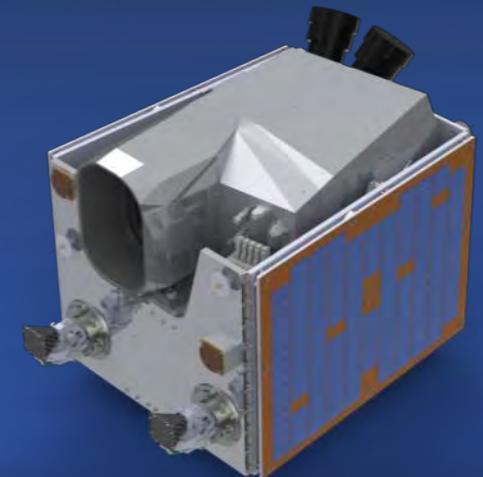
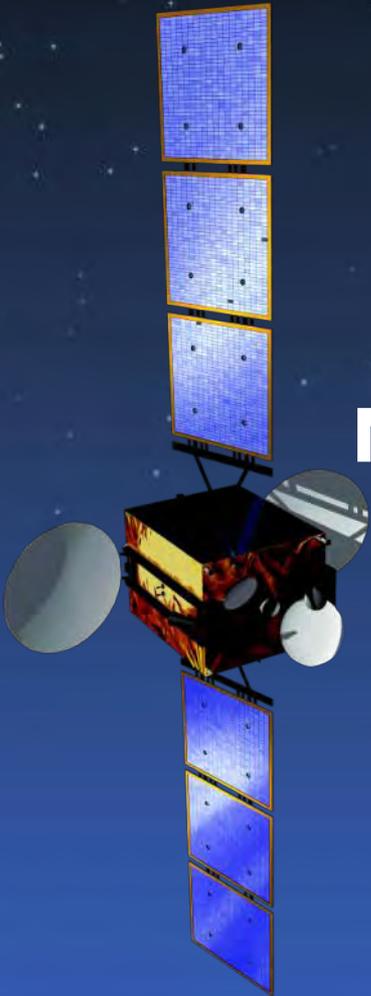


# The Interface between International and National Mission Products for Climate Change Applications



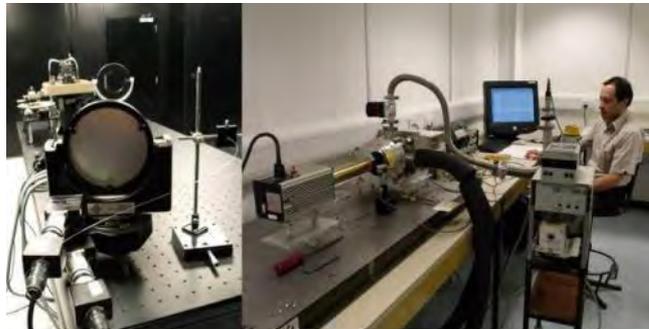
September 2013

# SSTL - The Company

UK satellite manufacturer is owned by  
99% EADS Astrium 1% University of Surrey



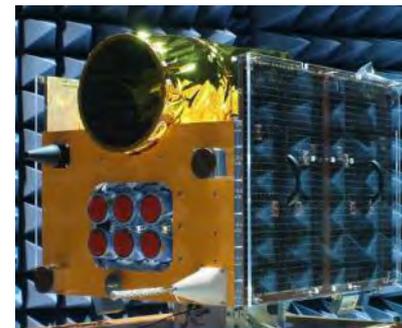
Since 1985, employing ~550 staff  
Facilities in Surrey, Kent, Hampshire & Colorado



