ARTES 20 – Feasibility Studies

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ESA's Integrated Applications Promotion Programme (ARTES 20)

What are the steps to prepare for an IAP activity?

1) The right content and set-up:

- a "good" user with a problem in demand of a solution
- a service oriented mindset (not technology driven)
- a strong team (strong leadership, right mix of partners)
- operational, technical, commercial know-how
- the willingness to go for it (3years)

… and, of course, more than 1 space asset to be integrated

2) The documentation of content and set-up in a proposal is the necessary process to apply in the ARTES 20 programme:

- either as activity initiated by a consortium (co-funded) following the requirements of the continuous open call for ARTES 20 proposals in AO 6124 (Outline Proposal => Full Proposal)
- or answering to ESA initiated ARTES 20 ITTs (fully funded)

1) What is the right content and set-up?

ESA's Integrated Applications Promotion Programme (ARTES 20)

2 examples showing a good content and setup:

1st example under the theme "Safety & Security"
targeting an institutional user:
Integrating Space Assets for UK Civil Resilience

2nd example under the theme "Energy"
targeting a commercial user:
INTOGENER - INTegration of EO data and GNSS-R signals for ENERgy applications

Integrated Application Promotion
THEME: Safety & Security

Integrated Application Promotion
UK Civil Resilience

Motivation:

- Summer 2007 floods, worst in UK history
- British resilience teams overloaded
- Major government review on procedures and strategies

Box 1: Pitt Review

In the exceptional events that took place, 13 people lost their lives, approximately 48,000 households and nearly 7,300 businesses were flooded and billions of pounds of damage was caused. In Yorkshire and Humberside, the Fire and Rescue Service launched the "biggest rescue effort in peacetime Britain".* Across Gloucestershire, 350,000 people were left without mains water supply – this was the most significant loss of essential services since the Second World War. Other critical infrastructure was damaged and essential services including power supplies, transport links and telecommunications were disrupted.

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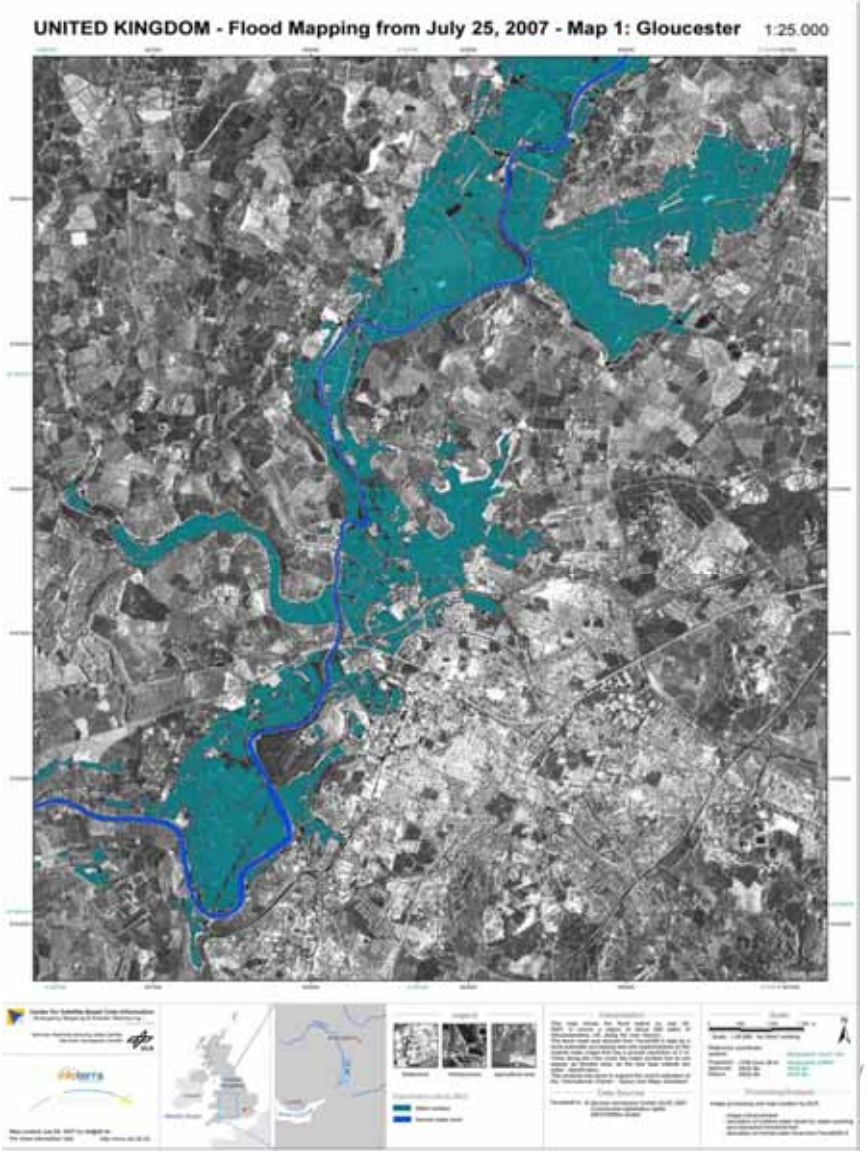
* General Secretary Matt Wrack, Fire Brigades Union Press Release 28 June 2007



