

PLANS FOR ECSAT - ESA in Harwell

Magali Vaissiere

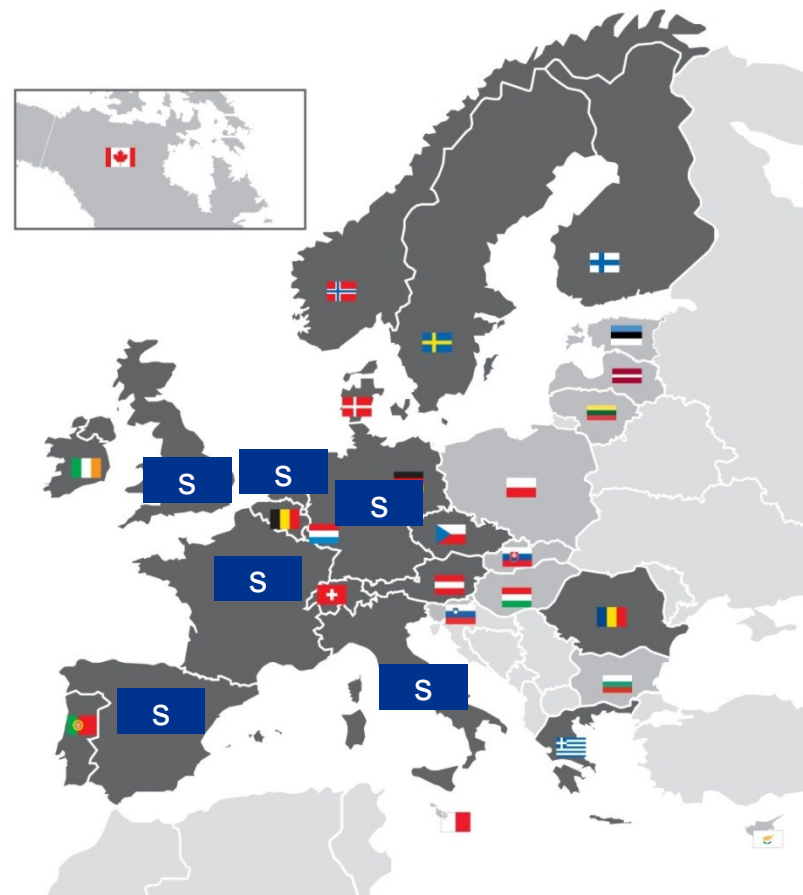
05/12/2013

ESA is one of the few space agencies in the world to be active in nearly all areas of space activity.

- **Space science**
- **Human spaceflight**
- **Exploration**
- **Earth observation**
- **Launchers**
- **Navigation**
- **Telecommunications**
- **Technology**
- **Operations**



THE ESA PRESENCE IN EUROPE



1. Creation of ECSAT in 2009

2. C-Min 2012 :

- a. Significant increase of the UK contribution to ESA
- b. A new ambition for ECSAT in line with the UK Innovation & Growth Strategy
 - Focus on growth
 - Focus on high value priority markets
 - Develop partnerships with industry, market players



ECSAT Building, Harwell Campus



New building available in 2015

An ESA centre
of 100 people by end 2015



Plans for ECSAT | Magali Vaissiere | 05/12/2013 | SL

ESA UNCLASSIFIED – For Official Use

WILSON MASON

Diversity in activities

- Telecommunications & Integrated Applications
- Earth Observation
- Exploration
- Technology



Specific identity

- Development of world competitive space based products and services
- Development of downstream applications
- Spin-out of space into non space sectors

Cooperations/Partnerships

- RAL Space, Catapult, on the campus
- UK industrial community, scientific community

Earth Observation/Climate Office :

Develops climate data records and information
Liaises with international climate research organisations

Science and Exploration :

Develops autonomous systems
Planetary protection and contamination control

Technology and Quality :

Interface to the TRP/GSTP
Special attention put to game changing technologies

ESA Business Incubator with STFC

Focus on world competitiveness and growth



Develop the competitiveness of the European industry in the world market **upstream sector**

Promote the utilisation of space technology through development of innovative space based applications **downstream sector**



2013 Highlights of industrial successes

(excerpt from the Space IGS)



1. Alphasat launch ; the largest ever public–private space project between Inmarsat and ESA
2. Avanti won the right to acquire ARTEMIS from end 2013
3. Key role for the UK industry in the UK
 - a. NEOSAT : next generation of geostationary platforms to address 50 % of the world market
4. UK industry selected for the IRIS precursor satellite services (setting the potential future for satellite based ATM system for Europe)