# A History of Success



41 Satellites completed  
 27 payloads in progress  
 14 Further satellites in progress

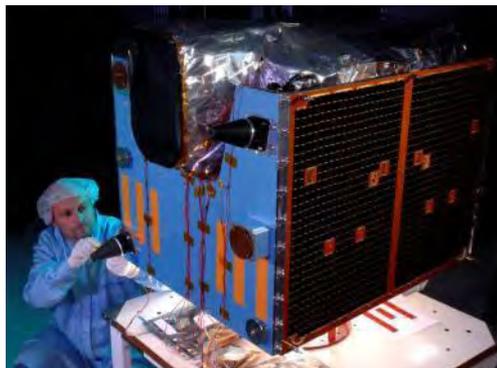


## HERITAGE

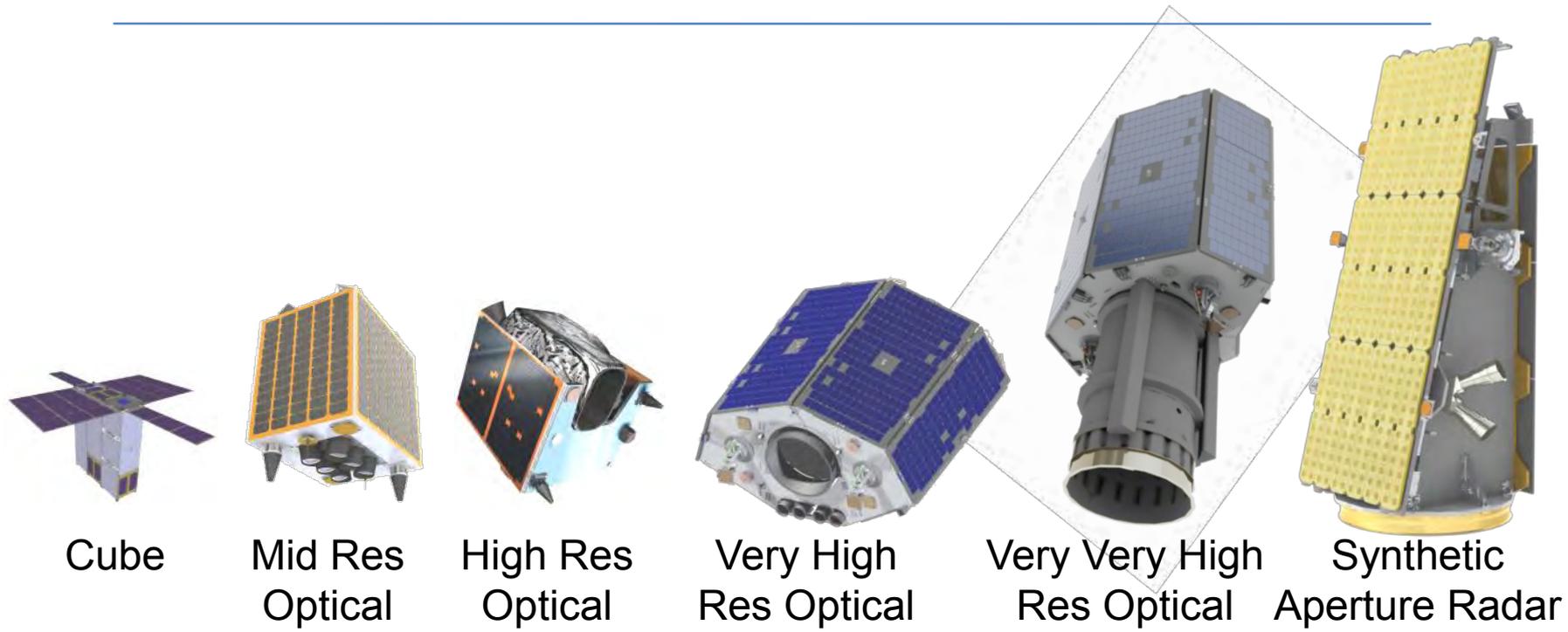
Flight proven – **low risk**

## RESULTS

All projects, **fixed price, on-time**  
 and **on-budget**



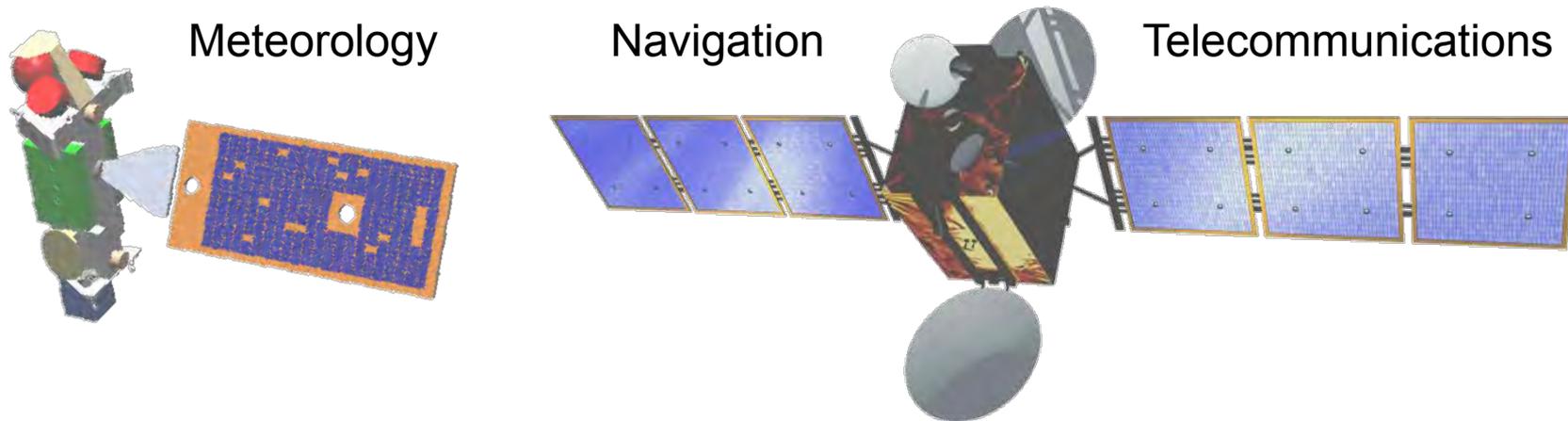
# Satellite Types



Meteorology

Navigation

Telecommunications



# Climate Change Headlines about Indonesia

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Second largest contributor to carbon emissions due to land use/land cover change

By 2020 agreement to reduce emissions 26-41% by 2020, primarily through forestry

One of most vulnerable countries

Economic growth, activity increase

# National Headlines about Indonesia

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Voters are interested in improvements in:

- Employment
- Poverty reduction
- Food Security
  - Land and Maritime
- Energy availability
- Security
- Water supply

As in every other country, public interest is not closely aligned to climate change needs

# Purposes of RS for Climate Change

## Low-Mid Res

Atmospheric Composition  
Ocean Salinity  
Ocean Temperature  
Sea State  
Climate Prediction  
Cryosphere Monitoring  
Drought Prediction  
Weather Forecasting

## Mid-High Res

Precipitation Monitoring  
Air temperature  
Food Production  
Disaster Risk Reduction  
Flood Prediction  
Pest Monitoring  
Emissions Monitoring  
Forest Fire Monitoring  
Land Use Change

Water Production  
Water Storage  
Water Use  
Food Use  
Urban Heat Island  
Monitoring  
Population Movement  
Disaster Risk Evaluation  
Reforestation  
Afforestation  
Disaster Recovery  
Flood Prevention  
Forest Clearance  
Fishery Monitoring  
Livestock Monitoring

# National Law

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The calculation of statistics and trends is being done, repeatedly