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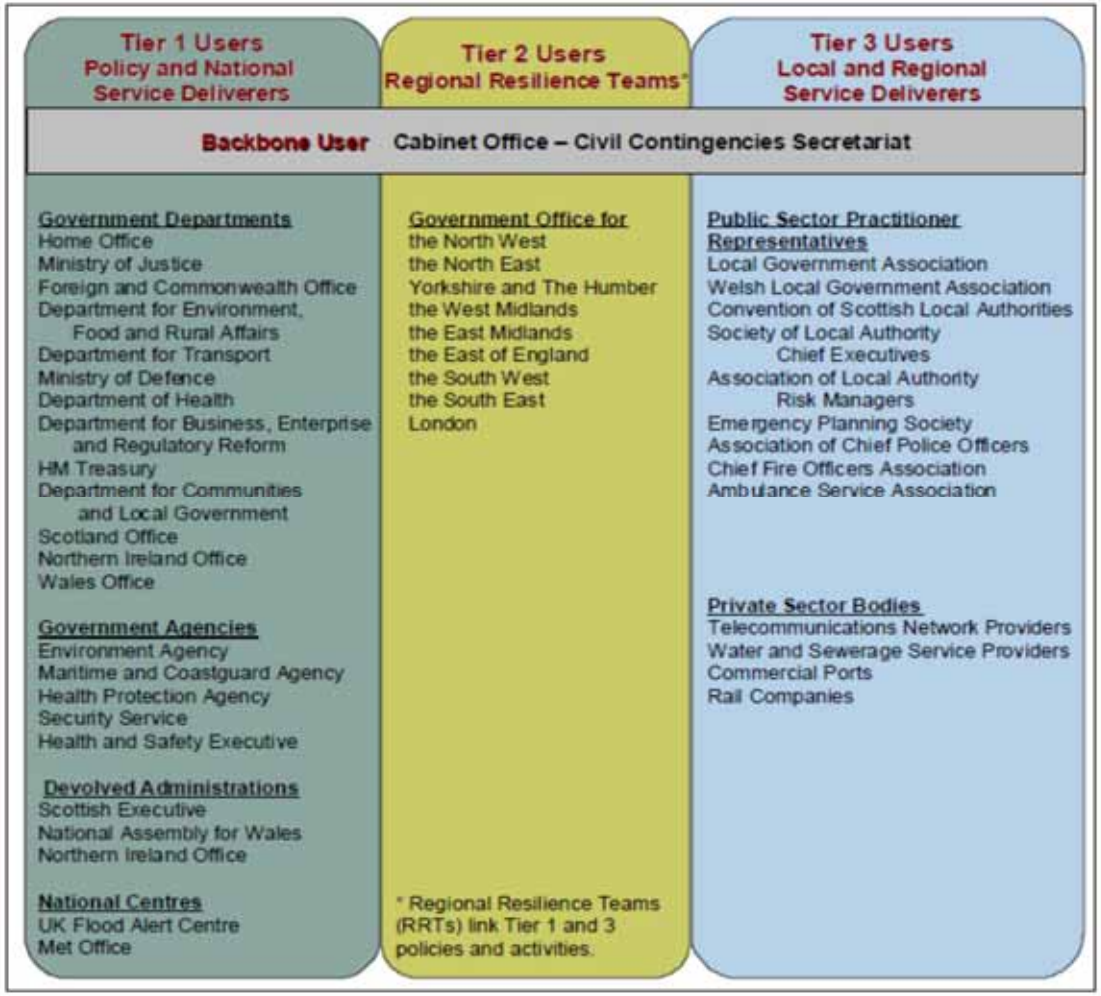
Users providing support to the activity:

- **Civil Contingencies Secretariat (CCS) (backbone user)**
- Department for Environment, Food and Rural Affairs
- Department for Transport
- Highways Agency
- Environment Agency
- Health Protection Agency
- Welsh Assembly Government
- Government Office for the East of England
- East Coast Flood Planning Group