Alphasat successfully launched on 25 Jul 2013

Public Private Partnership scheme with Inmarsat



First Flight of Alphabus

Flexible Payload

Digital signal processor

Laser Comms Terminal

Q/V band payload

Environment monitor

Innovative applications : SATForM 3D (TreeMetrics) sustainable forest harvesting



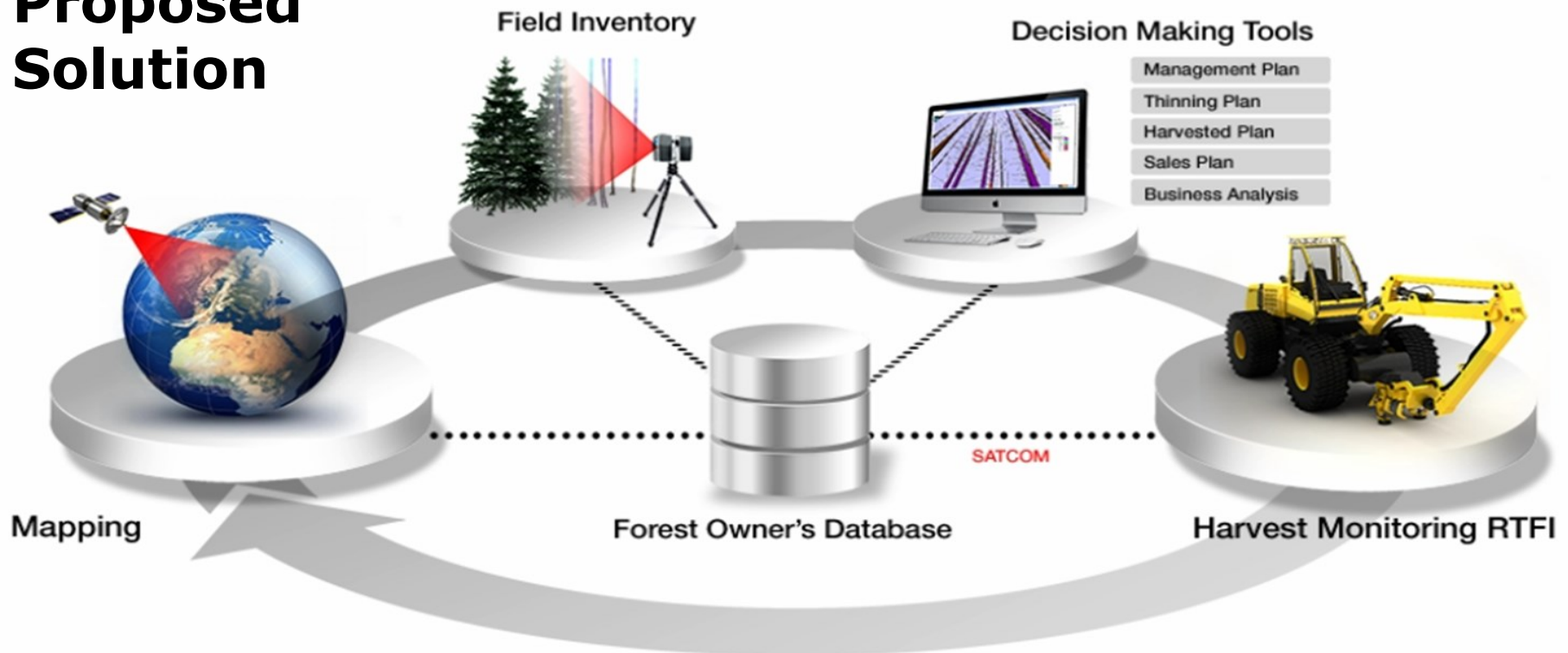
User needs: more accurate information about the timber resource and changes – more sustainable and efficient logging practices

SATForM 3D – from TreeMetrics: integrating Satnav, EO, Satcoms & terrestrial systems