At the national level, a legal framework is needed

- To be implemented through whichever creative means

To support law and enforcement, detailed geospatial information is required

- Along with a sharing/distribution methodology

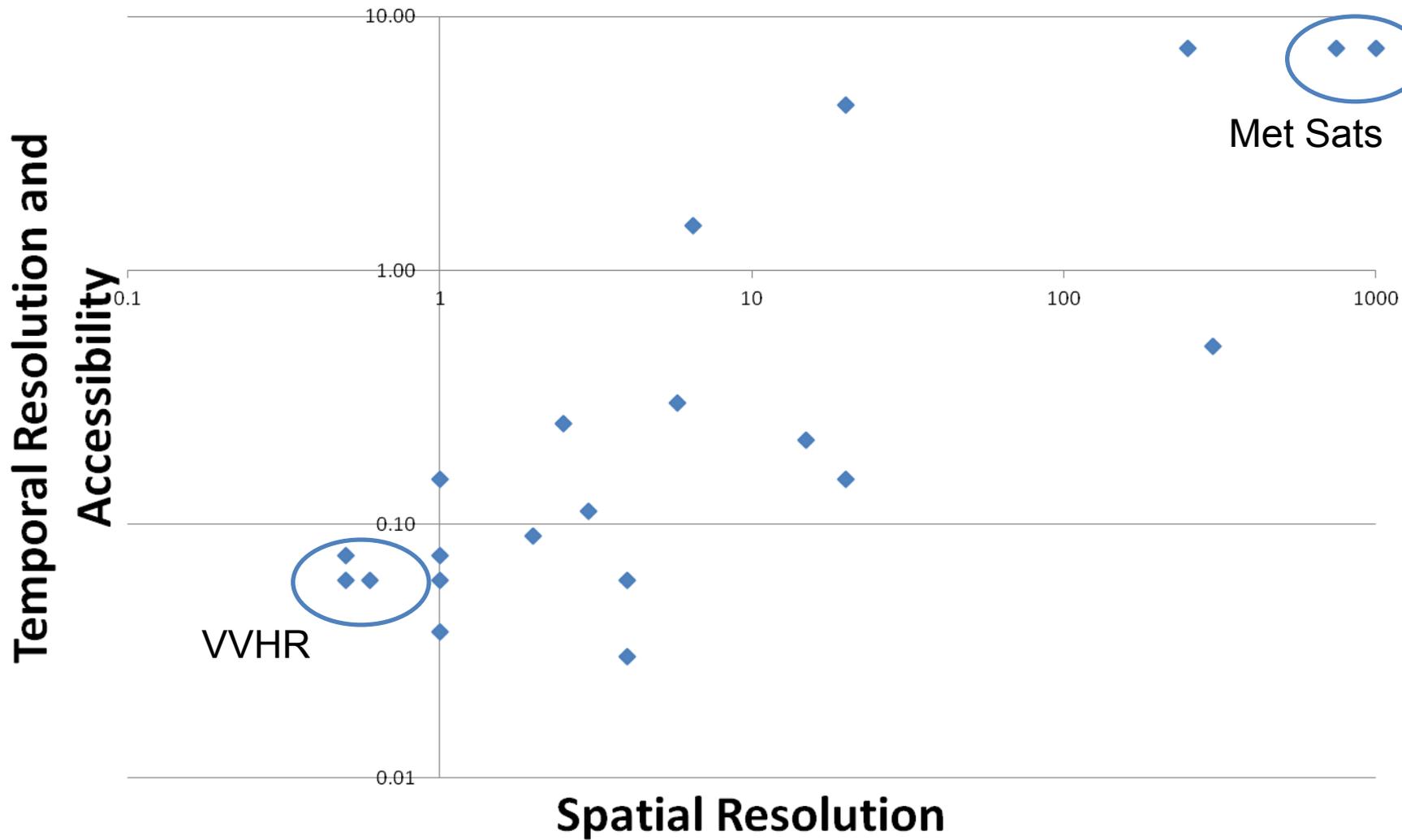
To get detailed geospatial information, accessible and reliable data is needed

# Categorisation of Satellite Types

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- Categorised by
  - Access for international customers
    - Internet (easiest)
    - Direct to Groundstation open
    - Ease of licensing/sharing
    - Delivery delay
  - Resolution
    - Spatial
    - Temporal

