



ALMERA

Analytical Laboratories for the Measurement of Environmental Radioactivity

Minutes of the 5th coordination meeting

*Comissao Nacional de Energia Nuclear
Instituto de Radioprotecao e Dosimetria (CNEN-IRD)
Rio de Janeiro (Brazil), 27-29 October 2008*

The fifth ALMERA (Analytical Laboratories for the Measurement of Environmental Radioactivity) network coordination meeting took place in Rio de Janeiro, Brazil, from 27 to 29 October 2008 and was hosted by the Comissao Nacional de Energia Nuclear, Instituto de Radioprotecao e Dosimetria (CNEN-IRD).

The meeting was officially opened by Mr. Luiz Fernando Carvalho Conti, the Director of CNEN-IRD and by Mr. Umberto Sansone, Head of the the IAEA Chemistry Unit of the Physics, Chemistry and Instrumentation Laboratory in Seibersdorf (Austria). The meeting was chaired by Ms. Ana Cristina de Melo Ferreira, Head of the Service of Environmental Analysis (SEANA – Servico de Análisis Ambientais) of CNEN-IRD.

The meeting was attended by 27 participants from 17 countries, representing 21 different institutions. Representatives of the Korea Institute of Nuclear Safety (KINS), as focal point of the ALMERA Asia-Pacific regional group, attended the meeting.

IAEA	Chang Kyu Kim	Seibersdorf Laboratories, Austria
	Umberto Sansone	Seibersdorf Laboratories, Austria
Brazil	Luiz Fernando Carvalho Conti	CNEN-IRD, Rio de Janeiro
	Ana Cristina de Melo Ferreira	CNEN-IRD, Rio de Janeiro
	Almir Clain	CNEN-IRD, Rio de Janeiro
	Maria Elizabeth C. M. Vianna	CNEN-IRD, Rio de Janeiro
	Maura Bragança	CNEN-IRD, Rio de Janeiro
	Maria Helena Tirollo Taddei	CNEN-Poços de Caldas
	Barbara Mazzilli	CNEN-IPEN, Sao Paulo

Republic of Korea	Ji Yon Lee	Korea Institute of Nuclear Safety
	Yongjae Kim	Korea Institute of Nuclear Safety
	Ju Yong Yun	Korea Institute of Nuclear Safety
Germany	Seigurd Mobius	FTU/FZK Research Center Karlsruhe
Hungary	Tarjan Sandor	Food and Feed Safety Directorate, Budapest
Spain	Fernando Legarda	University of the Basque Country, Bilbao
Slovenia	Jasmina Kozar-Logar	Josef Stefan Institute
Poland	Izabela Chmielewska	Central Mining Institute, Katowice
Cuba	Isis Maria Fernández Gómez	Center for Radiation Protection and Hygiene, La Habana
Sweden	Lilian del Risco Norrlid	Swedish Radiation Safety Authority
Costa Rica	Luis Guillermo Loria	Universidada de Costa Rica
Uruguay	Maria del Rosario Odino Moure	Direccion Nacional de Ennergia y Tecnologia Nuclear, Montevideo
Chile	Oswaldo Hernan Pinones Olmos	Chilean Commission of Nuclear Energy
Czech Republic	Petr Rulik	National Radiation Protection Institute (SÚRO)
Peru	Jose Osoro Rebaza	Instituto Peruano de Energia Nuclear, Lima
Romania	Cristina Bucur	Nuclear Power Plant Cernavoda
Argentina	Flora Amanda Iglicki	Comision Nacional de Energia Atomica, Buenos Aires
Mexico	Ligia Ruiz	Comision Nacional de Seguridad Nuclear y Salvaguardias, Mexico City

Objectives of the meeting

The overall aim of the meeting was:

- to evaluate the current status of the ALMERA network;
- to discuss the implementation of the current activities of the ALMERA network;
- to define the future activities of the ALMERA network.

