

# AI for Earth Observation

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# AI & EO in Disaster Management

Pre Image

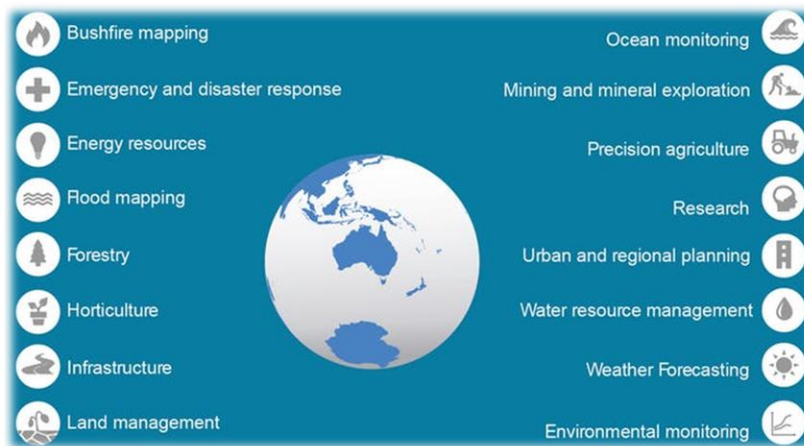

















Post Image



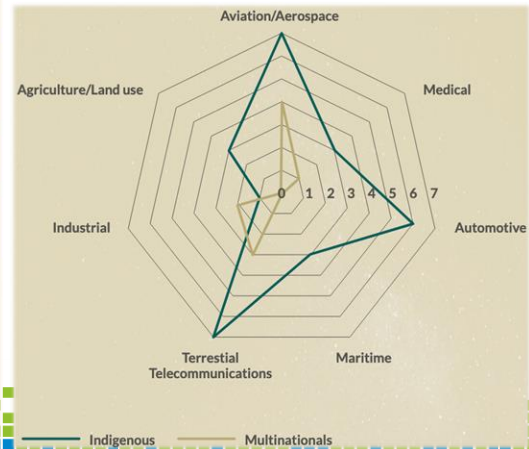
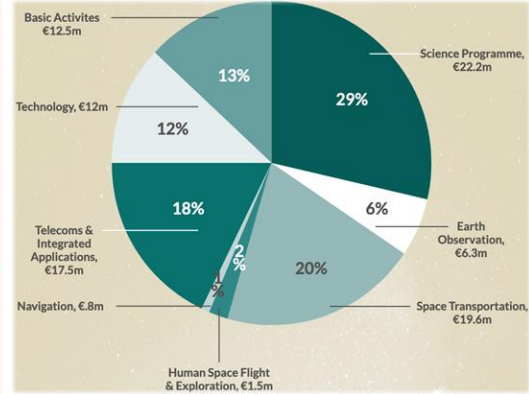
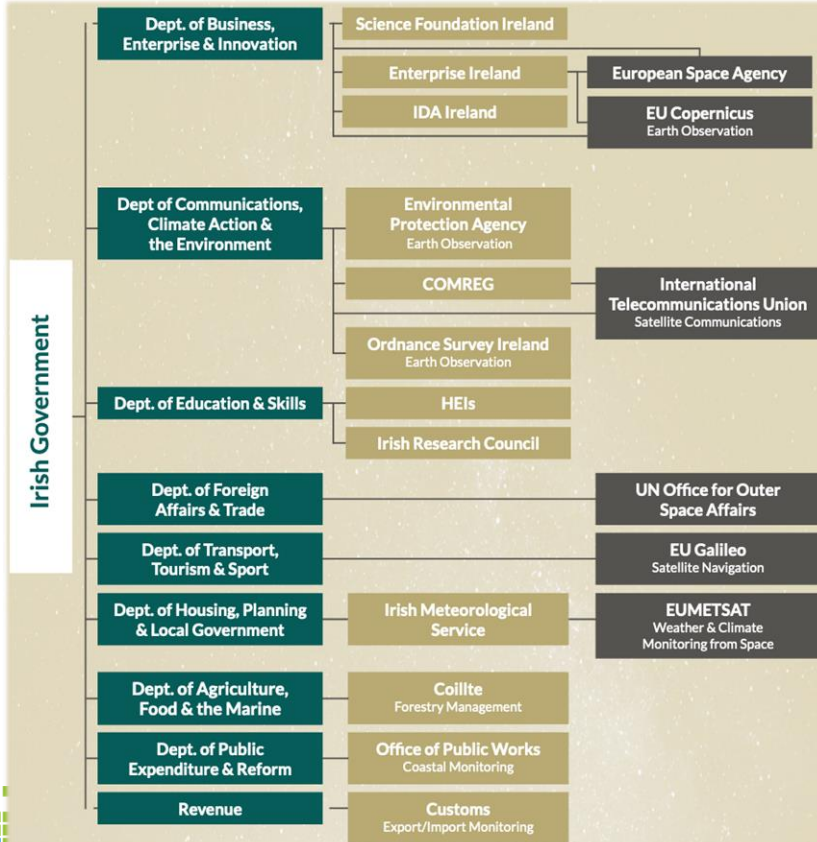
Score	Label	Visual Description of the Structure
0	No damage	Undisturbed. No sign of water, structural damage, shingle damage, or burn marks.
1	Minor damage	Building partially burnt, water surrounding the structure, volcanic flow nearby, roof elements missing, or visible cracks.
2	Major damage	Partial wall or roof collapse, encroaching volcanic flow, or the structure is surrounded by water or mud.
3	Destroyed	Structure is scorched, completely collapsed, partially or completely covered with water or mud, or no longer present.