# Mission Types

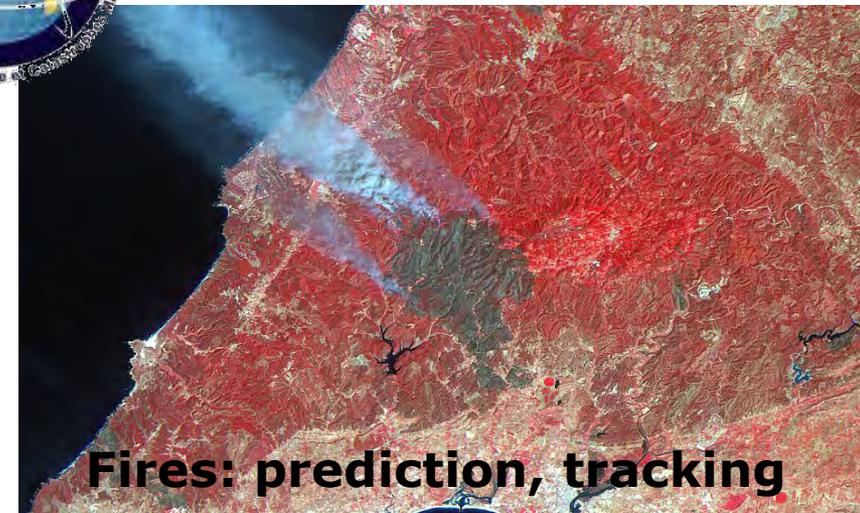


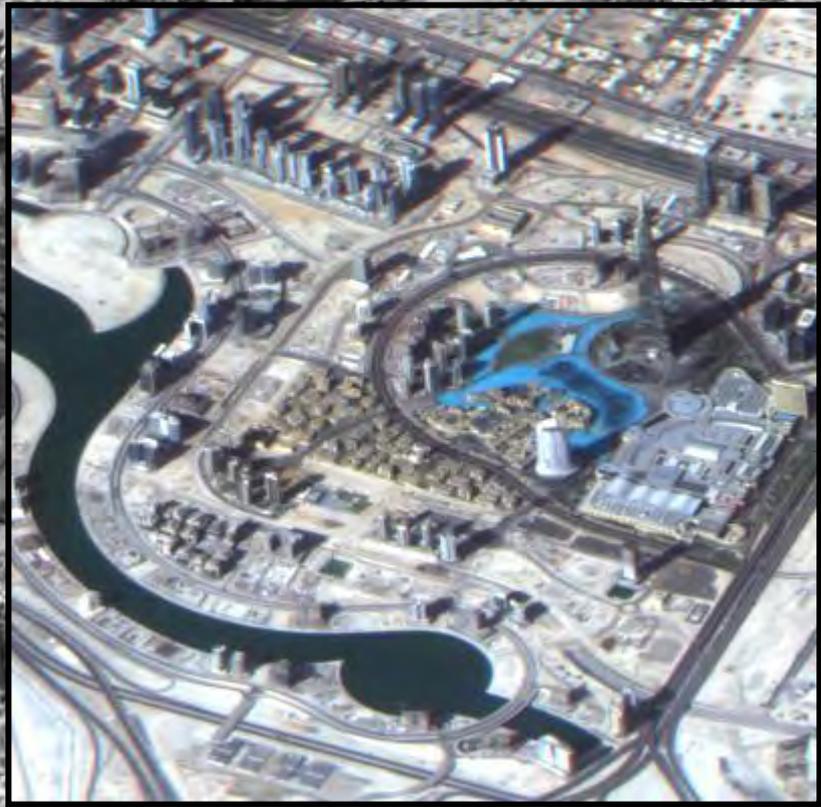
# Through Life Costs

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- Operational VHR through life costs
- Including
  - Satellite
  - Launch
  - Operations
  - Tasking
  - Delivery
  - Groundstation

