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emergesat



a **tool** for
managing
humanitarian
crises

Emergency situations



Editorial

“Satellites have an essential role to play in managing humanitarian crises. Witness the overlaying, at the end of 2004, of tsunami images on images of our planet seen from Space, which clearly demonstrated their usefulness.

Furthermore, I have always been convinced that communications, sharing information, collecting data and anticipating events are key factors for efficient coordination of humanitarian action.

At my request therefore, CNES and Alcatel Alenia Space pooled their internationally acknowledged know-how to design an innovative technological tool for humanitarian action. I would like to express my gratitude to their respective Presidents, Yannick d’Escatha and Pascale Sourisse, as well as to Jean-Pierre Massue, President of REMIFOR, for agreeing to work on the project with me.

This marked the beginning of emergesat, a tool for supporting and coordinating all those in the field, who are striving to help victims and save human lives in emergency situations.”



crédit photographique : C. Lacene - Scicom

Nicole Guedj

Former minister
President of the
Fondation Casques Rouges

Each year there are major humanitarian crises around the world, due to industrial disasters or natural events (tsunamis, hurricanes, earthquakes, etc.) or to terrorist attacks.

Most often, traditional communication systems break down and the subsequent improvisation makes it difficult for emergency teams to coordinate their interventions in the disaster area.

We thus need to find exceptional solutions for such extreme situations.

Satellites used for telecommunications, Earth observation and location /navigation can be called upon at any moment and anywhere in the world to back-up a humanitarian action.



Key factors in crisis management

- ▶ **rapid** intervention and evaluation of needs to limit the humanitarian consequences of a major crisis;
- ▶ establishment of **secure** communications facilities in the field, linking workers with remote centres (command posts, hospitals, airports);
- ▶ **sharing** information and overall knowledge of the disaster with all workers in the field;
- ▶ **coordinating** and **monitoring** intervention teams to enable more efficient search and rescue operations;
- ▶ the use of **decision-making** services.

emergesat

a spaceborne response for the management of major crises

emergesat: a



The **emergesat** container was specially designed to meet the needs of operational teams in the field: civil protection, NGOs, international armed forces, etc.

emergesat uses satellite-enabled communications, location and data management which enables it to offer:

This technical solution offers clear added value in comparison to existing tools:

- efficient and optimised integration of technologies in a single package
- a modular, technically advanced, autonomous (in terms of power supply) and all-weather solution
- a tool which can be transported by aircraft (as passenger luggage or freight), helicopter or truck
- an approach based on international standards (e.g. DVB-RCS)
- an economical solution given current costs for satellite communications
- a guaranteed high throughput rate for priority needs
- compatibility for interfacing with existing systems (e.g.: hubs, network)
- world-wide satellite coverage depending on the partnerships set up
- rapid deployment of a validated module
- an emergesat support team for users to call upon