Current status of the ALMERA network

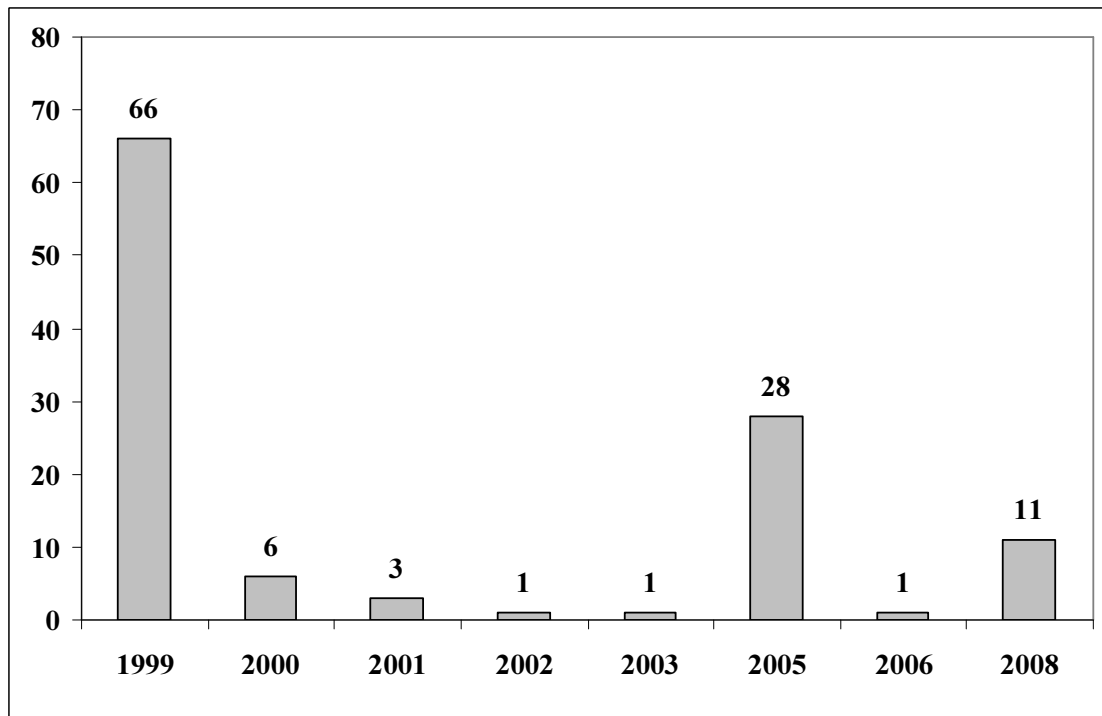
ALMERA currently (December 2008) consists of 117 laboratories representing 72 countries. The Agency's Seibersdorf Laboratory in Austria and its Marine Environment Laboratory in Monaco are additional members of the network.

In 2008 the following eleven laboratories joined the ALMERA network:

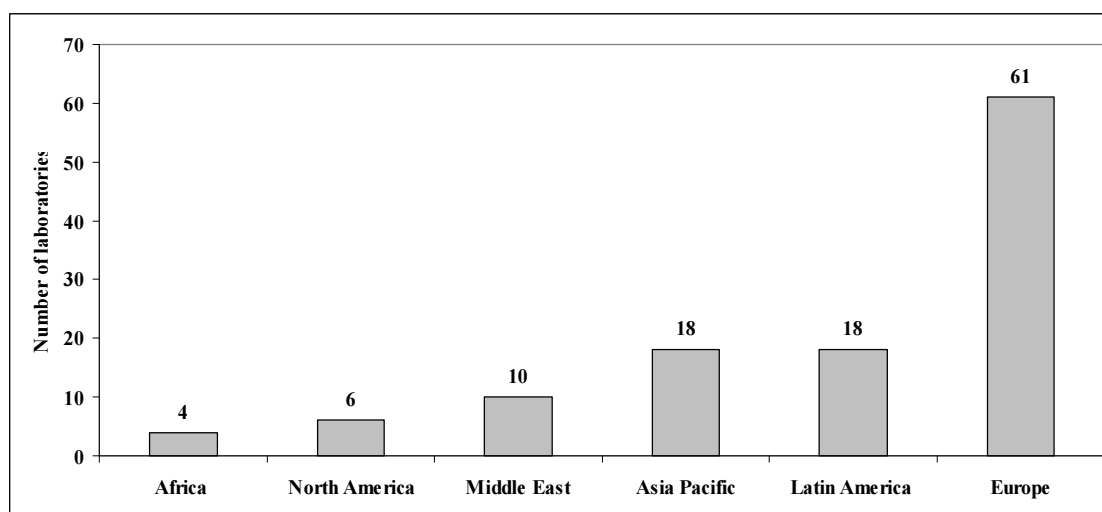
- Comision Nacional de Energia Atomica (Argentina);
- Brazilian National Commission for Nuclear Energy (CNEN-IPEN);
- National Radiation Protection Institute (Czech Republic);
- ARPA-Lombardia (Italy);
- Japan Chemical Analysis Center;
- Instituto Peruano de Energia Nuclear (Peru);
- Laboratory of Radiometry of the Central Mining Institute (Poland);
- Universidad del Pais Vasco (Spain);
- Dirección Nacional de Energia y Tecnologia Nuclear (Uruguay);
- Ministerio del Poder Popular para la Energia y Petróleo (Venezuela);
- Centro de Estudios Ambientales de Cienfuegos (Cuba).