# Disaster Monitoring Constellation (DMC)





# Next Generation Imaging Missions



DMC-3 high res 1m optical constellation  
Ready for launch 2014  
3 spacecraft built by SSTL for DMCii  
Commercial service provision  
Worldwide daily access  
~1.5 global access opportunities per day



# NovaSAR

Low-cost SAR Satellite

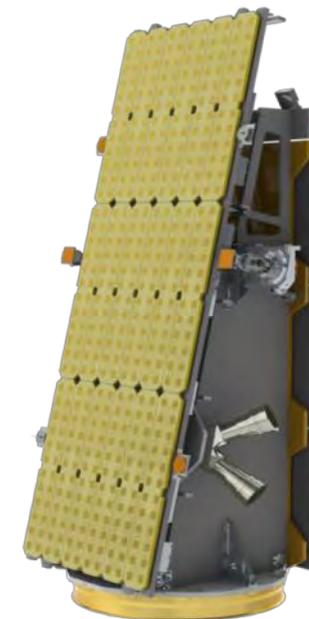
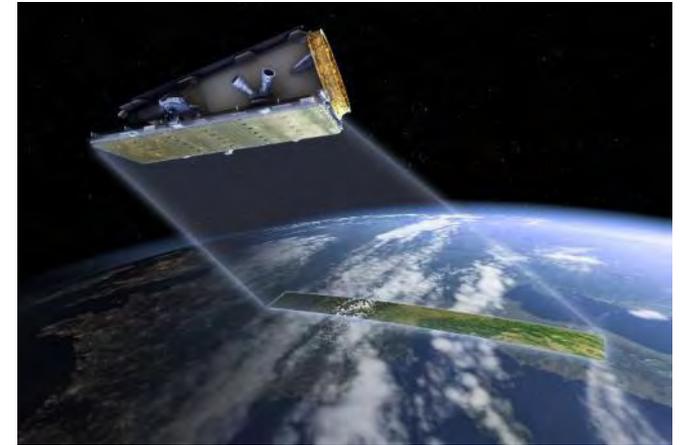
SSTL-Astrium Joint Programme

4 Modes: 6-30m Resolution

HMG £21m investment in first satellite

Constellation operations

Penetrates Canopy



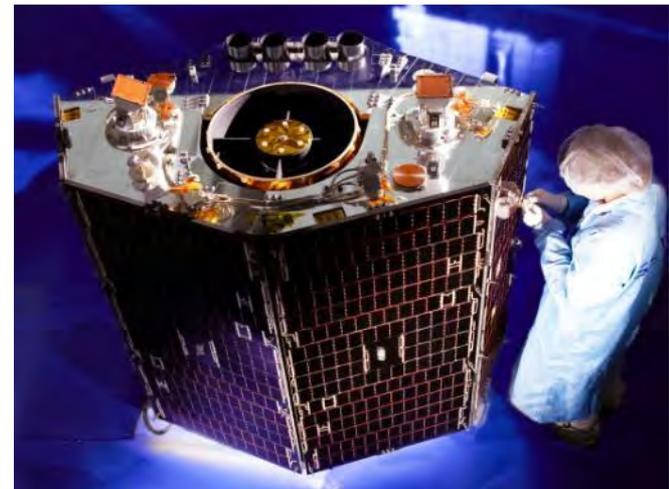
# Conclusions

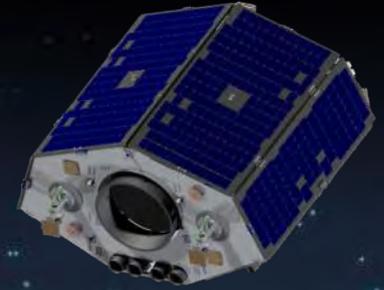
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To implement climate change regulation,  
national assets are required

The buy/lease decision must be considered

Costs can be reduced through partnership





Thank You