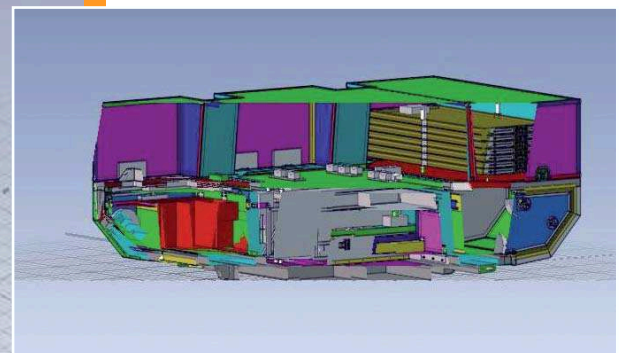
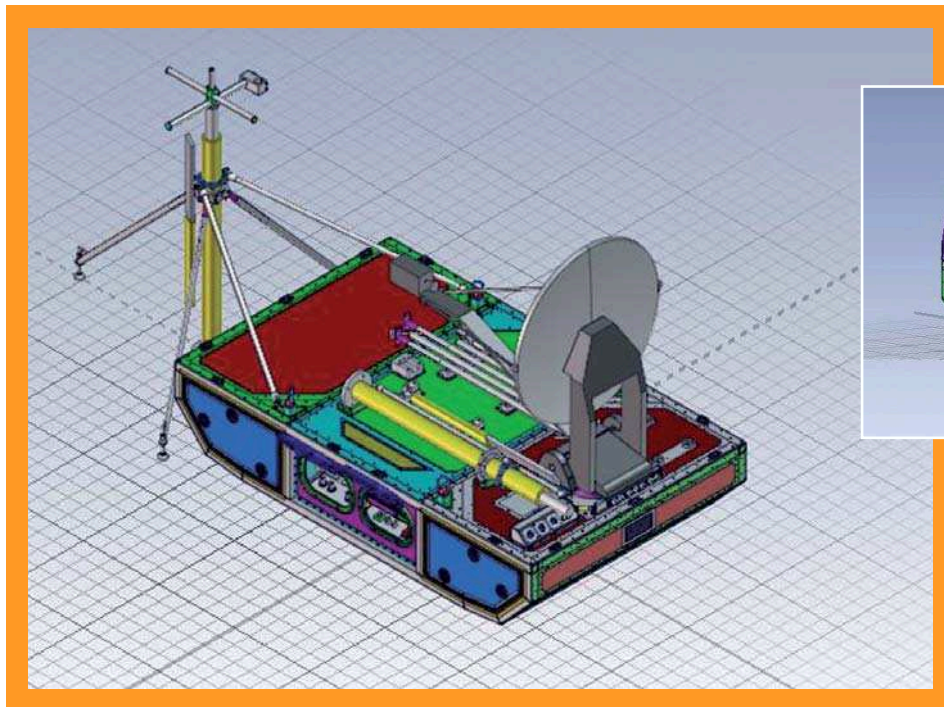
GENERAL CHARACTERISTICS *		
Dimensions (cm)	250x150x100	Weight (kg) : 520 à 680, modular with max. module of 210
Telecommunication systems :		Applications : Telephony : Mobile VoIP (Voice over IP / WiFi) GSM VHF Multi-user audioconference with portable terminals using 3 different technologies Terminaux configurés GSM, VHF portables, WiFi telephones, rugged PC Access to internet Broadband Video reporting Direct broadcasting of video from the field Video conférence/ group work video, audio, chat, applications sharing, possible connection with portable terminals using the 3 telephony technologies Telemedecine : Epideriological surveillance medical aid for victims and populations
Satellite	1 m / Ku / autonomous pointing ETSI DVB-RCS	
WiFi	802.11a/b/g-multi SSID gestion QoS	
GSM / GPRS / EDGE	„ BTS 7W	
VHF	25W Relay	
Power supply		
	all cables and terminals supplied	
	12V e.g. vehicle battery	
Generator unit	2kW	
220V mains supply	isolated by transformer	
110V mains supply	isolated by transformer	
Internal battery	200Ah	
Output	220V	
Transport		
	Airline freight	
	Helicopter	
	Truck	
	Boat	

*(the container is certified by Apave)

humanitarian container



- coordination of actors in the field,
- communications on-site and with remote stations,
- crisis management logistics.



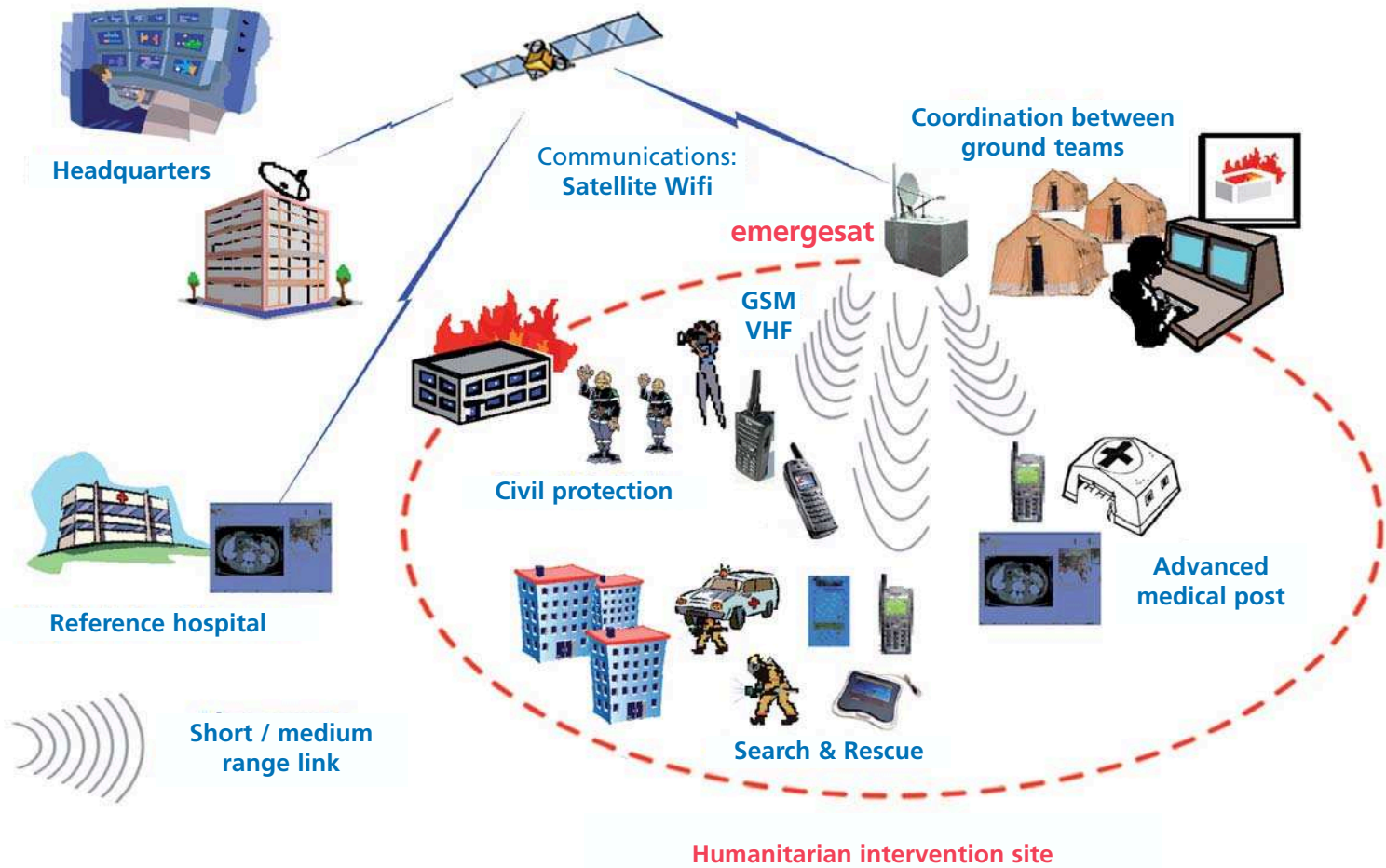
Applications:

