



20th



European Interparliamentary
Space Conference (EISC)

Belgium
Brussels 2018

2018 EISC Workshop Strategy for Space Safety and Security

Dr. Christina Giannopapa

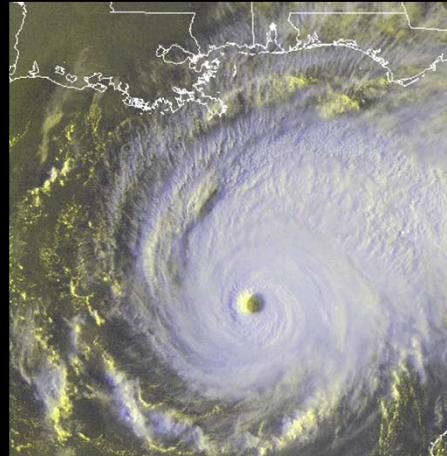
Head of Political Affairs Office, ESA Strategy Department

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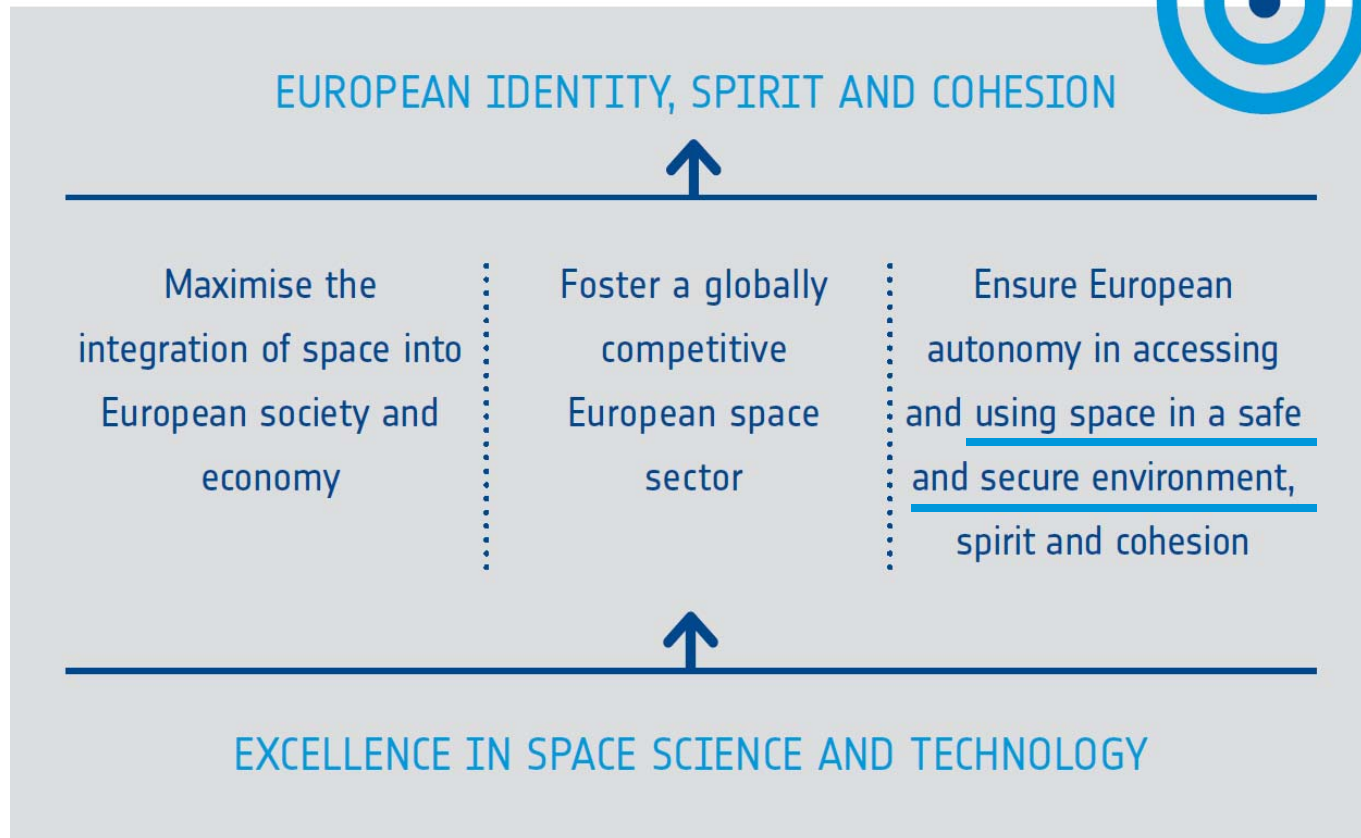
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A day without Space