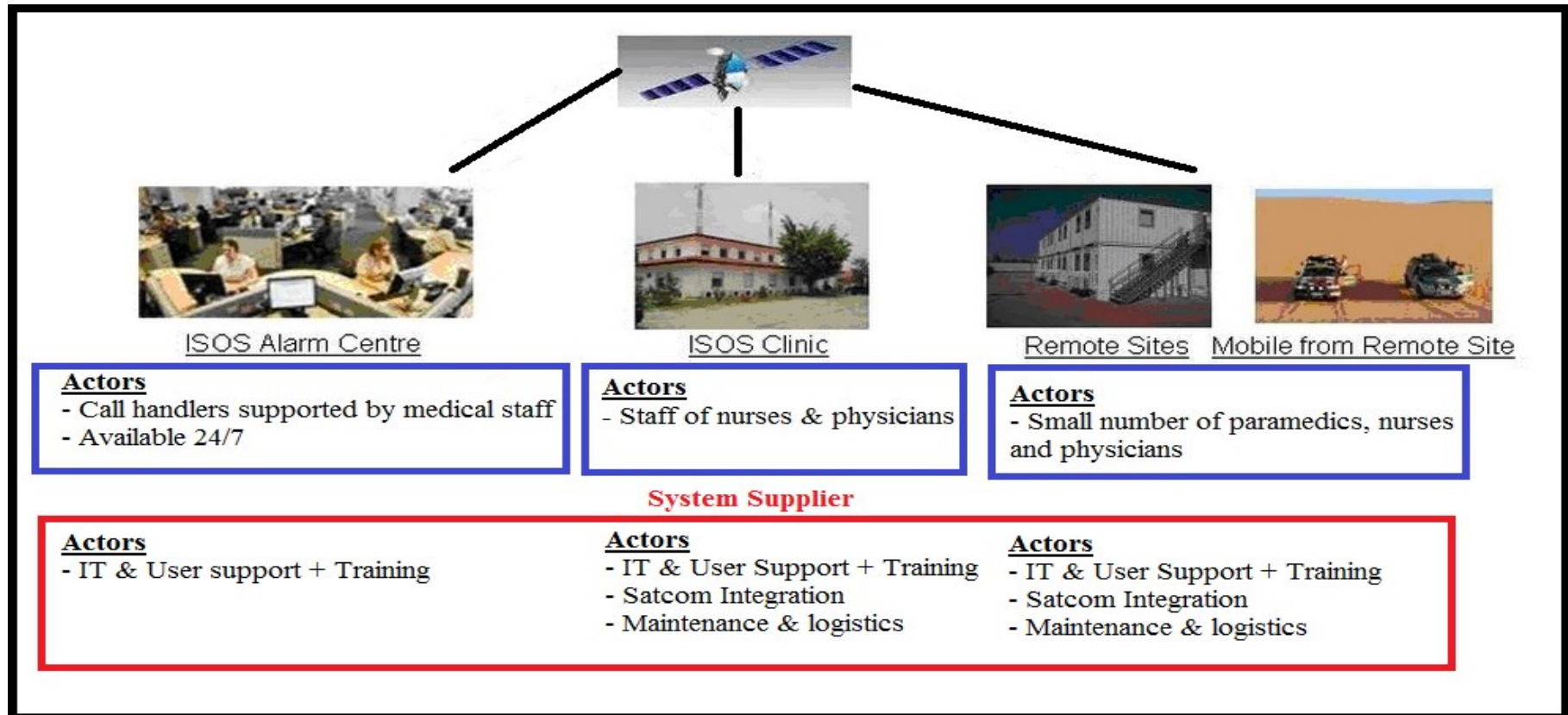


TreeMetrics End-to-End Management Solution

Proposed Solution



Innovative applications : Amazon Medical monitoring in remote locations



International SOS is the world's leading medical and travel security services company. Teams working days and nights in 700 locations in 76 countries.

Amazon now in use for Satellite-based Medical Monitoring



Solution based on upgrade of Tempus aero telemedicine system developed under ESA GSP project

UK Company RDT working with International SOS to address users in Government, NGOs, mineral companies



SURMON: UAS for Pipeline Monitoring and Geophysical Survey



Need: cheap, effective monitoring of pipelines in harsh and sometimes dangerous terrain; precise, up-to-date geophysical information for oil and gas exploration

Existing methods using helicopters, cars and people on foot are expensive, cumbersome and risky

SURMON Solution: Geophysical Survey and Pipeline Monitoring using Unmanned Aircraft Systems



Objectives

To develop, integrate, validate and demonstrate airborne Geophysical Survey (GS) and Pipeline Monitoring (PM) services using light Unmanned Aircraft System (UAS), supported by satcoms and satnav for flight beyond line of sight.

