Activities of the European Satellite Operators Association (ESO) 
Disaster Management

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One Satellite can see 1/3 of the Globe from Space

Satellites enable:
• Imagery
• Communications

Satellites are not vulnerable to natural/man-made disasters
In 1999, Space Agencies came together to provide satellite imagery to UN Member States.

The Charter has been triggered over 80 times by the UN itself.

Provides satellite imagery to nations in need following a disaster.

Recognised by the International Community.
Example: Satellite Imagery for Earthquake in Indonesia

BEFORE: 11 July 2003

AFTER: 31 May 2006

Image copyright: Digital Globe distributed by EURIMAGE
Natural hazards cannot be prevented; however, their impacts can be reduced through the cost-effective use of appropriate technologies.

A number of space-based technologies (e.g. telecommunications, Earth observation, geopositioning and meteorology) can contribute to the information requirements of the different phases of a disaster management programme and therefore offer significant potential for minimizing the impact of natural hazards.
The Disaster Cycle & The Need for Communications

Coms for emergency or disaster communication.

Coms for early warning.

Coms during reconstruction/recovery until other infrastructure is restored.

Emergency Coms when land-based infrastructure is lost.

Satellite Imagery to aid relief efforts.

Key:
- Emergency or Disaster
- Risk Assessment
- Mitigation/Prevention
- Preparedness
- Warning/Evacuation
- Saving People
- Providing Immediate Assistance
- Assessing Damage
- Ongoing Assistance
- Restoration of Infrastructural Services
- Economic & Social Recovery
- Reconstruction (Resettlement/Relocation)
- Ongoing Development Activities
- Media Focus

Pre-Disaster:
- Risk Assessment
- Mitigation/Prevention
- Preparedness
- Warning/Evacuation

Post-Disaster:
- Saving People
- Providing Immediate Assistance
- Assessing Damage
- Ongoing Assistance
- Restoration of Infrastructural Services
- Economic & Social Recovery
- Reconstruction (Resettlement/Relocation)
- Ongoing Development Activities

Response:
- Risk Assessment
- Mitigation/Prevention
- Preparedness
- Warning/Evacuation
- Saving People
- Providing Immediate Assistance
- Assessing Damage
- Ongoing Assistance
- Restoration of Infrastructural Services
- Economic & Social Recovery
- Reconstruction (Resettlement/Relocation)
- Ongoing Development Activities

Satellite Imagery to aid relief efforts.
• Terrestrial and cellular networks are vulnerable to catastrophic events
• Hurricanes, earthquakes, floods and fires can damage ground infrastructures within minutes
• And yet it is in times of crisis that communications are needed most
• Communications is a major enabler in the management of humanitarian aid and emergency response
When land lines are down or overloaded, a portable space-based solution can save the day.

A portable satellite terminal that supports voice, facsimile, data transfer, video & two-way communications from a disaster field.
A satellite dish can be installed anywhere, even in rubble. The only requirement is a direct ‘line of sight’ - the terminal needs to ‘see’ the satellite.
Where roads remain intact, satellite vans can be deployed to assist communications.

Van that supports voice, facsimile, data transfer video and two-way communications from a disaster field.
While the international space community has a framework to provide satellite imagery in times of need, the same does not exist for satellite communications.

Land-based communications infrastructure is one of the first things to fall in a disaster.

In 2007, Satellite Operators have come together to assist the UN with satellite connectivity in emergency regions.
Satellites can provide essential communications within hours of a crisis

From vital co-ordination of relief efforts, to giving reassurance to family and friends

ESOA members deliver fixed and mobile communications

Voice and broadband data

Meeting immediate and on-going needs of government agencies and NGOs
Since 1966 Lake Chad has reduced from 25,000 km to less than 1,500 km. Satellite communications are foreseen to support water management activities.
Example II: Connecting families in Lebanon

- Télécom Sans Frontières (TSF) appointed by United Nations to deploy satellite communications in Lebanon, August 2006
- Two telecoms centres
- Supported 22 aid organisations and over 600 displaced families
- In under one month, 3 gigabytes of data sent and 1,850 minutes of calls
Satellites as Critical Infrastructure

- Provide logistics support for relief agencies
- Telephony, email, internet access, videoconferencing, instant messaging
- Telemedicine connects to world-class trauma specialists
- Tele-education to bring normality to displaced children or destroyed schools
- Media coverage raises the profile of the disaster
- Supports business continuity, which in turn supports the community
Examples of Disaster Management Cases

SatComs have been deployed over long & short periods in recent emergency situations:

- Tsunami (Dec 2004 - Indonesia and Sri Lanka)
- Katrina Hurricane (Aug 2005 - New Orleans, US)
- Earthquake (North Pakistan Oct 2005, Peru Aug 2007)

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INMARSAT’S BROADBAND GLOBAL AREA NETWORK

Using the power of the Inmarsat-4 satellites, BGAN delivers:

- Broadband IP data (up to 492kbps)
- ...plus voice at cell phone quality accessible simultaneously through a single hand-portable device
- With guaranteed data rates on demand
- Available globally

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Satellites - A “drive-away” Infrastructure

DVB-RCS Transportable Van equipped with:

- DVB-RCS Auto-track 1.2 m Antenna & modem
- WiFi System (wide coverage)
- Remotely-controlled camera

VoIP Telephony
- Teleconference system
- Electric Power Generator
- UPS
- Air-conditioning system

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ONE STOP SHOP Solutions & Services
- “In-Field Command Post”

- Transportable Station (Truck-based or Man-based) for Communication Network Extension by Satellite
  - GSM, PMR, VoIP, DECT, UHF/VHF
  - Internet Access, Wi-Fi
  - RISKFRAME

- Send/Retrieve Information to/from in-field areas
  - Infoterra earth observation & geo-information products & services
ND SatCom solutions for Disaster response, business continuity – securing telecommunication in difficult times

Governments prepare for the worst: telecommunication is vital to all relief work for police, fire departments, rescue, medical and technical support teams

Applications: voice, data, videoconferencing, disaster video contribution, internet, database access, radio relay, control and command etc.
What is ESOA?

- ESOA represents **ALL European satellite operators**

- The Association works with policy-makers to ensure that satellite technology and services are taken into proper account in the delivery of public sector objectives so citizens **all over the globe** can benefit from them.

- The availability of satellite services depends on political support, a favourable regulatory environment, a fair industrial policy and **AWARENESS**

- The Members of ESOA are: