

Environmental Radioactivity

Maria José Madruga

The Environmental Radioactivity group is the only technical body in the country with specialised equipment and trained staff to fulfil the State's national and international obligations in this field (ex. Artº 35 and Artº 36 EURATOM Treaty). In this context a national radiological environmental network is on going. This programme consists on measuring the natural and artificial radionuclides in: aquatic ecosystems, mainly rivers, whose basins receive effluents from Spanish nuclear power plants (ex. Tejo), estuaries and portuguese coast; terrestrial environmental radioactivity (foodstuffs, drinking water, soils, etc.) due to atmospheric fallout or enhanced natural radioactivity and, atmosphere radioactivity (rainwater and aerosols) due to anthropogenic and cosmic radiation.

Current research projects are on going to investigate the levels of radioactive contamination in and around the old uranium mining sites in order to assess the radiological risk for the population and to assist with defining priorities for environmental rehabilitation.

Studies concerning the determination of indoor radon concentrations, radon exhalation from building materials and radon countermeasures are on going.

The technical services developed by this group are often carried out under contract with companies or, by request from enterprises or Government organizations.

Some of these technical services are: the evaluation of the radioactivity levels in public water supplies (Decree-Law nº243/2001) and mineral waters, the radioactivity analyses of foodstuffs, goods and building materials to export, and radon measurements in indoor atmosphere.

The group have also collaborated in the elaboration of a proposal for a new research project with the University of Laguna (Canárias) submitted to the INTERREG IIIB Atlantic-Space Programme (2000-2006). The aims of the project is to develop and implement an environmental radiological survey programme in the Açores, Madeira and Canárias archipelagos. Another projects were submitted to INTERREG IIIA and FCT (Fundação para a Ciência e Tecnologia).

Two researchers of the group are members of the "Comissão e Subcomissão de Acompanhamento da Concessão para o Exercício da Actividade de Recuperação Ambiental de Áreas Mineiras Degradadas (Base XII do Decreto-Lei 198-A-2001 de 06.07)".

During this year it has been initiated the making of administrative and technical procedures following the NP EN ISO/IEC 17025 having as objective the accreditation of global alpha, global beta and tritium techniques. Besides, an environmental database has been implemented, in which all the internal and external samples, the techniques associated to the analyses, the results and the respective analyses reports are recorded.

In 2004, the group has participated in two intercomparison exercises: one, organized by the European Commission in the framework of the Artº 35, concerning the determination of radioactivity in airborne particles; and the other one, for the determination of radioactivity levels (global alpha, global beta, tritium, Cs-137 and Sr-90) in drinking water, organized by the Consejo de Seguridad Nuclear (Spain).

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Research Team

Researchers

- M.J. MADRUGA, Principal Researcher (Group Leader)
- F. CARVALHO, Principal Researcher
- M. REIS, Auxiliary Researcher
- J.A. CORISCO, Research Assistant

Students

- I. LOPES, Post-Doc, FCT grant
- J. GOUVEIA, ITN grant until April 2004
- L. SILVA, ITN grant until April 2004
- L. MACHADO, ITN grant
- L. RAMOS, ITN grant until April 2004
- M.M. MALTA, FCT grant
- P. DUARTE, ITN grant

Technical Personnel

- M.M. SEQUEIRA, Technician (Specialist Principal)
- G. FERRADOR, Technician (Specialist Principal)
- J.M. OLIVEIRA, Technician (1^a)
- M.A. GAMEIRO, Professional Technician (Specialist Principal)
- A. LIBÂNIO, Professional Technician (1^a)
- M.A. TAVARES, Professional Technician (2^a)
- M.A. PEREIRA, Auxiliar Technician

Funding (€)

Research Projects:	55.462,00
Services:	137.780,00
Total:	193.242,00

Publications

Books:	
Journals:	3
Proceedings:	15 and 3 in press
Conf. Communications:	2
Other publications:	
Internal reports:	5