

## Dissemination Seminar agenda

- 10.30** Registration
- 11.00** Opening and General Information  
**David Altadill**
- 11.10** Activities of the Ebro Observatory. Contribution to SWING  
**Estefania Blanch**
- 11.20** The SWING Project: Headlines and Aims  
**Bruno Zolesi**
- 11.35** Internet Failures and Physical Layer Architecture  
**Andrea Abrardo and Michele Morelli**
- 11.55** New Technology involved in SWING:  
Software Radio and HF Links  
**James Baskaradas and Anna Lisa Saverino**
- 12.15** Open discussion,  
questions and distribution of SWING's documents  
**All participants**
- 13.00** Lunch time
- 14.30** Experimental activity  
**For SWING partners**
- 18.00** Closure

## HF NETWORK



Istituto Nazionale di  
Geofisica e Vulcanologia



Consorzio Nazionale Interuniversitario per le Telecomunicazioni



Observatori de l'Ebre



National Observatory of Athens

# SWING

Short Wave critical Infrastructure Network based  
on new Generation of high survival radio communication system  
January 1<sup>st</sup> | 2012 December 31<sup>st</sup> | 2013

**1<sup>st</sup> October 2013**

Dissemination Seminar

Observatori de l'Ebre (EO)

Conference Hall

C. Horta Alta | Roquetes | Tarragona | Spain



<http://swing.rm.ingv.it>



Observatori de l'Ebre

# SWING

Short Wave critical Infrastructure Network based on new Generation of high survival radio communication system January 1<sup>st</sup> | 2012 December 31<sup>st</sup> | 2013

**SWING** (Short Wave critical Infrastructure Network based on a new Generation high survival radio communication system) is an European project aimed at studying a high survival HF radio network to link European Critical Infrastructures (ECIs).



Rhombic antennas for the HF communication in the ionospheric station of Gibilmanna, Italy

This system is thought to replace broad band internet communication, maintaining the minimum flux of essential information for the ECIs management and control, in case of wide scale threats, including terrorist attacks, able to put out of order internet links over the Mediterranean region. **SWING** is designed to evaluate the threat and increase the security awareness, as well as the level of protection, of analogous and/or interdependent ECIs. In order to meet these goals **SWING** has to recognize how and when the internet communication fails, and develop the standard soft-

ware and hardware tools necessary for implementing communication protocols suited for a reliable and interoperable Short Wave (High Frequency) radio network back up. To meet the above mentioned objectives the main activities concern the designation of ECIs in the regions of interest and the analysis of potential communication problems among them, followed by the identification of the most suitable topology for a high survival radio communication network. Moreover, **SWING** has to determine the criteria for early warning alerts, the procedures to activate the backup network, as well as the minimal amount of information necessary to maintain control over ECIs keeping them lin-



Delta antenna for the HF communication in the ionospheric station of Roquetes, Spain

ked even in critical conditions. For what concerns the HF radio network, **SWING** defines and designs the software and hardware necessary to a high survival

HF radio network, keeping into account the existing HF network communication protocol and architecture. Since the network can use both the ionospheric channel and, if required, the ground wave propagation, **SWING** also studies the ionospheric channel charac-



Digisonde antenna system of the ionospheric station in Athens, Greece

teristics in order to manage the transmission frequencies of the HF network. The activities are distributed among four Co-Beneficiaries (INGV-Italy, CNIT-Italy, NOA-Greece, OE-Spain). An experimental network is realized in the indicated place shown in the figures.



Delta antenna for HF communication in the ionospheric station of Rome, Italy