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ESA-EU Joint Statement



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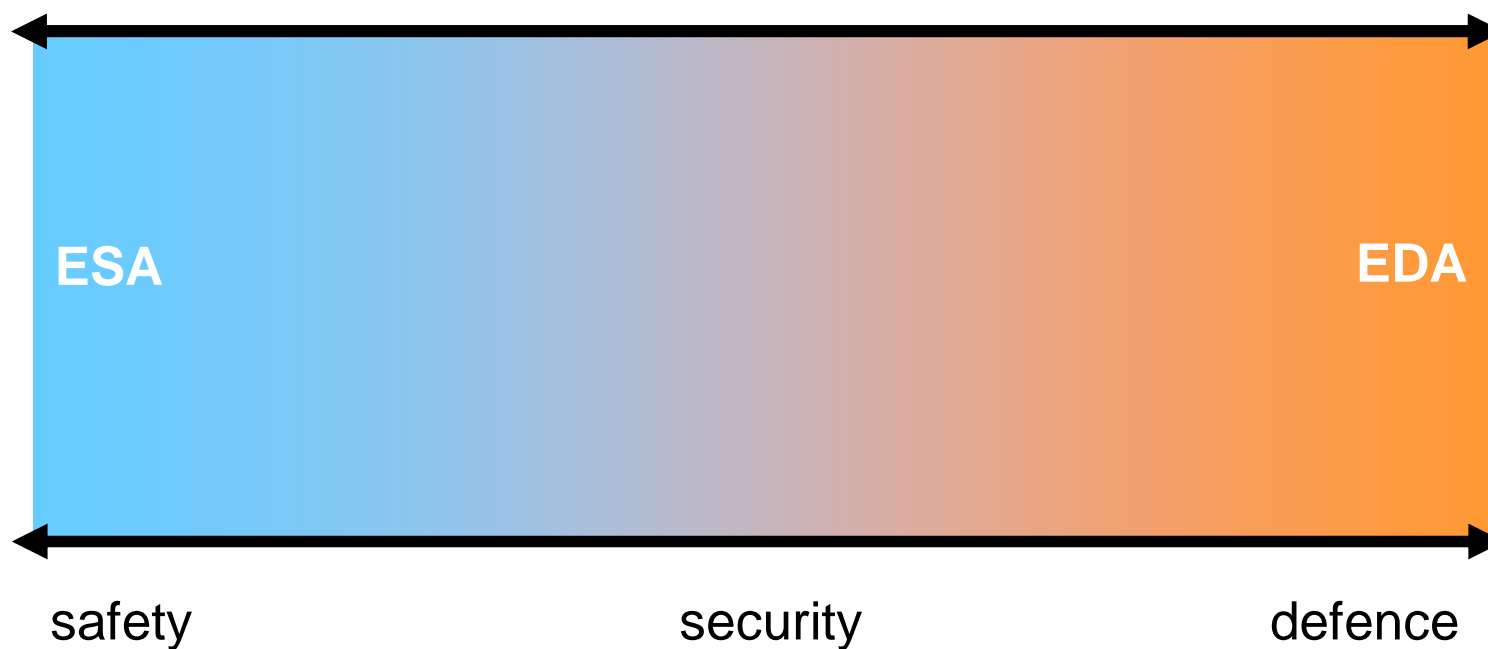
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ESA's role in space safety and security



- ***“Exclusively peaceful purposes”***. In line with the generally accepted legal interpretation of the UN Charter and Article IV of the UN Outer Space Treaty, the term of ‘peaceful purposes’ is meant to cover all non- aggressive activities.
- Any cooperation on space activities among European States for exclusively peaceful purposes, as defined above, is then within the mandate of ESA.

Seamless Chain of Protection



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ESA framework for cooperation

Bilateral cooperation

- ESA/EU Framework Agreement (2004, renewed till 2016)
 - Eight Space Councils
 - ESA/EU Security Agreement (2008)
- ESA/EDA Administrative Arrangement (2011)
 - Arrangements on specific projects
 - Security arrangement (2012)

Framework for coordination of research activities

- ESA/EDA/EC “European Framework Cooperation for Defence Civilian Security and Space-related Research” (EFC) (2009)

Security in October Council 2016

ESA/C(2016)106



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ESA/C(2016)106
Paris, 4 October 2016
(Original English)

Elements of ESA's Policy on Space and Security

EUROPEAN SPACE AGENCY

COUNCIL

Elements of ESA's Policy on Space and Security

Summary

ESA is involved in an increasing number of security-related activities, as reported to Council in March 2016 in the "Status report on security-related activities" (ref. ESA/C(2016)22), and the demand for such activities is growing in Europe, as reflected in recent policy developments. DG therefore initiated a dialogue with Member States on space and security with a workshop held in June. Space and security is part of his draft proposal for the Council at Ministerial level in December 2016 (ref. ESA/C/WG-M(2016)7, rev.3), in which a number of actions are suggested.

The present document complements DG's proposal as it puts forward guiding principles for ESA's future involvement in the domain of space and security in view of strengthening the dialogue with Member States and supporting the on-going work and future activities, including the ones that will be presented at the Council at Ministerial level in December 2016.

This document introduces the current European context for space and security, the European goals in this domain and the specific objectives to which the Agency intends to contribute. It presents the draft guiding principles for ESA's contribution to space and security in Europe.

Required Action

Delegations are invited to take note of the elements described in this document.

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ESA's Space Safety and Security

