

Satellite Digital Multimedia Broadcast (SDMB): An advanced mobile satellite system for Risk management and Environment monitoring



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GMES/Satcom Project rationale (1)

- Most of GMES telecommunication requirements are met with terrestrial telecommunication systems
- However for GMES mission like environment/population protection, **Satellite systems are best positioned to complement the terrestrial systems**
 - in meeting the **anytime service availability**
 - by making use of their **dependable infrastructure on a global coverage**

GMES: Global Monitoring Environment and Security



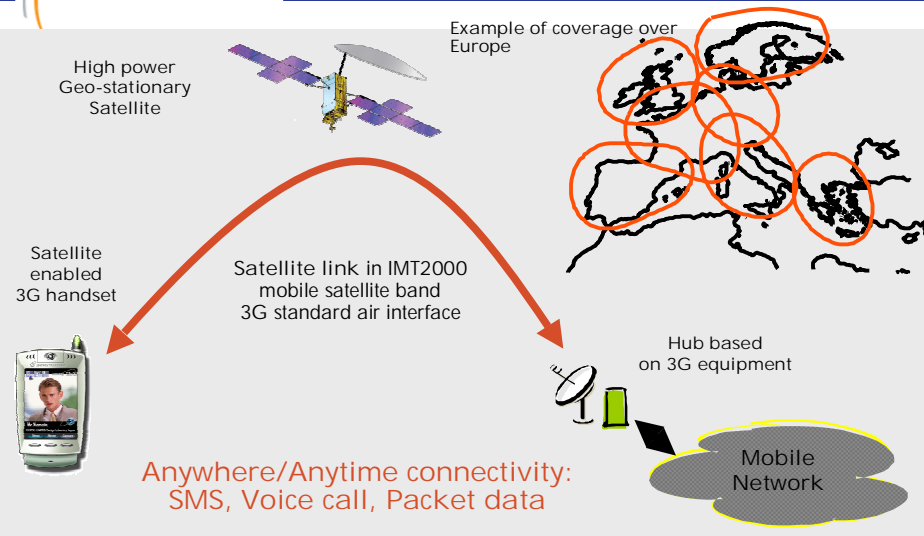
GMES/Satcom Project rationale (2)


- **It is mandatory to meet some key constraints**
 - smooth integration with terrestrial telecommunication infrastructure; open service platform
 - cost effective solution: CAPEX & OPEX
 - preferably piggy backed to commercial systems rather than specific stand-alone systems to minimise investment and operation risks
- **SDMB is well positioned to meet some GMES mission objectives**

CAPEX: Capital Expenditure OPEX: Operational Expenditure



SDMB: a dependable infrastructure






SDMB: key services & features

- **Services**
 - Point to point services: Short Message Services, Voice call, Packet data services
 - Point to multipoint services: Notification service
- **Features**
 - Transparent integration with cellular system
 - Low impact on cellular handset
 - Dependability over European global coverage
 - Standard transmission power => high autonomy
 - Cost efficient broadcast capacity


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SDMB to support GMES applications(1)

- **Manage protection of environment & population**
 - Alert and provide guidance to population on the terminal they have not the terminal they should have had
 - Provide guidance to/Get feedback from key representatives of population on the field even if they are off duty:
 - police,
 - civil protection,
 - army,
 - local administration,
 - medical staff


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SDMB to support GMES applications(2)

- **Monitoring environment & security**
 - Industrial plant monitoring: detection of pollution, smokes, explosion
 - Natural or man made disaster detection
 - Earthquake, forest fire, hurricane, flood, terrorist attack
 - Search and rescue
 - Pedestrian
 - Drivers or passengers of vehicles (bus, cars, trains)
 - Road assistance
 - Tracking of dangerous goods transportation

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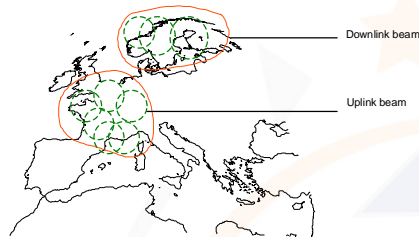


Relevant ETSI emergency specifications

- [ETSI SR 002 180 “Requirements for communication of citizens with authorities/organisations in case of distress”
- [ETSI SR 002 181 “Requirements for communication between authorities/organisations during emergencies”
- [ETSI SR 002 182 “Requirements for communication from authorities/organisations to the citizens during emergencies”

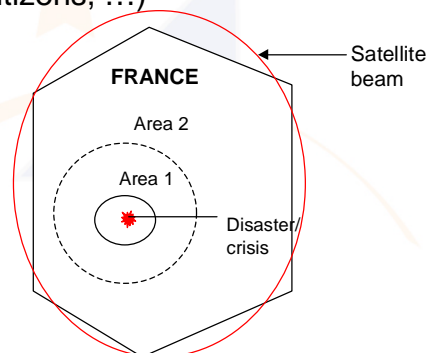
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- Extended multi-beam configuration
- Optimised configuration: uplink \neq downlink



- National beam with the use of logical beam to optimise Radio Resources

- To allow efficient use of Radio Resources, an access control mechanism shall be implemented based on:
 - user profile (authorities, citizens, ...)
 - user location
 - requested service
 - available resources






Why do we think that satellites are essential in Emergency Telecom Services ?

- Ubiquity & dependability,
 - Natural satellite assets are key requirements for this kind of mission.
- Existing initiatives in America and Asia to provide satellites emergency services
- European institutions consider this solution as well (White paper on European space policy)
- A space system would allow to harmonise solutions all over Europe

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Related IST FP6 Maestro activities

PPDR are studied at two levels in Maestro:

- PPDR Service Definition:
 - Analyze the possible usage of broadcast capacity to alert and provide guidance to the population in case of crisis
 - Identify the associated constraints that should be taken into account in the design of the SDMB system
- Return link analysis

PPDR: Public Protection and Disaster relief

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Thanks for your attention!

More information on
<http://ist-maestro.dyndns.org>

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