



# Satellite Swarm Sensor Network

Revolutionize Space Missions Planning

## Overview

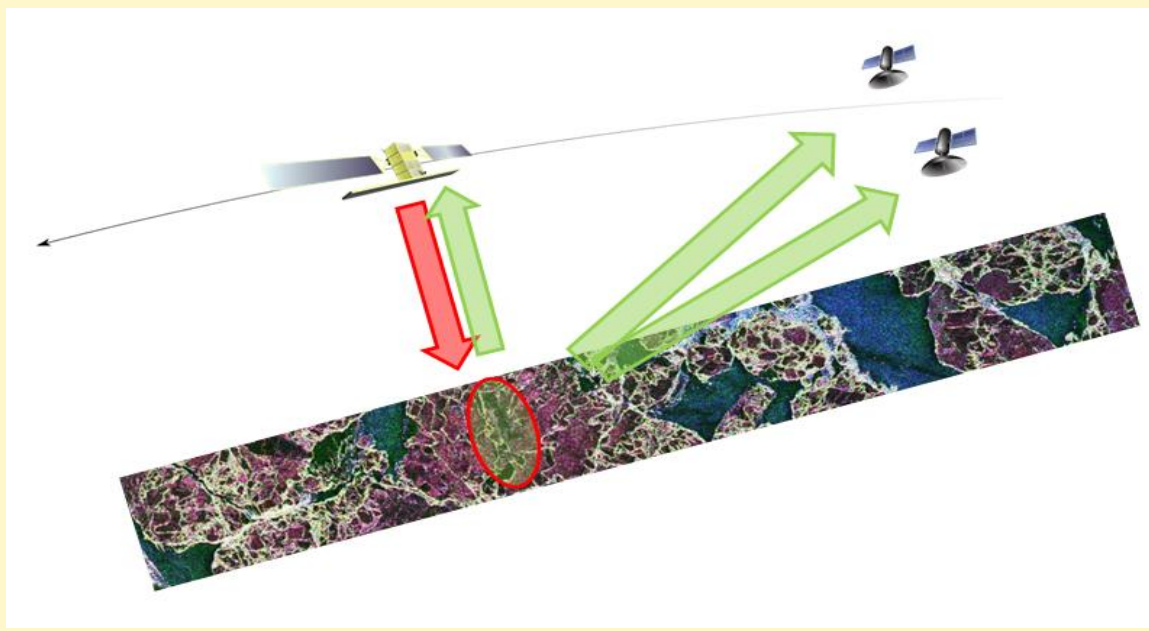
The implementation of S3NET will significantly advance the knowledge and decision-making capabilities for the space community in general and mission planners in particular. Through the enhancement and efficient use of on-board resources (computing power, communications and fuel) the improvements in performance of Earth observations (EO) using fractionated or single sensors aboard « swarms » of satellites will be shown.

## Expected impacts

- Improved quality of service
- Mission scalability
- Increased incremental deployment
- Cost savings for satellite missions through extended satellite operations/life-time
- Restructuring of the space imaging value chain
- Further independence from ITAR restricted products.

## Key S3NET Innovations

### Synthetic Aperture Radar



Advancements in monostatic and bi-static SAR operation, including the possibility to transmit final data product directly to the end user.

### Spacecraft Formation Flying



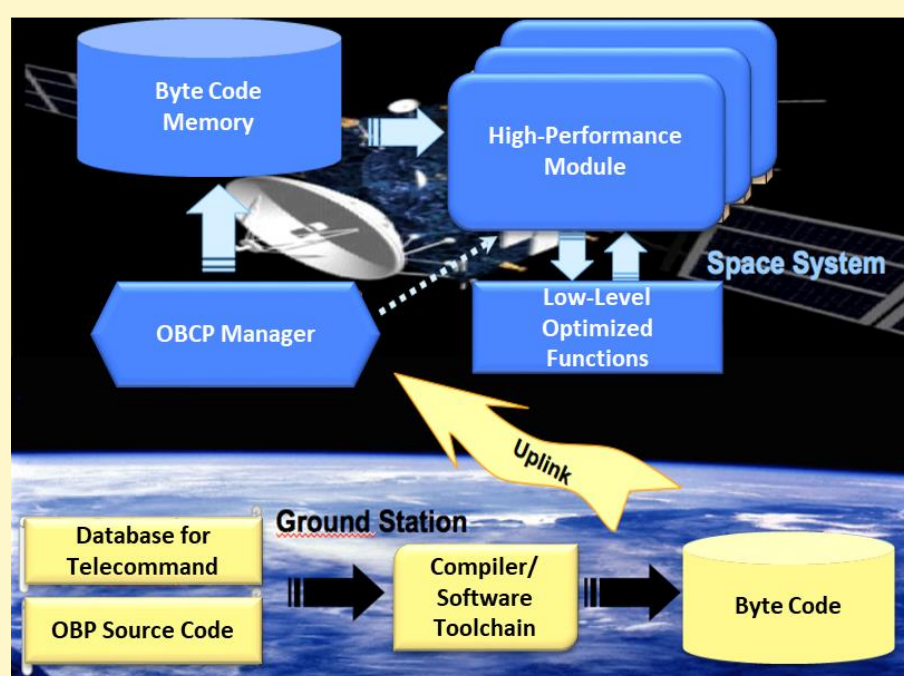
Components of the same fractionated sensor fly in formation. Network of autonomous and semi-autonomous entities.