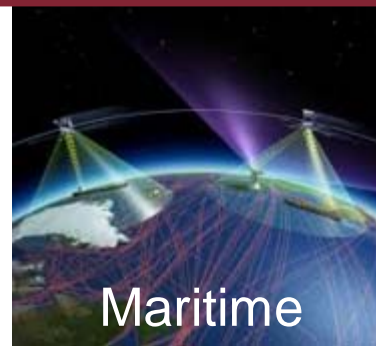


in Space



Space Safety

from Space



Maritime



Food



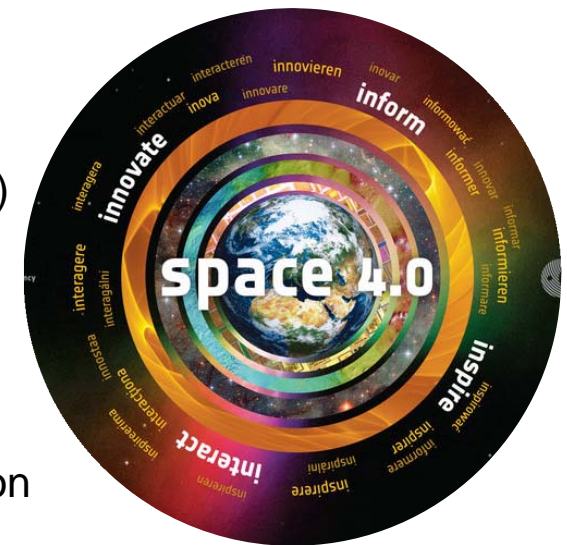
Disaster Management

Safety and Security Applications

CM16 Mandate : Strategy for Space Safety and Security

- Space and security in DG's Proposal, Action Item 1.c

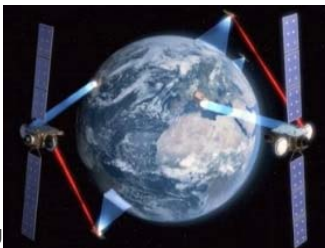
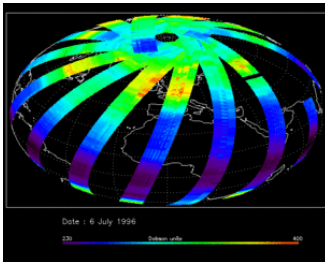
WELCOMES the Director General's proposal (ESA/C-M(2016)1) and in particular:



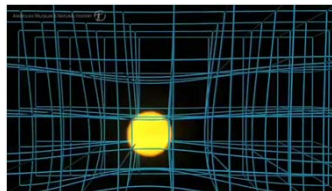
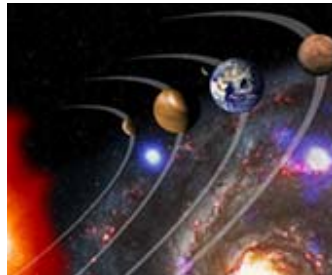
CM19: 4 Main Programmatic Categories



Applications



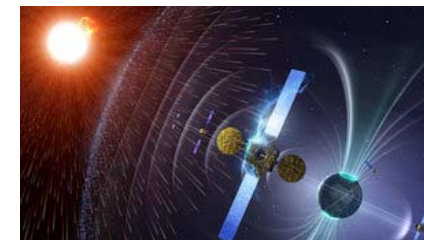
Science and Exploration



Enabling and Support (transp., tech, & ops)



Safety and Security



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ESA's Space Safety and Security



in Space

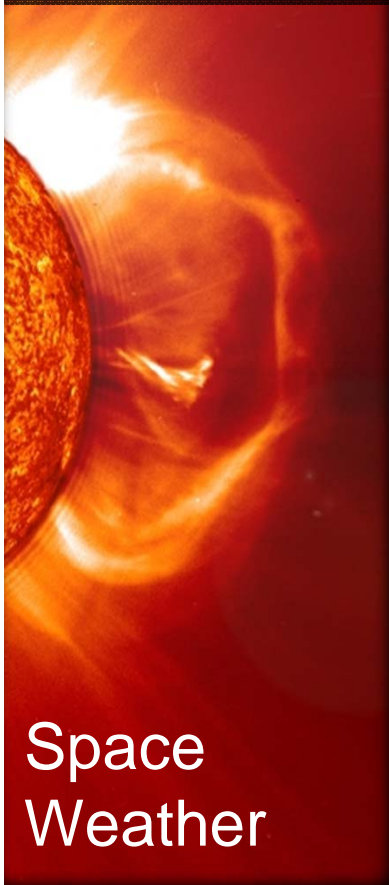


Space Safety

An **envelope programme** covering mainly:

