UNIONE EUROPEA

REGIONE CAMPANIA

Assessorato all'Università e Ricerca Scientifica, Innovazione Tecnologica e Nuova Economia, Sistemi Informativi e Statistica

Ricerca e Innovazione

INTERNAZIONALIZZAZIONE DEI Centri Regionali di Competenza

amra

analysis and monitoring of environmental risk

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AMRA – Analisi e Monitoraggio del Rischio Ambientale - Analysis and Monitoring of Environmental Risk

The Centre's mission consists in the transfer of new technology for the reduction of environmental risk from research to businesses.

The Principal Outputs

Early Warning System
The Early Warning (EW) system is based on the detection of the propagation velocity of pressure waves generated by an earthquake. Depending on the distance from the source of an earthquake, the information regarding its location and magnitude may reach a site "potentially at risk" seconds or tens of seconds before the arrival of seismic waves of greater width. Assuming an information management and diffusion time equal to zero, the system allows for the activation of safety measures for the population and the strategic structures (hospitals, schools, gas/oil pipes, industrial plants). The Early Warning system differentiates itself from other systems on the market by the way the warning is managed, in other words, by the presence of an integrated process for the collection and distribution of information on the seismic risk detected.

PAS – Seismic Antennae Project
The PAS consists of a grouping of different types of ground motion sensors (movement, velocity, acceleration) laid out on the territory according to a particular configuration and geometry; these configurations make up a directional antenna, which is sensitive to elastic waves. Each sensor's signal is recorded in a channel of a data logger, generally controlled from a portable PC.
The Seismic Antennae are suited to the study of superficial seismic phenomena, the dynamic surveillance of dams and basins, the surveillance of subaerial and submarine landslides and explosions, the scientific research in seismology and territory surveillance (volcano surveillance, subaerial and submarine studies of geothermal fields).

FluGas – Fluidized Bed Gasifier
FluGas is a pilot plant for the fluidized bed gasification of such waste as post-consumer packaging, paper industry waste, pre-treated municipal solid waste-derived fuel, etc. The plant, installed inside the industrial site of Le Calorie S.p.A. in Caserta, has a maximum potential of 60kg/h of fuel and is equipped with treatment systems for synthesis gas (cyclone, scrubber, flare), a high number of points for the measurement process variables such as temperature, pressure, rate, etc., on-line analyser for CO, CO_2, H_2, CH_4 and O_2 and system management software.

FluidSim – Granular Flow Simulator
FluidSim is a simulation system for hydrogeological risk prevention and mitigation, an important part of planning in and management of the mountainous areas of a country. The system includes experimental plants, designed and set up by AMRA, for the flow trials of granular solids, both aired and not, for the purpose of studying the role of fluidification in relation to high-speed granular flow. The devices proposed for the study of the dynamics of the front of granular flow on a slope are two: the variable inclination slide and the rotor.

Structure
The competitive advantage of the AMRA consists in having the use of state-of-the-art technological instrumentation, in availing of a team of multi-discipline experts, in supplying services at the forefront in terms of innovation and in some cases unmatched in Europe and in the network of national and international collaborations in course.

In pursuit of its work, AMRA has the use of 300 researchers, laboratories and advanced equipment worth of €15 million, in particular in the fields of seismic, hydrogeological, volcanic, costal and anthropogenic risk.
The AMRA Centre backs those interested in the environmental protection of large areas through the planning and development of the Early Warning system.
The know-how, acquired by the Centre, for the treatment of data provided by the Seismic Antennae is useful for the development of a services sector in the area of environmental control and construction engineering.
AMRA offers consultancy in defining the technical-economical picture of a fluidized bed gasifier plant to businesses, even small and medium sized, who wish to operate in the sectors of mass and energy recovery from pre-treated municipal solid waste, and in particular, post-consumer packaging.

Potential Market
The potential partners for the economic development of the results and competences attained by AMRA can be found among a wide range of public, private and research enterprises entrusted with the management of environmental impact activities, such as the control and conservation of natural resources: managers of large transport infrastructures like ports, airports, interports, manufacturing sites and transport, energy and fuel infrastructures.

Commissioning Bodies/Clients: Civil Protection of the Campania Region, University of Missouri-Rolla, GIS-CURARE-France, CONAI, IACP, Bagnoli Futura/CCTA, CMCC (Euro-Mediterranean Centre for Climate Change), City of Science Naples, Research Authority of the Campania Region, Confindustria (Italian Employers Federation) Naples

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