# EO Applications



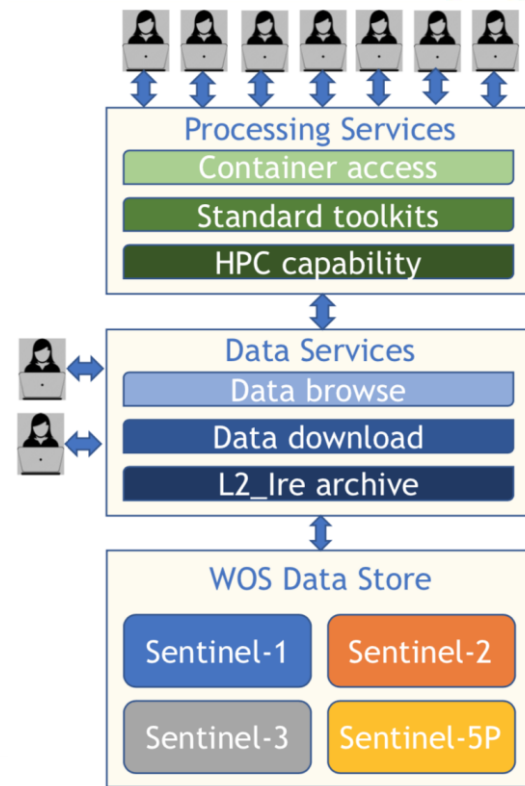
 Bushfire mapping		Ocean monitoring 
 Emergency and disaster response		Mining and mineral exploration 
 Energy resources		Precision agriculture 
 Flood mapping		Research 
 Forestry		Urban and regional planning 
 Horticulture		Water resource management 
 Infrastructure		Weather Forecasting 
 Land management		Environmental monitoring 

# IE National Space Strategy for Enterprise



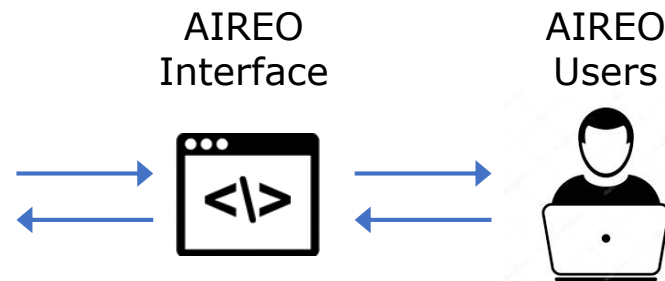
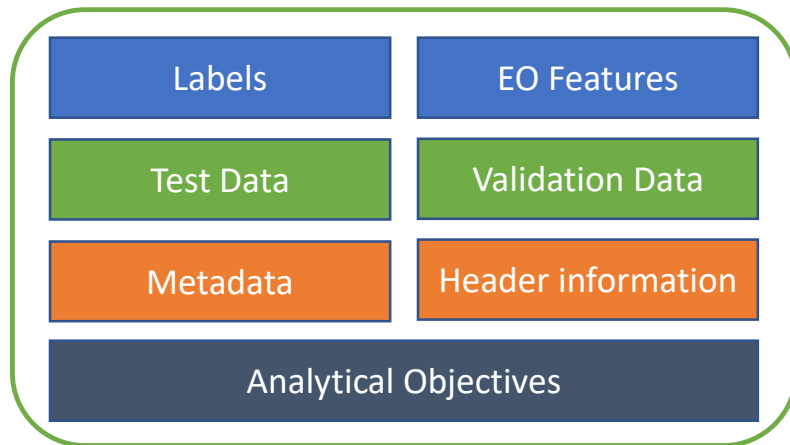
# Satellite Platform for Ireland (SPÉir)