During the 5th ALMERA coordination meeting, the representatives of the countries which joined the AMLERA network in 2008 presented papers about their institutions and work.

The following figure shows the nominations of ALMERA laboratories in the different years from 1999 to 2008.



The following figure shows the current distribution of ALMERA laboratories by region.



From 2005 the annual coordination meetings with the ALMERA members took place each year on rotation between the different regional groups as reported in the following table.

1999	: 1 st coordination meeting	IAEA, Vienna (Austria)	24 participants (15 countries)
2005	: 2 nd coordination meeting	ICTP, Trieste (Italy)	45 participants (29 countries)
2006	: 3 rd coordination meeting	KINS, Daejeon (The Republic of Korea)	36 participants (17 countries)
2007	: 4 th coordination meeting	ICTP, Trieste (Italy)	63 participants (35 countries)
2008	: 5 th coordination meeting	CNEN-IRD, Rio de Janeiro (Brazil)	27 participants (17 countries)

In addition, in 2007 an Asia-Pacific regional meeting was held at KINS, Daejeon (The Republic of Korea) with 20 participants from 5 countries.

The meetings permitted improved communications between network members, assessment of the status of the laboratories and improvement in the collaborations between members of the same regional group. To increase interaction between the laboratories, the IAEA has partially covered the expenses for the participation at the meeting of some of the laboratories belonging to the same regional group.

Current activities of the ALMERA network

The results of 2006 and 2007 proficiency tests specifically organized by the IAEA for ALMERA members were discussed during the meeting (IAEA-CU-2006-04 on the determination of gamma emitters in soil, water, grass samples (IAEA/AL/170), IAEA-CU-2007-04 on the determination of gamma emitters in soil, water and spinach samples) and IAEA-CU-2007-09 ALMERA and world wide open proficiency test on the determination of Po-210 in water. Considering that a large number of participants from Latin America joined the ALMERA network in the period 2007-2008, the participants suggested that it will be extremely useful to organize training courses for the Latin American participants to work on practical exercises, and to refresh and up-date knowledge and skills in radioanalytical techniques. It was suggested that the first course should be on gamma spectrometry. It was recommended that all the ALMERA Latin America participate in the proficiency tests that will be organized in 2009 for the ALMERA members.

The ALMERA members suggested that the “Not acceptable” results obtained by the members in the ALMERA proficiency tests should be discussed in one session of each annual coordination meeting in order to identify gaps and areas where further development is needed.

During the discussion it was pointed out that at the moment another radioanalytical network is currently in force in the Latin America region, the RILARA network (Ibero-American Laboratories Network of Radioactivity Analysis in Food). RILARA is a thematic network that was established during 2007 with the financial support of the Ibero-American Program of Science and Technology for Development (CYTED). The network, coordinated by CIEMAT, Spain, brings together laboratories from Argentina, Brazil, Cuba, Ecuador, Spain, Mexico, Peru and Venezuela. The main objective of thematic networks is the transfer of knowledge among the research groups and to foster cooperation as a working method. Their mission is to create a collaboration framework that allows in the future developing new common actions.

Considering that ALMERA and RILARA networks have some links, the participants of the 5th ALMERA coordination meeting suggested that it would be useful to harmonize the analytical techniques used by both networks. Considering that CIEMAT (Spain) is the coordinator of RILARA, the participants to the 5th coordination meeting suggested IAEA contact CIEMAT and verify the possibility to jointly organize the 2009 training course on gamma spectrometry.

Concerning the development of recommended procedures, the Korea Institute of Nuclear Safety (KINS), as focal point of the ALMERA Asia-Pacific regional group, presented the implementation of the activities performed in the period 2007-2008. The development of rapid analysis method for ⁹⁰Sr in milk was the main outcome achieved by the group. Milk is one of most important pathways for the ingestion dose of ⁹⁰Sr and a rapid analytical method for ⁹⁰Sr, to be used in case of radiological emergency situation, will be extremely useful for the ALMERA network. KINS is also currently a member of the IAEA multi-institutional Advisory Group on the production and characterization of reference materials of terrestrial origin.