Prime: Barnard Microsystems Ltd (UK)

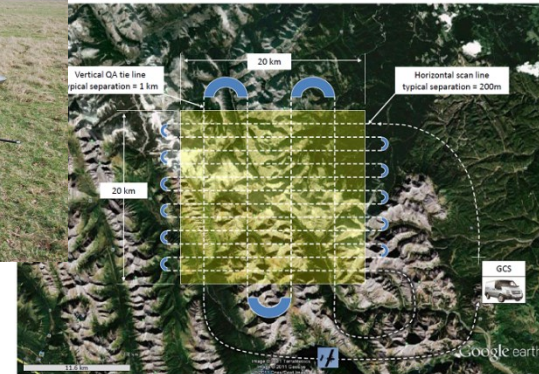
Sub-contractor(s): AnsuR Technologies AS (NO), Inmarsat Global Ventures (UK), Tony Henley Consulting (UK)

User(s): Sander Geophysics Limited (GS service provider), Royal Dutch Shell (Shell GS-P&T) (oil & gas exploration and production company), Phoenix Surveillance (PM service provider), Shell Aircraft (PM service provider)

Status: The project was kicked-off on 1 February 2013.



Mass < 50Kg



PROTECT - Piracy Prevention and Commercial Navigation in Insecure Waters

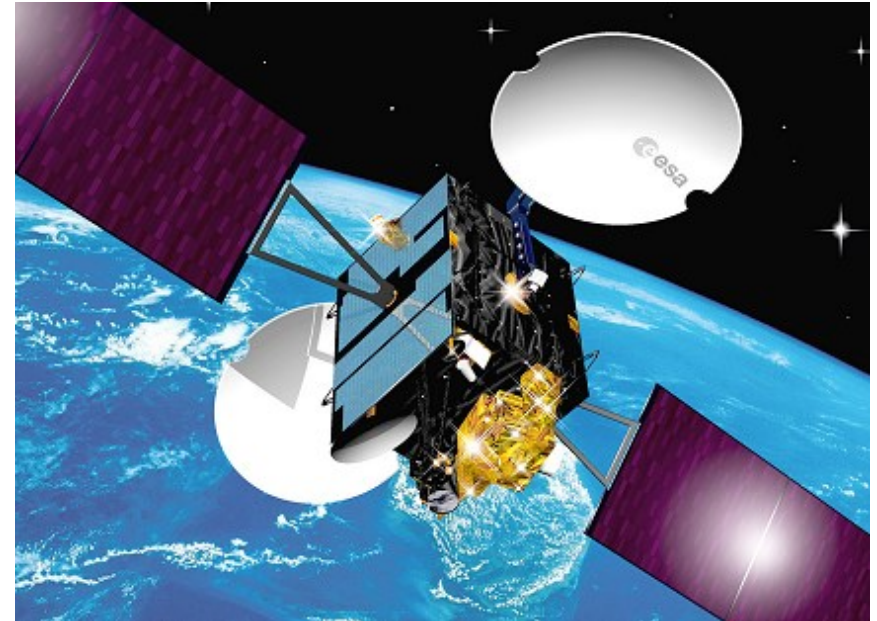


Need: to identify and track suspect vessels, distinguish from innocent ones, have rapid and secure sharing of information on suspicious activity, and optimise vessel routing.

Users: international shipping and maritime security organisations, marine insurers

Consortium: UK, Austria & Norway.

PROTECT - Piracy Prevention and Commercial Navigation in Insecure Waters



Satcoms: for transmitting situation awareness data aggregated from on-board and shore-based sources

Satnav: and SAT-AIS for geo-localisation of vessels and activity patterns

EO: to support identification of mothers ships and on-land activity

1. Improved efficiency :

- a. Streamlined processes to increase the speed of implementation and ease the access for the SMEs
- b. Reflection on the institutional support to put in place to develop mid-term sustainability of the new applications

2. Progress in the ESA on-going programmes with a specific involvement of ECSAT or of partnering companies on the Harwell Campus

- a. EDRS
- b. NEOSAT (TAS-UK, ..)
- c. Sat-AIS (Exactearth-UK)

3. New initiatives, new partnerships to be launched

- a. E-connectivity market; developing exportable solutions ?
- b. New partnerships to develop climate related services ?
- c. Enable the hosting of scientific payloads on board European commercial or institutional satellites ?

4. Preparation of the C-Min 14

“We have a tremendous opportunity in front of us” A Green

ESA and ECSAT are committed to advance the common interests of the European and British space players and governments to deliver

- **competitiveness**
- **knowledge**
- **growth**