Potential users of a resultant solution

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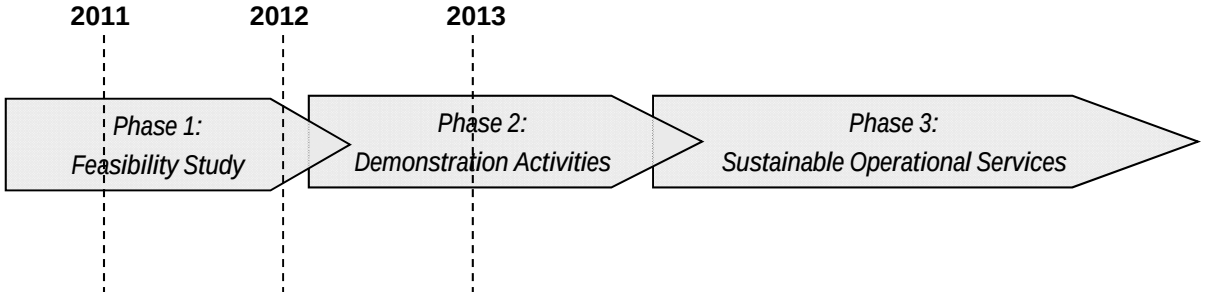
UK Civil Resilience

Feasibility Study: Integrating Space Assets for UK Civil Resilience

Objective:

- Identify space-based services for UK Civil Contingencies.
- Analyse current space and terrestrial solutions.
- Prepare the way for the implementation of the most promising services.



Space Assets:

- EO data for prevention / monitoring / damage assessment in real- or near-real time.
- Satellite Telecommunications to provide additional coverage over damaged areas.
- Navigation for resource location and guidance.

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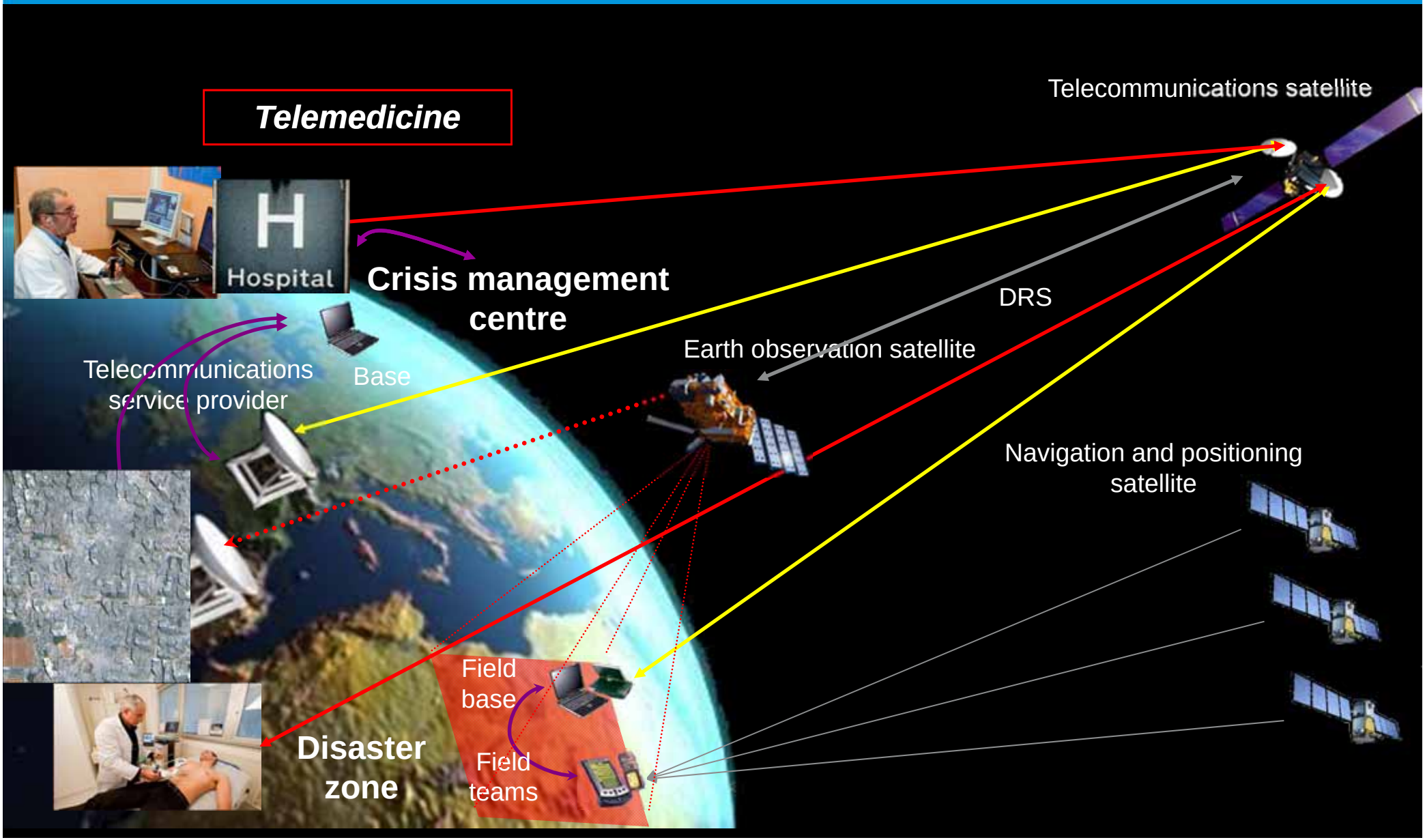
UK Civil Resilience



