

## About Radio Science Contribution to Emergency Management

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### Abstract

When a natural disaster occurs in a populated zone, a fast and effective organization of the disaster management is necessary to assist the affected population, reduce the number of victims and limit the economic impact. At all phases of disaster management (pre-disaster, response, post disaster) one of the first actions to be taken is to set up a disaster cell for coordination. For major risks it includes national ministries, civil defence, regional and local administrations, non-governmental administrations involved in disaster managements, experts, crisis staffs, command chain, information chain, etc.

The detection and the monitoring of the impact and effects of natural disasters are mainly done by space borne and air borne remote sensing surveys through radio and optical instruments. To facilitate the access to the relevant data, an International Charter (<http://www.disasterscharter.org/web/charter/charter>) aims at providing a unified system of space data acquisition and delivery to those affected by natural or man-made disasters.

However, due to the sensitivity problems which may affect night time optical observations, the present paper will deal with radio instruments only.

The architecture of the disaster management system comprehends four main working domains, or sub-systems, involving experts and complementary scientific disciplines:

- the sub-system “communication”, which includes radio-navigation,
- the sub-system “data acquisition”, which concerns the acquisition of information mainly provided by radio instruments,
- the sub-system “processing”, which concerns the consolidation of information provided from different sources, and broadcasted to operational intervention teams
- The sub-system “management”, which has in charge the management of the data bases and more specifically of the geographical information system (GIS).

The present paper, extract from F. Lefeuvre and T. Tanzi, “Radio Science Contribution to disaster management”, Radio Science Bulletin, March 2014, deals with: the radio communication and radio navigation in a crisis period, acquisition of relevant airborne and space borne remote sensing data, aerial and ground-based data, and emergency management.

### References

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