- Built and operated by ICHEC
  - Collated archive of ESA satellite data sets (~150 TB per day)
  - Sentinel 1 - Radar images for land & ocean services
  - Sentinel 2 - Optical images for land services (vegetation, inland waterways, coastal areas, etc.)
  - Sentinel 3 - Ocean and global land monitoring services
  - Sentinel 5P - Atmospheric composition & air quality monitoring services
  - Interfaces & toolkits for Data and High Performance Processing Services
- Co-develop solutions
  - Enterprise, public sector & research organisations leveraging satellite data
- Stakeholders engagement
  - Infrastructure planning & development, environmental protection, precision agriculture, renewable energy, climate change, ...



# AIREO Programme

## AIREO Datasets & Specifications

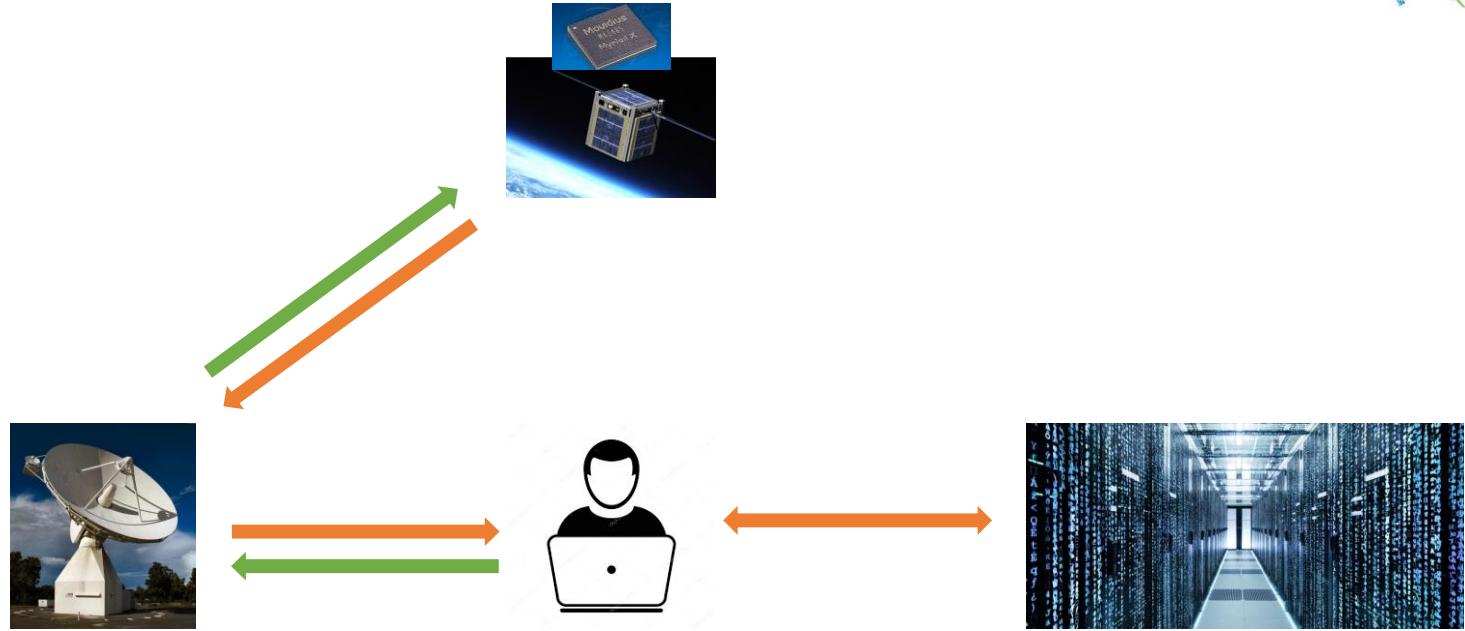


AIREO specifications  
& best practices

AIREO tools &  
datasets

AIREO network &  
community

# AI In-Orbit



Update DL models  
on-board satellites

Near-real time  
inference in-orbit

Thank you.

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