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What makes this a promising IAP activity?

- The **backbone user** is of high political level and **able to take decisions** in the institutional environment
- The user community has a **serious demand** and is **open for solutions** to improve their operational situation
- The consortium consists of operational / institutional **service providers and industries** with good technological background
- The consortium is **open to investigate** the technologies that are needed to serve best the user demand
- The consortium is aware that it will take a few years to reach a commercially interesting **business case**

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UK Civil Resilience

What are the hurdles to overcome in this IAP activity?

- The user is an institutional user with long decision processes
- The user community is strongly operational and will not accept easily new solutions that might hinder their operations
- The business case (affordability, CAPEX, OPEX) will have strong impact on the decision of the user to buy in the solution
- The service(s) have to be available and reliable

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THEME: Energy

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INTOGENER

Motivation:

Money

Any improvement of water flow prediction, even at small scale (5%), has a large positive economic impact for the hydro power producer

User:

Hydroelectric power generation company ENDESA (E), major hydro power supplier in South America

Use case is Lake Laja in Chile

Objective:

Implementation of a water flow monitoring and prediction system to improve the forecasts for hydro power generation

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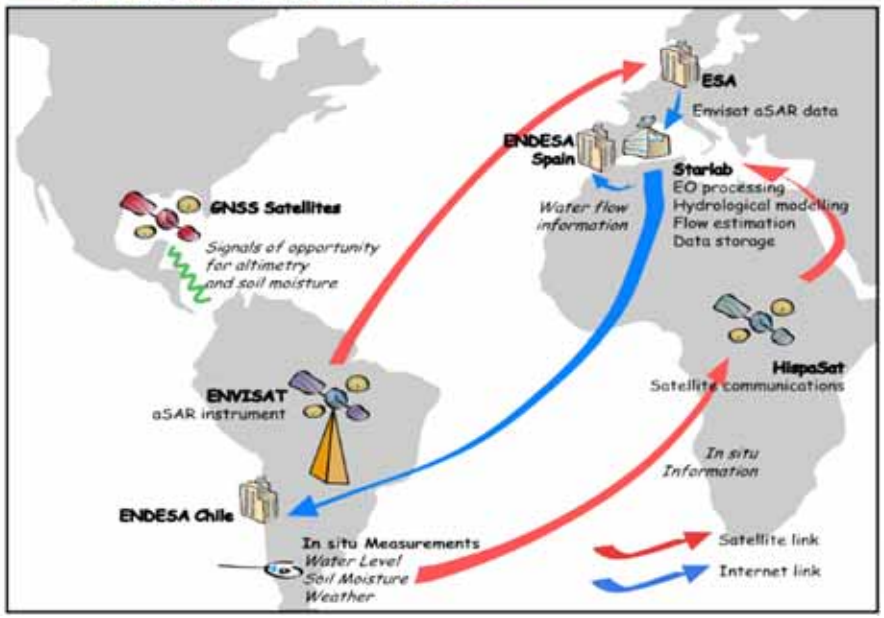
Space Assets:

- Earth Observation data: snow cover area, snow water equivalent
- Insitu information (water level) based on reflected GNSS signals
- Data transfer by satellite communication
- Integration with hydrological model for the water flow forecast.

Figure 4: Snow cover area in the Laja Basin, 17 Nov 2007, ASAR



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What makes this a promising IAP activity?

- The **backbone user** is one of the major hydro power suppliers in South America with sufficient **commercial power and market influence**
- The user has a **strong interest** in increasing its profits and is interested to become the **service provider** for the solution
- The consortium consists of **industries and research institutes** with good technological background
- The consortium is **open to investigate** the technologies that are needed to serve best the user demand
- The consortium prime has established a **good relationship** with the user already for a few years

What are the hurdles to overcome in this IAP activity?

- The user will buy into the solution only if there is an improvement over current forecast achievements
- The service(s) have to be available and reliable
  (back-up solutions required to avoid single point of failures)

Thank you

Contact information

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