- Access to Internet
- Satellite telephony (VoIP)
- Videoconferencing with applications sharing
- Generic data collection and sharing
- Taking care of victims - logistics
- Submitting requests and transmitting offers
- Epidemiological surveillance for preventing and monitoring epidemics
- Telemedicine: medical aid to victims and populations in need

MASS BUDGET

Weight in kg	minimum	maximum
Structure + satellite antenna (cannot be separated)	210	210
Cover (removable)	40	40
Equipement (distributed in 6 removable drawers): telecommunications, telemedicine, water analysis, power supply, deployment tools	<i>Average weight of drawers :</i>	
	42	83
	<i>Total weight of equipment :</i>	
	250	500
TOTAL	500	750

A communications tool for exchanging information



Vertical and horizontal communications

► with bases in the rear

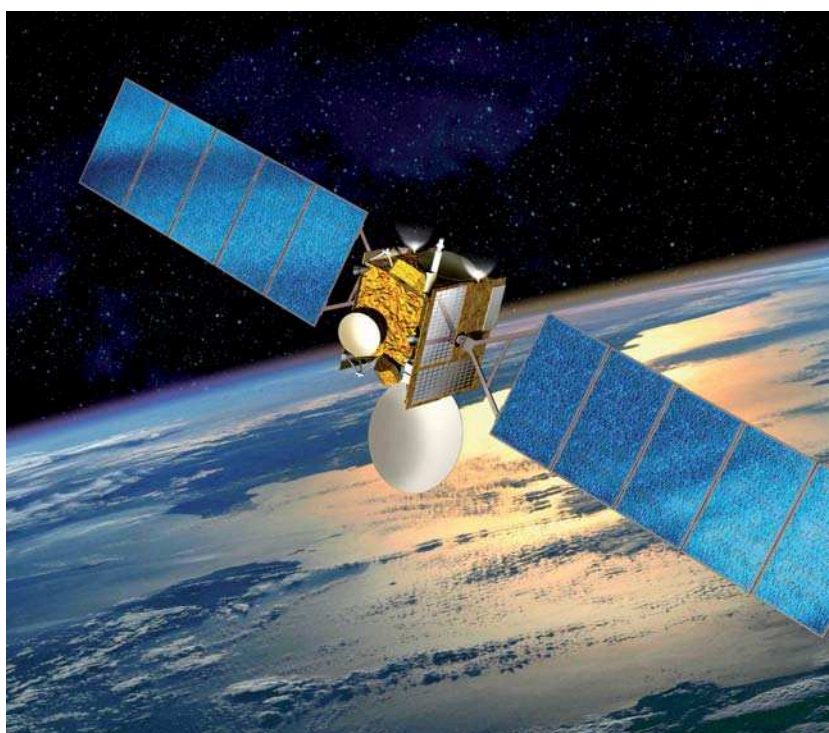
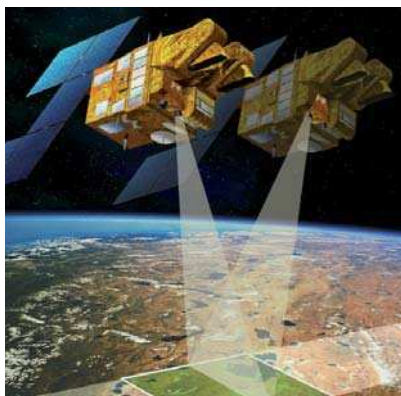
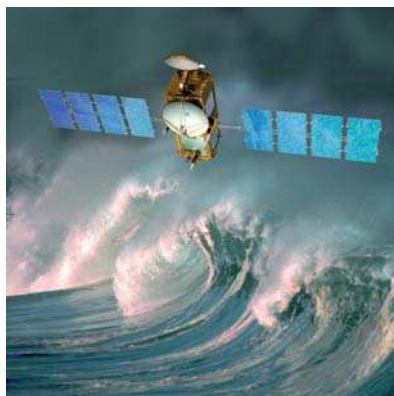
emergesat enables communication via satellite links for exchanging data with command posts and remote services (such as hospitals, weather forecasting centres, oceanography and cartography centres, etc.).