- Space Weather
- Planetary Defence
- Space Traffic Management

Space Safety



Space
Weather



Space Traffic
Management

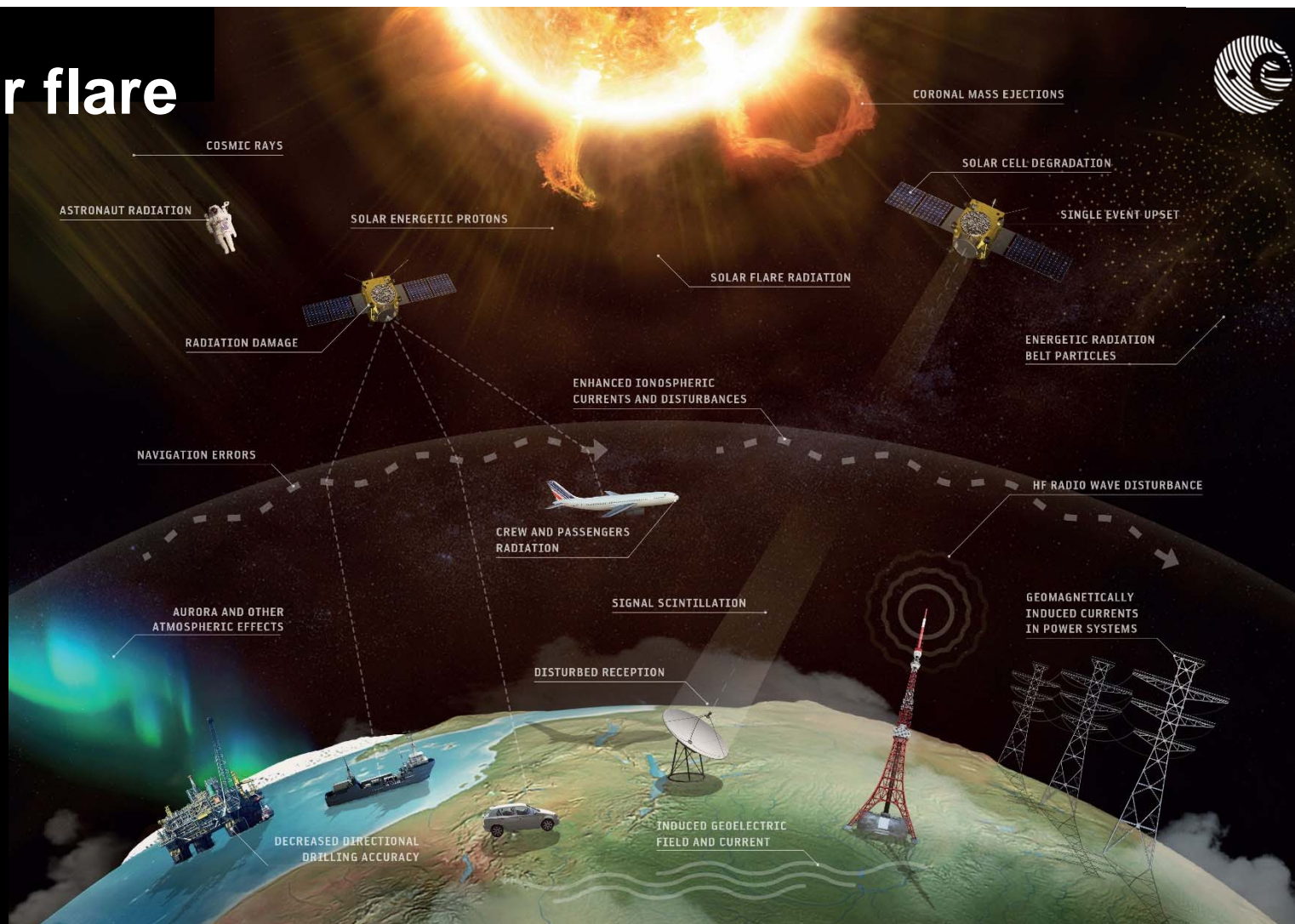


Planetary
Defence



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Solar flare



Chelyabinsk meteor

SPIEGEL  esa

2013.02.15 09:10:49



Increased activities in space



Space Debris

> Ø1cm: > 600000

Satellite Maintenance and Deorbiting



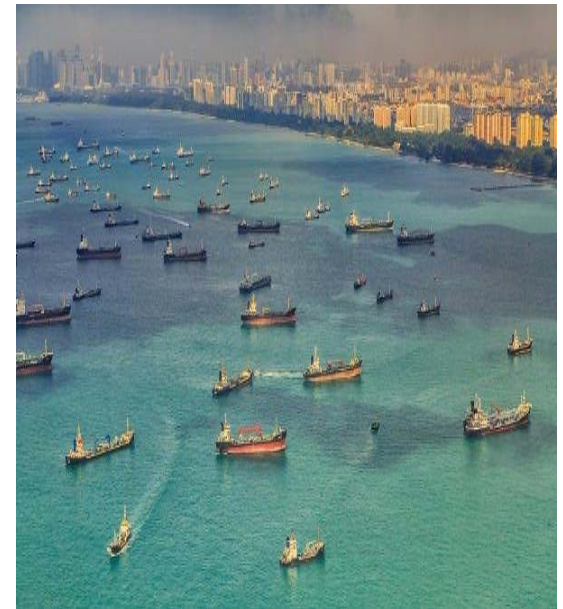
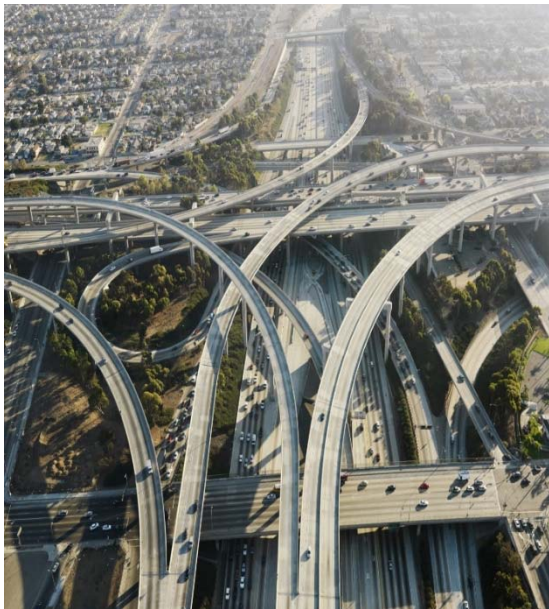
Space Traffic Management Satellite Collision Avoidance System SCAS



Establishing Space Traffic Management



Space activities need a comprehensive traffic regime



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Challenge for establishing STM



One comprehensive STM regime comprising of civilian and military space activities or two separate regimes distinct from each other?



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ESA's Space Safety and Security



from Space



Safety and Security Applications


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US & Canada

TODAY'S NEWS IN VERTICAL VIDEO
 DOWNLOAD THE APP

Kilauea: Earthquakes follow eruptions from Hawaii volcano

5 May 2018



This is the view at the end of one street in Hawaii...

