

CRDC – AMRA

MISSION

AMRA is the Regional Centre of Competence in the field of Analysis and Monitoring of Environmental Risk, and is a permanent research facility for the development of innovative technologies applied to environmental problems.

AMRA's Distinguish feature is the high level and wide spectrum of its resources, allowing a multi-disciplinary integrated approach.

The AMRA CRdC's mission is to:

- create a permanent regional network of research centres to deal comprehensively with natural risk;
- develop and engineer prototypes, to make measurements and perform tests, to check results through analogue and numerical models;
- facilitate the transfer of knowledge to the region's business and economic system;
- improve the advanced training system;
- promote partnerships with the major economic players (banks, software houses);
- optimize professionalism, flexibility and operational skills of human and economic resources;
- encourage a culture of innovation.

GOALS

The goals the AMRA CRdC has set itself are described as follow:

- ◆ cooperate with partner in order to develop for new technologies in the field of environmental risks, enhancing the knowledge transfer;
- ◆ contribute to land safety through advanced technologies applied to environmental risk mitigation and management, in order to support Institutions charged for land safety and management;
- ◆ propose itself as a reference point in the International field of Analysis and monitoring of environmental risk;
- ◆ to promote and realize educational programme for qualified intellectual resources in the field of environmental risk.

ACTIVITIES

The range of services offered by the AMRA CRdC can be summed up under the following headings:

Early warning and seismic risk

AMRA develops a prototype system for the application of Seismic Early Warning methods, for real time risk reduction of earthquakes effects by automatic interfaces. The monitoring network on which the prototype is based is a high-dynamic, high-density seismic network located in the Apennines, straddling the regions of Campania and Basilicata.

Anthropogenic risks

The activities in this area includes:

Waste Management and industrial hazard

Air, water and ground pollution.

Homeland security

AMRA tests critical civil infrastructures to measure vulnerability and consolidate critical infrastructures against external terrorist attacks;

Vulnerability of the coastal marine system

Activity in this area is focused on the development of tools that allow real time assessment in accordance with reliable forecasts when extraordinary events occur (Spillage of pollutants, sea storms)

Hydrogeological risks

AMRA develops and experiments models aimed to build scenarios for critical hydrogeological events, using advanced probabilistic methods;

STRUCTURE

AMRA can count on more than 300 researchers, advanced laboratories and equipment worth a total of 15 million Euros, for applications to seismic, hydrogeological, coastal, volcanic and anthropogenic risks.

The network of laboratories includes the following equipment:

<p>Operational centres CIMA (Irpinia Centre for Innovation in Environmental Monitoring)</p> <p>Fine particle analysis MOGANO (prismatic spectrophonometer for mist tube)</p> <p>Differential mobility analyser Mass spectrometry analyser Systems for production of molecular bundles and nanoparticles Laser Ti: SA Laser Nd: YAP</p> <p>Innovative waste management techniques Pilot fluid-bed gasifier CARMA (integrated laboratory for chemical detection and environmental monitoring)</p> <p>Industrial accidents PFR reactor BATCH type reactor AU5 series CSTR reactor MIKE 3 apparatus</p> <p>Seismic engineering 2 asynchronous vibrating plane system Statistical materials testing system Dynamic testing system</p> <p>Seismic early warning Triaxial accelerometers Short-period seismometers Broad band seismographs Systems for signal centralisation and recording</p>	<p>Geotechnology MATRIX triaxial cell THOR cyclical and dynamic torsional shear cell Subsoil survey using geophysical methods</p> <p>MINIVIB STRATAGEM Seismic antennae Broadband georadar</p> <p>Underground seismo-dilatometrics 6 dilatometric stations 9 bb seismometers 6 VPN routers data loggers HP data processing system</p> <p>Marine current measurement CODAR coastal radar</p> <p>Modelling CLUES LILLIGRID</p> <p>Remote sensing Airborne spectrometer Cluster storage and data processing S-25 laser scanner</p> <p>Water and soil pollution Mesocosm EDAX system Stereomicroscope Conditioned chamber system</p>
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PROJECTS/PRODUCTS

International projects

- Gis Project for the reduction of risks from rapid earth movement in the Campania Region
- SAS Project (Safety of Airport Infrastructure)
- SAFER Project (Seismic Early Warning for Europe)
- TRANSFER Project (Tsunami Risk and Strategies for the European Region)
- SE-RISK Project (Seismic Risk)
- MILDMAP Project

Projects financed by the Campania Region's Environment and Civil Defence Department

- SAMS (Seismic Alert Management System)
- Scenarios of extreme hydrogeological events for emergency planning
- Integrated system to identify forecast and control of extreme hydrogeological events
- Project of a tide gauge network
- Scenarios of erosion risk of coasts

Projects financed by the Campania Region's Department for Research and Universities

- MARINET

Other projects

- Hydrodynamic modelling of water circulation in the Bagnoli area
- Study of the process of energy and/or matter recovery from urban wastes through the gasification process
- Numerical modelling development for prevention and protection of landslide risk due to extreme meteorological events
- Feasibility study on the possible use of ground water for irrigation in the Coroglio city park
- Metro Roma, Line C

Contacts:

AMRA
Via Nuova Agnano, 11
80125 Napoli, Italy
Tel. +39 081 7685125
Fax. +39 081 7685144
info@amracenter.com, www.amracenter.com
President: Prof. Paolo Gasparini