### Optical Instruments



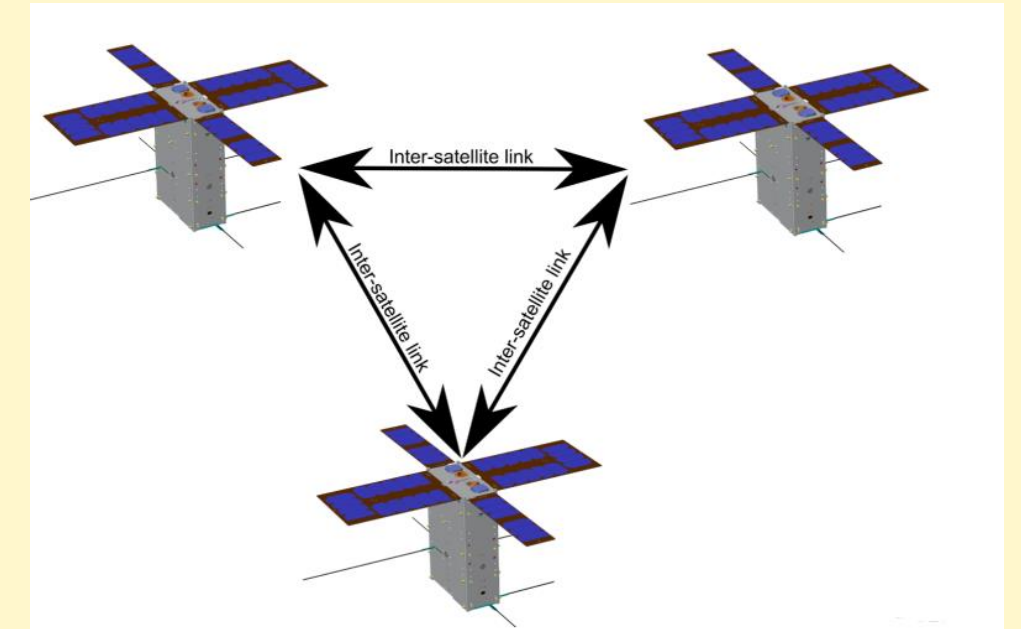
Enable multi-sensor fractionated acquisition in formations through on-board sensors of different satellites travelling in constellation or in cluster.

### On-board processing



Scalable space-grade SW-managed high-performance, low-power HW system.

### Satellite communication



Established properties of the transmission protocol based on various properties of the swarm constellation and specific application domain