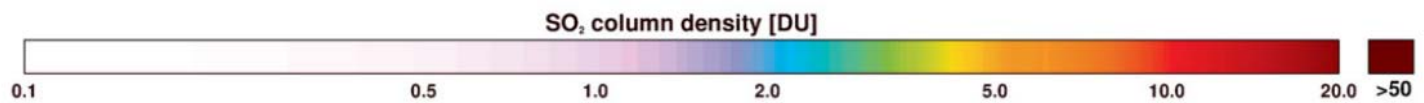
Lava flows are continuing from the Kilauea volcano in Hawaii

A number of strong earthquakes have hit Hawaii's Big Island, a day after the eruption of the Kilauea volcano.

Earth observation programmes: SENTINEL



SENTINEL-5P CAPTURES BALI VOLCANIC ERUPTION



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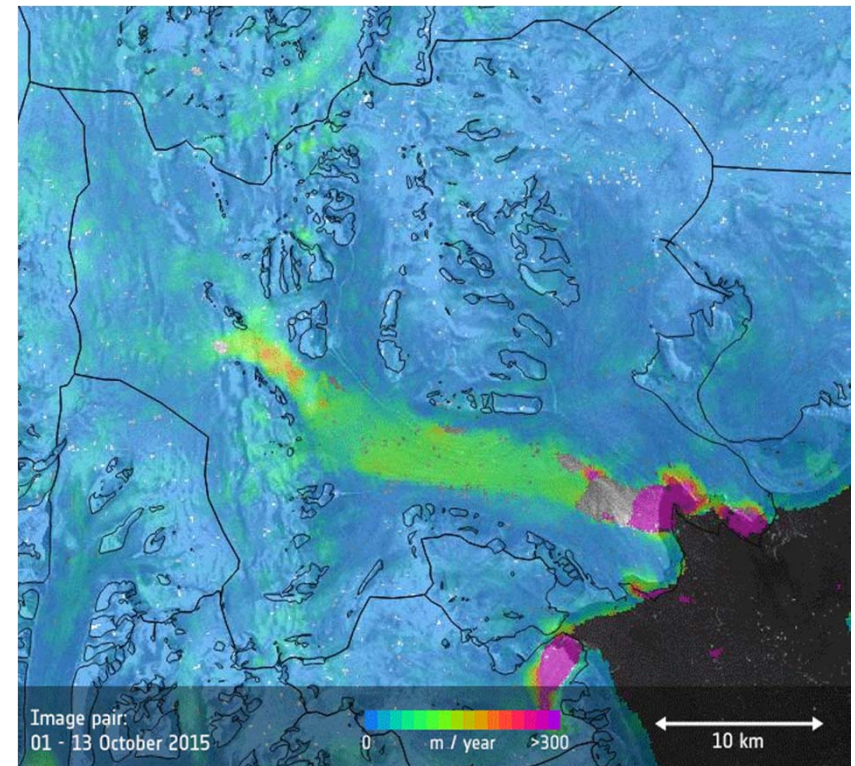
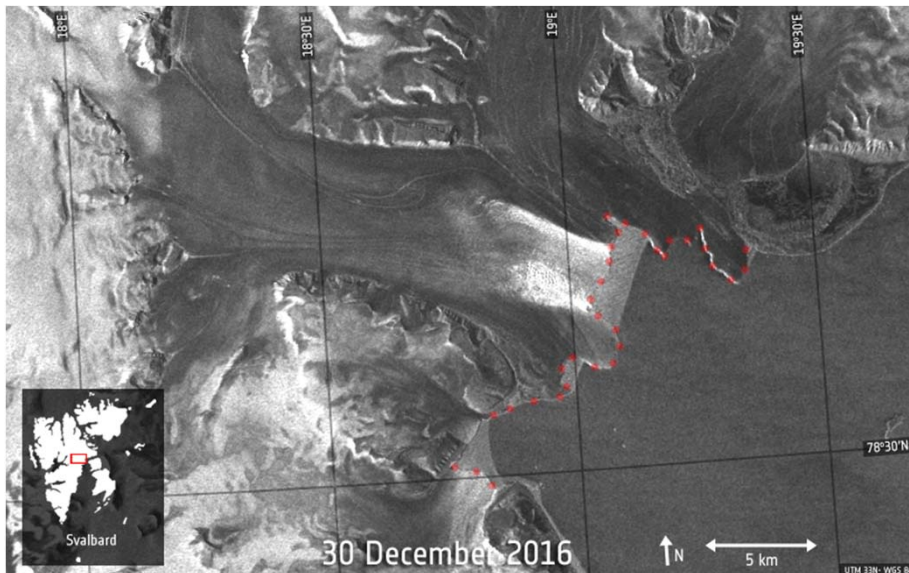
Space And The Arctic



