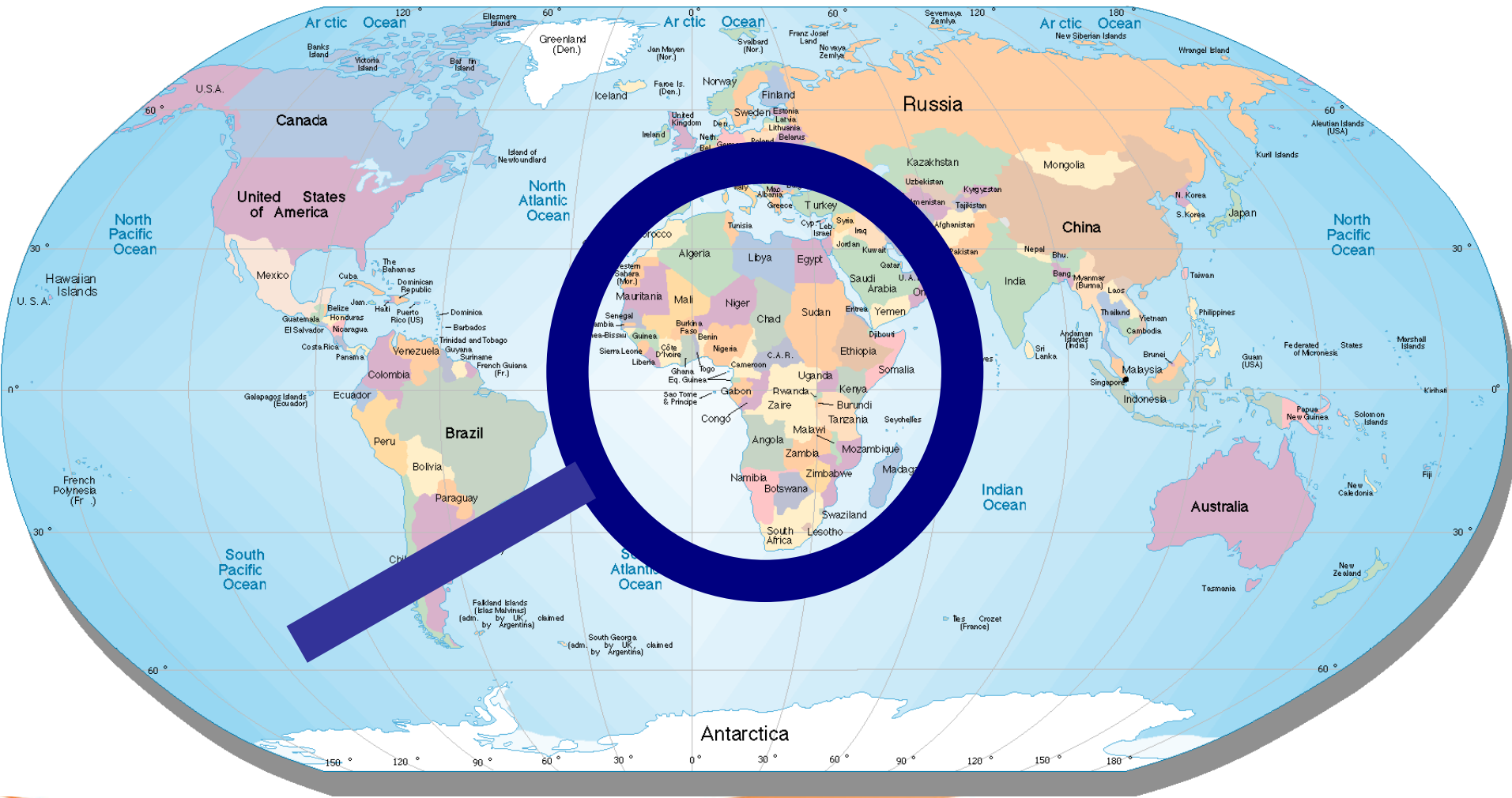
- Locate and monitor from web interface or a field terminal – text 2 way
- Create, visualise geo-referenced objects

SOLUTION

- **Surveying, construction:** precise positioning with cm accuracy, map visualisation
- **Oil & Gas:** ground movement monitoring
- **Agriculture:** machine control
- **Military and private operators in remote areas:** alert service, soldier tracing, mission planning & scouting, 2-way messages
- **Galileo:** Full Operational Capability – core team member