## Application areas



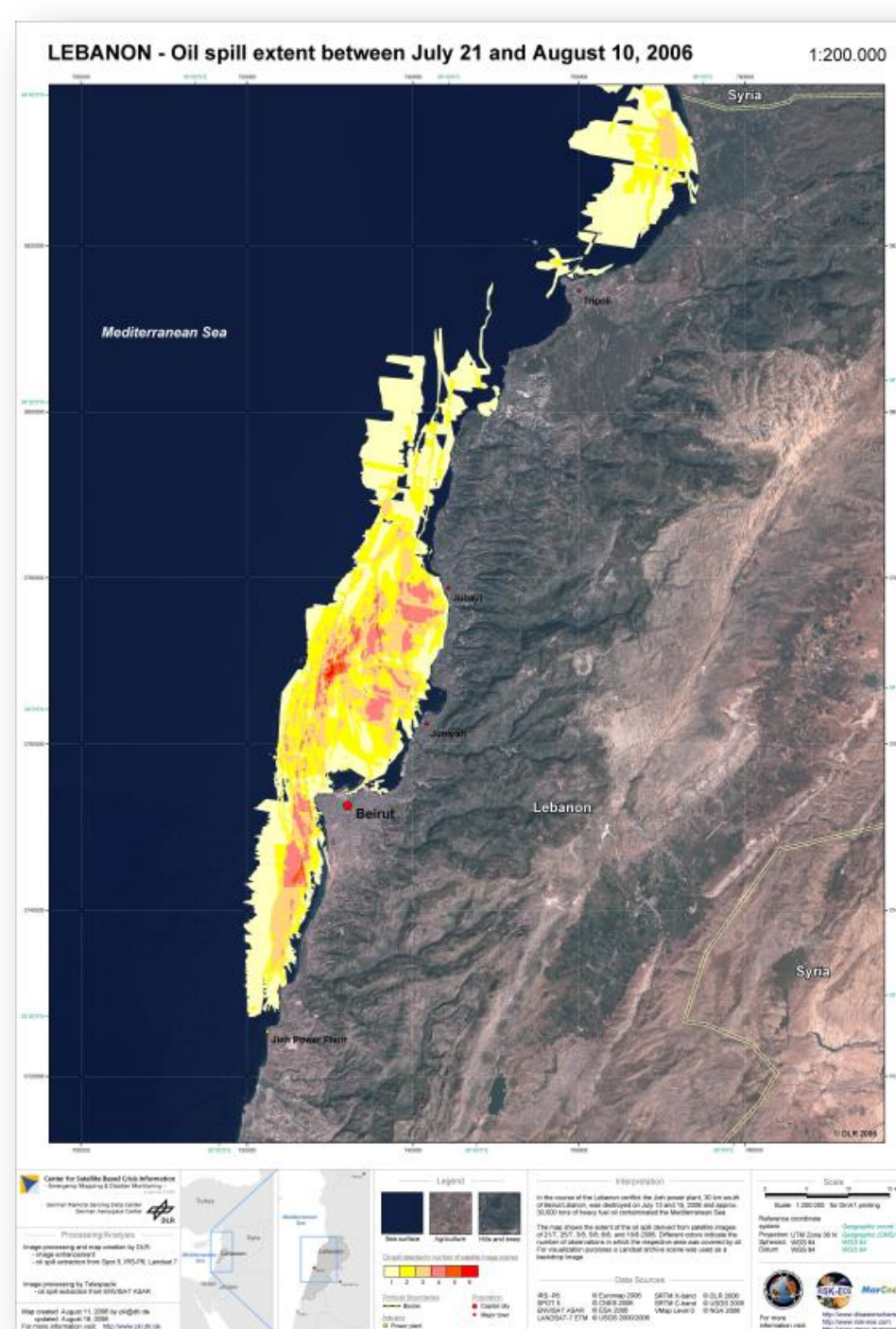
### Land monitoring

- Natural resources/ Urban growth
- Climate change
- Land cover classification



### Agriculture

- Precision farming
- Crop health mapping
- Illicit crop monitoring



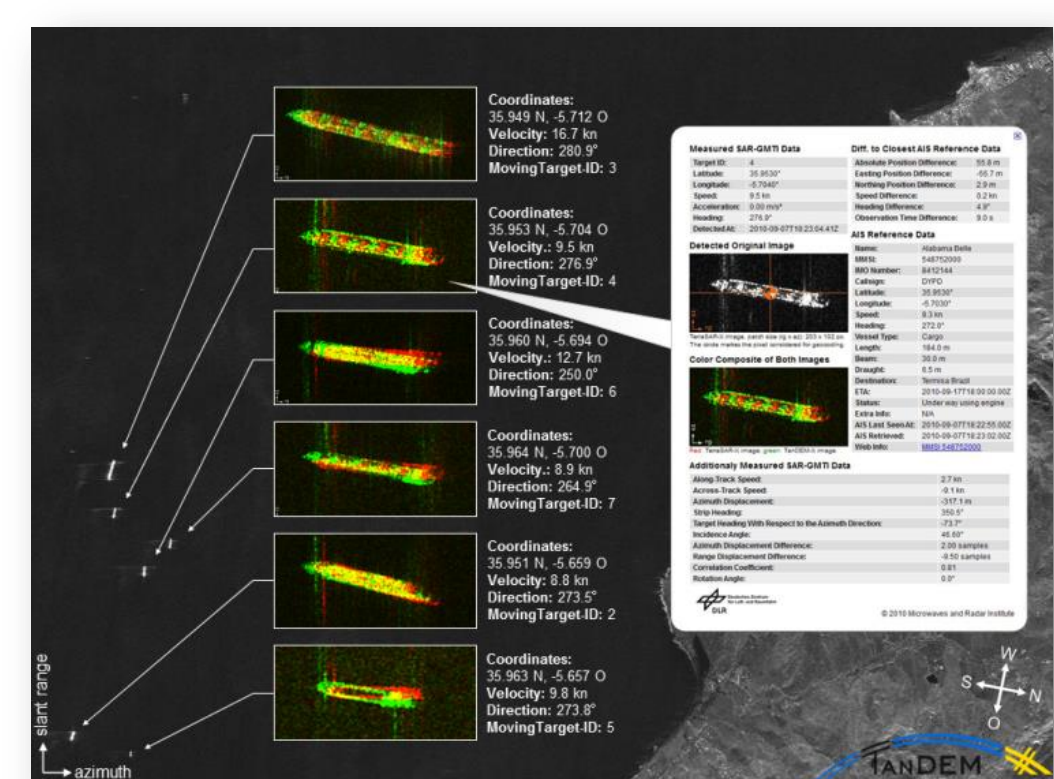
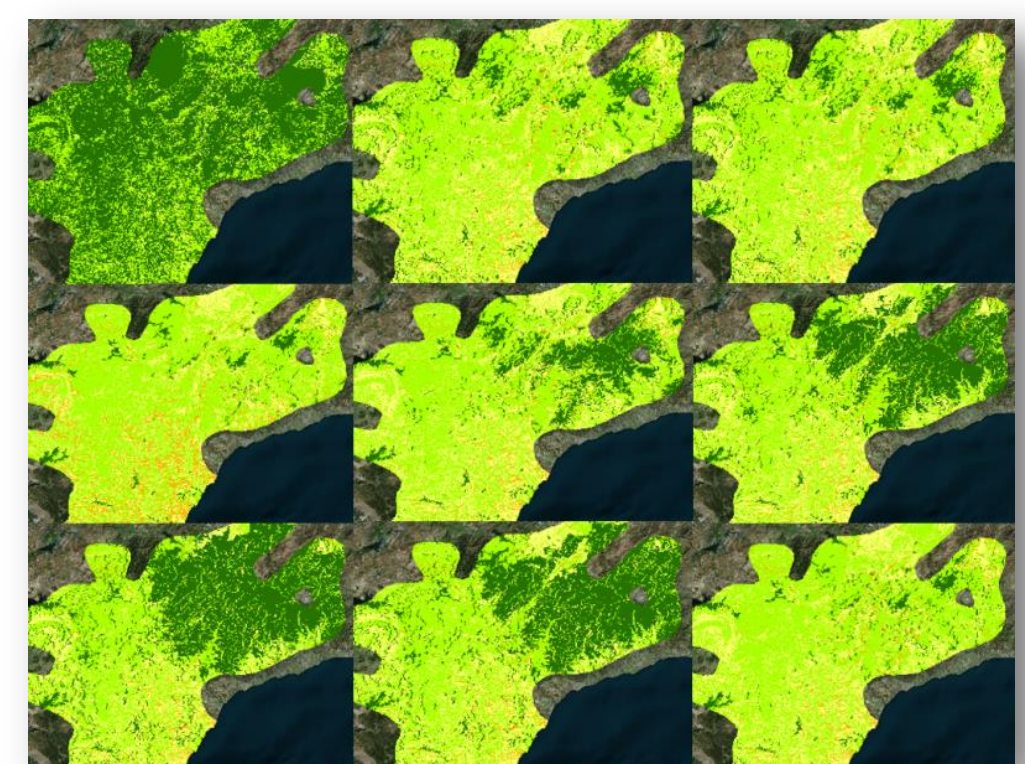
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### Disaster monitoring

- Oil spill
- Flooding

### Forestry

- Forest stock mapping
- Fire scar mapping
- Illegal deforestation



### Homeland security

- Port monitoring
- Vehicle detection
- Search & rescue support



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Disclaimer: This text reflects only the author's views and the Union is not responsible for any use that may be made of the information contained therein.

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