Arctic

Negribreen Glacier

Copernicus Sentinel-1

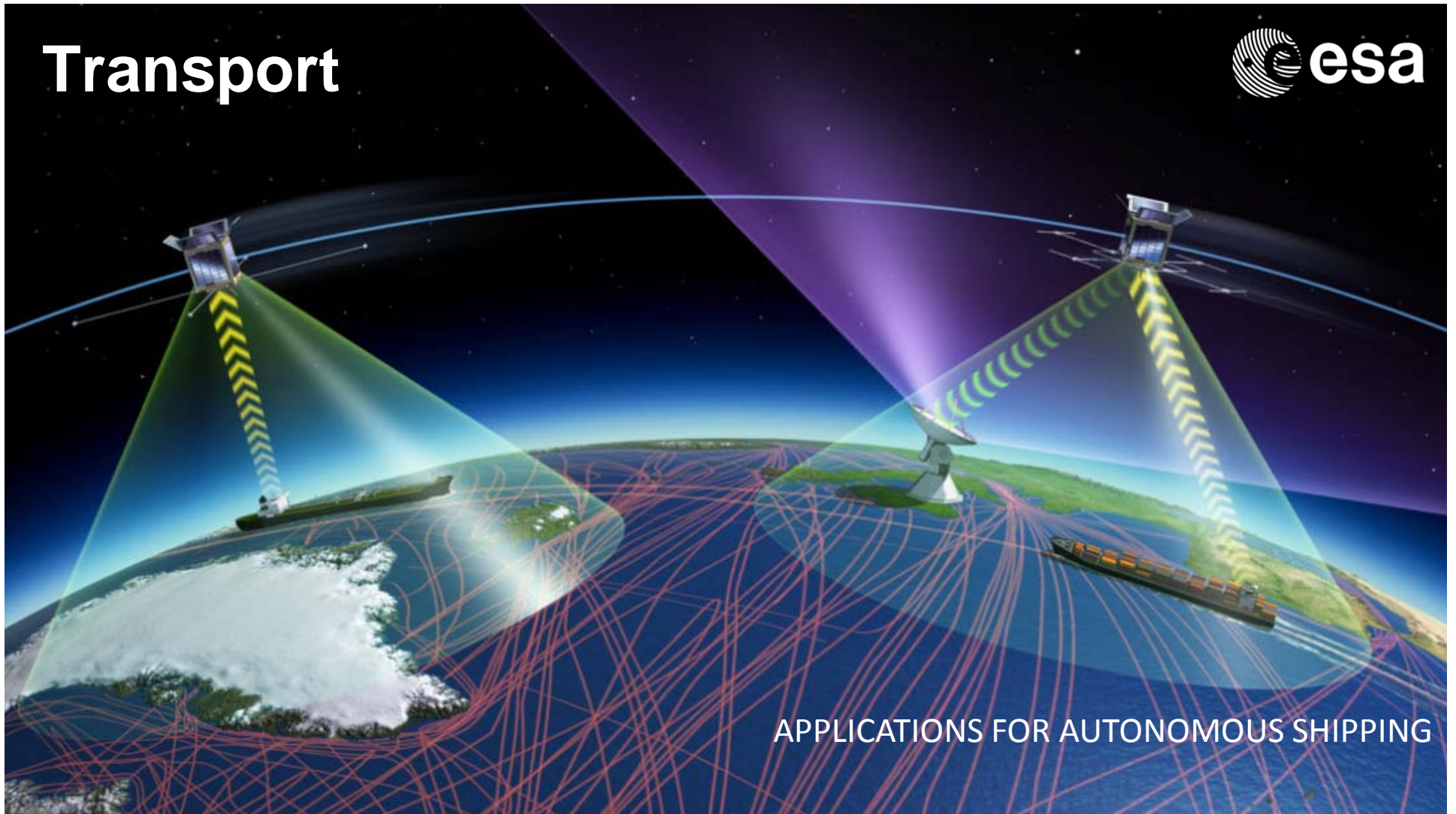


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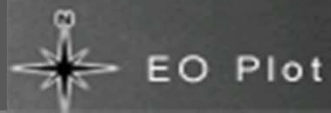
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Transport



APPLICATIONS FOR AUTONOMOUS SHIPPING

Vessel Detection

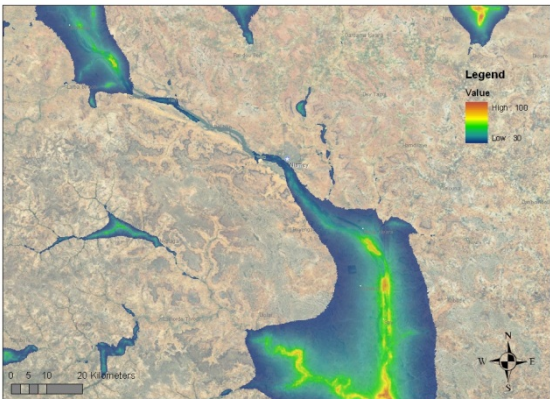
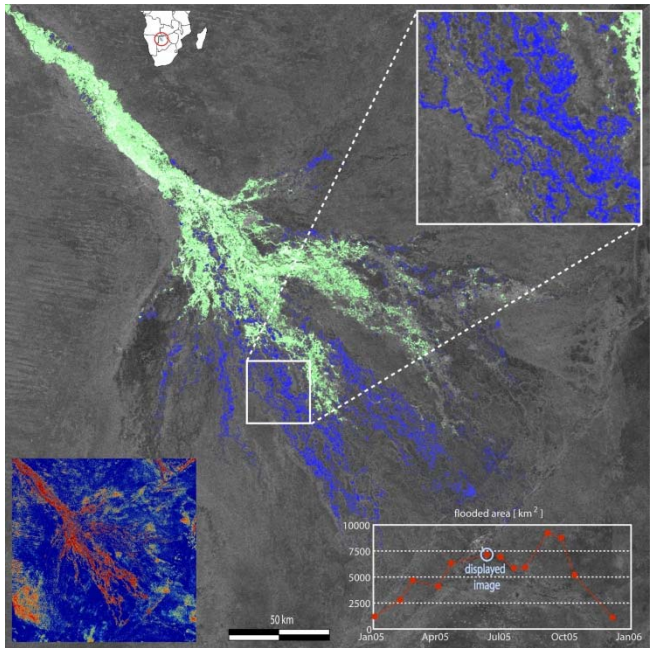
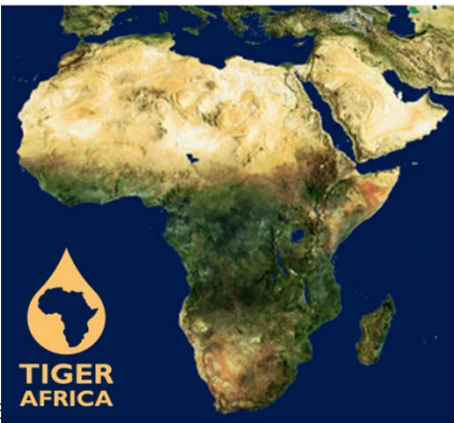
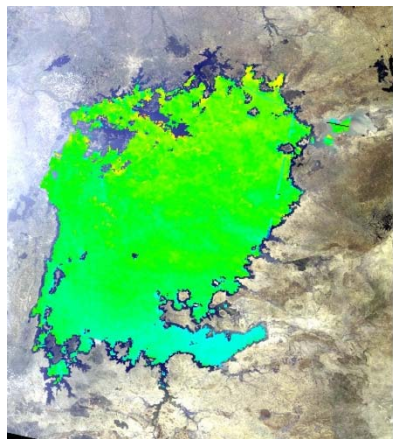