# Astrium Group & Africa

US/GmbH

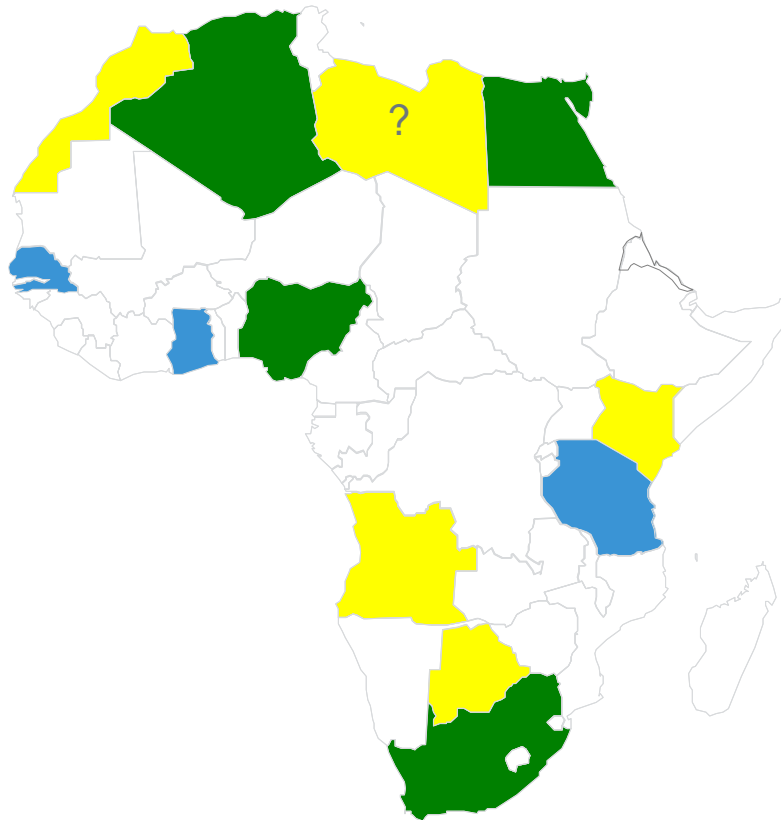


All the space you need

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# African Space Nations



**Confirmed**

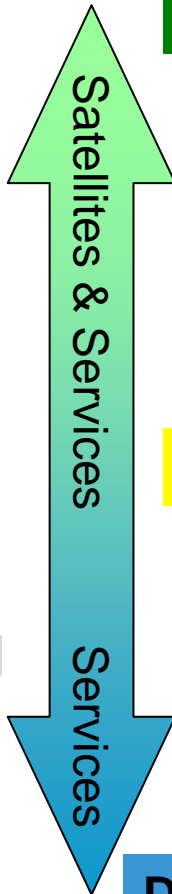
- Algeria
- Egypt
- Nigeria
- South Africa

**Emerging**

- Angola
- Botswana
- Kenya
- Libya
- Mauritius
- Morocco

**Discovering**

- Ghana
- Senegal
- Tanzania



**Nigeria : the N°1 African Space Nation**

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# African Satellites (achieved & projects)



**Earth observation**

Projects ?



**Telecommunications**

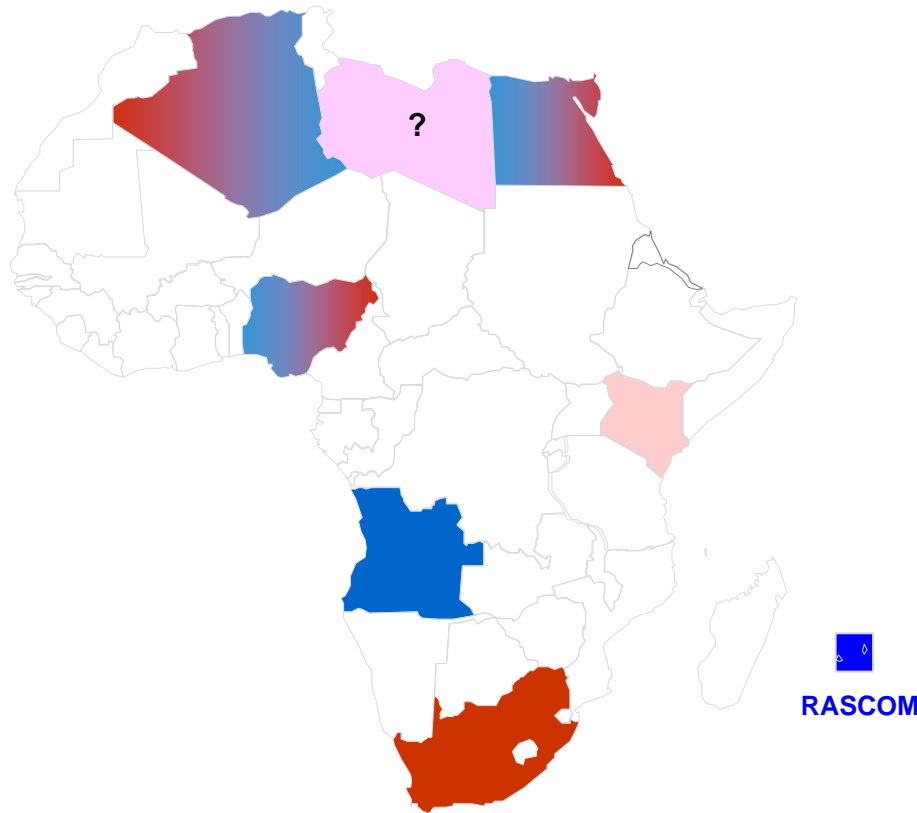
Projects ?

**Grouped initiatives**

**RASCOM**

**DMC**

**ARMC**



# Astrium Group Projects & Initiatives achieved & projects



**70+** Projects and Initiatives  
spread over  
**30** countries out of 53 (54)

**Optical & Radar satellites**  
**Geo-Information Services:**

Images  
Receiving stations  
Applications (civil & military)  
Training

**Telecom satellites**  
**Telecom Services & Applications**

GSM backhauling, Internet trunking  
Secure VSAT networks  
e-health, e-learning

Military  **ASTRIUM**  
AN EADS COMPANY

# Astrium aims to become the premier foreign industrial partner of Nigeria in all space sectors



**Partnership approach**

**High reliability cost effective products & services**  
**Share of experience / training of Nigerian engineers**

# Thank You



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