► in the field

emergesat provides a local communication and data exchange network for different intervention teams using GSM, VHF and Wifi technologies.



Contribution of space technologies to humanitarian actions



emergesat uses satellite technologies, which are available at all times and anywhere on Earth for:

► **telecommunications:**

secure communication and data exchanges with remote centres: videoconferencing, Internet, telemedicine, tele-epidemiology studies.

► **location/navigation:**

monitoring of search and rescue teams, monitoring for logistical purposes.

► **Earth observation:**

meteorological data, oceanographic and cartographic data (e.g. for evaluating damage) following implementation of the **International Charter for 'Space and major Disasters'**



International Charter for "Space and major Disasters"

The international Charter, drawn up by CNES and ESA in 1999 and now adopted by other space agencies, offers a unified system for acquiring and delivering satellite data for the purpose of managing and mitigating disasters of natural or human origin via authorised users. Each member agency is committed to providing its resources to help implement the Charter in order to mitigate the repercussions of such disasters.

<http://www.disasterscharter.org/>

Fondation Casques Rouges

for emergency humanitarian action and development projects



The birth of a Foundation

In 1997, Nicole Guedj recommended the creation of a United Nations intervention force, which she named *Casques Rouges*, for managing and coordinating international search and rescue operations to help disaster victims. When appointed Secretary of State for the protection of victims' rights, she included this proposal in an action plan, which was then adopted by the Council of Ministers on 29 September 2004.

On 31 December 2004, after the tsunami in South-East Asia, the French President Jacques Chirac, suggested that the United Nations "create an international, humanitarian rapid-response force".

The United Nations' humanitarian services are currently undergoing a substantial overhaul in order to reinforce the intervention capability of all participants.

It was in this context that the *Fondation Casques Rouges* was founded in 2006, as an extension of the mission assigned to Nicole Guedj by the French President. The humanitarian container **emergesat** is the first tool to have been developed.



Container tests at the Alcatel Alenia Space site in Cannes.

Missions...



From left to right, Yannick d'Escatha, CNES President, Nicole Guedj, President of the Fondation Casques rouges and Pascale Sourisse, CEO of Alcatel Alenia Space, presenting the container to the Ecole nationale supérieure des officiers de sapeurs pompiers (Ecole nationale supérieure for fire-fighting officers) at Nainville-les-Roches in March 2006.

- ▶ Make humanitarian action more efficient and particularly search and rescue operations to deal with natural, industrial, epidemiological and environmental disasters or terrorist attacks;
- ▶ Promote the creation of innovative instruments for managing and coordinating rescue teams;
- ▶ Offer all actors in the field, particularly independent NGOs, tools they can use for their operations in the field.

...and actions

In addition to the objective of the **emergesat** container, which is to restore defective communications for disaster management and mitigation, the *Fondation Casques Rouges* is helping to develop telemedicine as well as to miniaturize water purification systems.

The foundation also helps transport rescue workers and equipment during emergency situations, using specially assigned helicopters.

Ultimately the creation of a Telecommunications Charter should ensure that satellite communication networks are made available to field workers and particularly NGOs during crises.

For further information: www.casques-rouges.org

A humanitarian tool

for all

emergesat is a humanitarian tool based on satellite technologies used for telecommunications, Earth observation and location and navigation systems. It enables coordination of international aid in the event of a major crisis.

Rapidly transported by helicopter to a disaster area, **emergesat** provides global information on the crisis situation to search and rescue teams from all nations, thus helping to coordinate interventions and other aid and decision-making services.

emergesat is a federating tool offered by France, which is open to partnerships and cooperation. It has been designed to serve all people anywhere in the world.



Partners



Centre national d'études spatiales
www.cnes.fr



Fondation Casques rouges
www.casques-rouges.org



www.alcatelaleniaspace.com



Réseau euro-méditerranéen
d'information et de formation
à la gestion des risques
www.remifor.fr



Institut de médecine
et de physiologie spatiales
www.medes.fr



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