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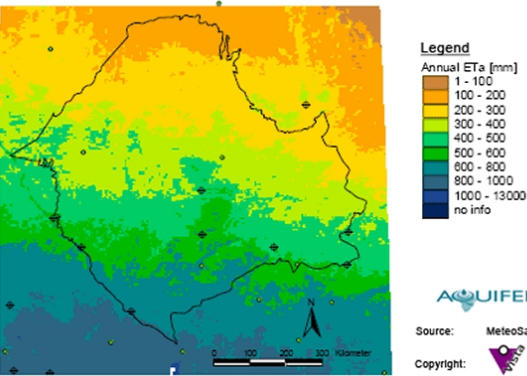
Water Monitoring in Africa



WADE: Suitability for Ground Water 2007

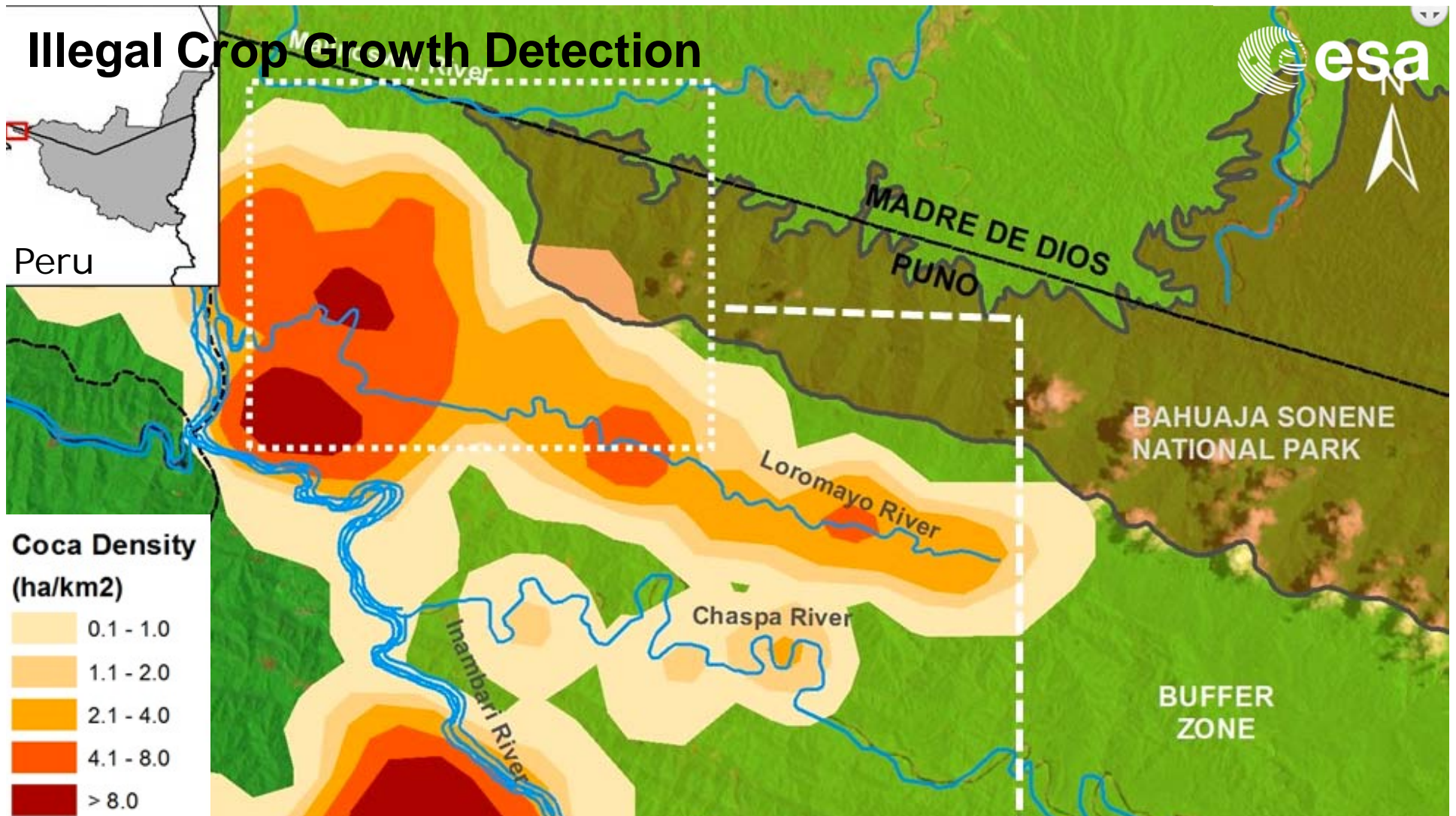


Annual actual evapotranspiration ETa map for SAI for the year 2005



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Illegal Crop Growth Detection



Safety and Security Applications from Space



- Disasters
- Transport
- Energy
- Food
- Water
- Resources
- Surveillance
- Critical infrastructure
- ...



Cybersecurity

Space is a critical infrastructure

