



European Space Agency

Telemedicine: Health alert via satellite



30 November 2007

Heraklion, Crete: An earthquake has just shaken the Greek island. Damage is widespread and all conventional, terrestrial communications have been destroyed. The rescue operations have only one means at their disposal that has not been affected by the quake - a satellite which, from its altitude of 36 000 kilometres, can immediately link the locations involved in the catastrophe with the appropriate authorities.

Thankfully, this was only a two-day training exercise conducted in the frame of the SAFE project (satellite for health early warning and for epidemiology), part of the ESA approach to understanding users' needs and developing tools adapted to those needs. With this knowledge, ESA wishes to support a user driven strategy allowing for a joint effort in Europe and an improved efficiency for interventions in the event of natural disasters and for post-crisis management.

Crete is liable to be affected by earthquakes, which is why it was chosen for the demonstration of a system that can not only be used for emergency response coordination but also for understanding the health situation and monitoring for epidemics that are the frequent consequences of natural disasters.



Control and coordination centre

In several sites on Crete, such as a power plant, a beach, and a hotel, the response of the rescue teams was tested as they were communicating via a satellite network. A dialogue was set up with voice and video between the teams on site and a centre for control and coordination in downtown Heraklion, which allowed a quick assessment of the means needed to set up and facilitate the process of intervention.



Casualty treatment station

On the second day after the earthquake and its emergency management by local authorities, a scenario involving an epidemiological threat was staged. Analysis of victims sheltered in a camp quickly made it obvious that there was a threat of gastroenteritis.

Thanks to the satellite, specialised doctors - although far away, either in Heraklion or even in Athens - could immediately help the teams on site. The first help provided was to understand the nature of the epidemic and treat the patients when the first symptoms were exhibited. Secondly,

assistance was provided to determine the origin of the epidemic and take the necessary measures to stop the problem from spreading.


The demonstration showed that space can contribute to faster and more efficient rescue and assistance in the field, taking advantage of the expertise of specialists from distant locations and offering the possibility of raising alerts in the event of epidemiological risks.

Co-funded by ESA and coordinated by MEDES (Institut de Médecine et de Physiologie Spatiales), in partnership notably with the Greek Foundation for Research and Technology (FORTH), the SAFE pilot project is a good illustration of the added value of satellites - with the service provided by space answering the needs on the ground.

Other languages

- Article en Français:
Télémedicine: alerte santé par satellite
(http://www.esa.int/esaCP/SEML6E29R9F_France_0.html)

Video

-  Telemedicine: Health alert via satellite
(<http://www.esa.int/esa-mm/mmg/mmg.pl?collection=&mission=&keyword=+--%3E+Keyword&idf=SEM90M73R8F&lc=on&Vc=on&Ac=on&Gc=on&subm3=GO>)

Related news

- Satellite on-board signal processing helps create emergency satcom system
(http://www.esa.int/esaTE/SEM9MYNSP3F_index_0.html)
- Faster and better emergency response through satellite telecoms
(http://www.esa.int/esaCP/SEMZ00V681F_index_0.html)
- Telemedicine initiative for sub-Saharan Africa: pilot projects proposed
(http://www.esa.int/esaCP/SEM4CVQ08ZE_index_0.html)

Related links

- ESA Telecom specialist site (<http://telecom.esa.int>)
 - MEDES: SAFE (<http://www.medes.fr/safe>)
 - FORTH: Institute of Computer Science (<http://www.ics.forth.gr>)
 - Telemedicine (<http://telecom.esa.int/telecom/www/object/index.cfm?fobjectid=8264>)
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