- Satellites (jamming, spoofing, blinding)
- Ground stations (hacking)



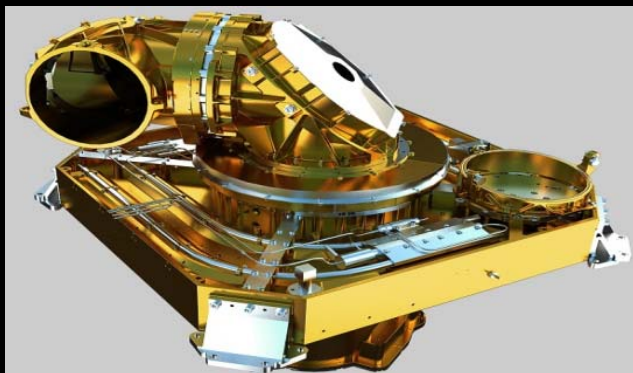
Hacking

Space will be the next frontier for cyberattackers

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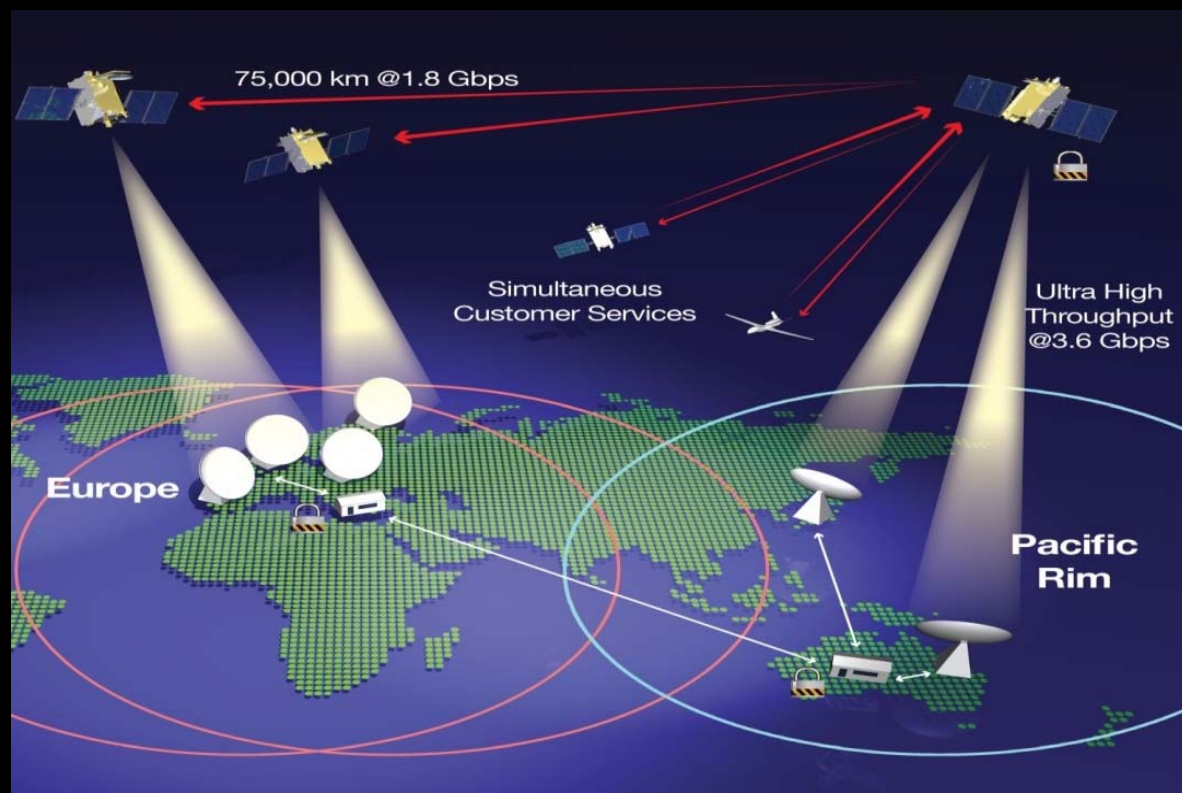
Scylight

Secure and Laser
communication Technology



Quantum Cryptography

GlobeNet



ESEC – European Space Security and Education Center Redu, Belgium



- Centre of excellence for space cyber security services



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