In the framework of development of recommended procedures the participants in the 2008 ALMERA coordination meeting suggested that the IAEA should provide to the active ALMERA members, the IAEA reference materials free of charge and within limited amount, where they are used for method validations and method development in the frame of ALMERA.

Future activities of the ALMERA network

The IAEA presented a draft proposal for the determination of ²²⁶Ra in drinking water using gamma-spectrometry, alpha-spectrometry, liquid scintillation counting and ICP-MS. On the basis of a literature review, the IAEA will select one or two candidate recommended procedures for the determination of ²²⁶Ra in drinking water using gamma-spectrometry, alpha-spectrometry and liquid scintillation counting. The ALMERA member laboratories, interested to participate in the validation of the methods in terms of trueness, repeatability and reproducibility will be contacted and involved in the activities. This activity will be implemented on voluntary basis.

As mentioned above, the ALMERA Asia-Pacific regional group, coordinated by the Korea Institute of Nuclear Safety (KINS), is developing a rapid analysis method for ⁹⁰Sr in milk to be used in case of radiological emergency situation. The method will be validated in 2009 through an interlaboratory comparison study using spiked milk powder. The IAEA intercomparison study will be organized in cooperation between the IAEA, the KINS and the Hungarian Food and Feed Safety Directorate.

As was recommended during the 4th ALMERA coordination in Trieste, Italy, also the participants to the 5th coordination meeting pointed out the need to organize a proficiency test on gamma emitting radionuclides in air filters. It was suggested to organise this proficiency test in 2009 in collaboration with ENEA, Italy, that has a long experience in this field.

The Abdus Salam International Centre for Theoretical Physics (ICTP) in Trieste, Italy, together with the IAEA will organize a training course on *in-situ* X-ray Fluorescence and Gamma Ray Spectrometry from 26 to 30 October 2009. The training course will present the recent advances in this area as well as the benefits or applying these techniques. X-ray fluorescence (XRF) and gamma ray spectrometry techniques have successfully been applied in the field and in industrial environments for *in-situ* analysis which cover the analysis of artefacts and materials that have not been moved from their original place of deposition/storage, soil screening for metals, indoor and outdoor air pollution monitoring, screening of contaminated areas in emergency situations, mapping of large seabed area to estimate the levels and distribution of natural and/or anthropogenic radionuclides, radioactive mapping of terrestrial environment, monitoring of airborne materials and building materials, investigation of the radiation field in the vicinity of sunken objects, decontamination assessment etc.. The training course represents a possibility for ALMERA members to work on practical exercises, and to refresh and up-date their knowledge and skills in X-ray fluorescence (XRF) and gamma ray spectrometry techniques.

The 6th ALMERA coordination meeting will be organized in the 4th quarter 2009 in Europe. The date and location are not at the moment defined.

A regional meeting for the Asia-Pacific region should take place in the Republic of Korea in April 2009 combined with a seminar on uptake of radionuclides into staple crops in the Asian region.

As an additional information, the IAEA announced that IAEA/WMO will jointly organize the technical meeting on “Sources and measurements of radon and radon progeny applied to climate and air quality studies”, 22-24 June 2009 IAEA Headquarters, Vienna, Austria, co-sponsored by World Meteorological Organization (WMO).

Recommendations

The participants of the 5th ALMERA coordination meeting recommended that the focal points of each ALMERA regional focal point should rotate every five years between members of the same regional group. On this basis the participants agreed that the focal point for the Asia-Pacific region should be extended until the end of 2011.

The ALMERA participants agreed to nominate the Institute of Radiation Protection Dosimetry of the Brazilian National Commission of Nuclear Energy (CNEN-IRD), as focal point for the the North and Latin America region, for the period 2009-2013.

The ALMERA participants requested the IAEA to issue an official certificate mentioning the designation of the laboratory as ALMERA member and as focal point of the ALMERA network.

Each ALMERA meeting should be combined with a workshop and/or training course related to environmental radioactivity measurement techniques.

The ALMERA participants recommended that the Korea Institute of Nuclear Safety (KINS), as ALMERA focal point for the Asia-Pacific region, should continue to organize annually the regional meetings, to facilitate the interactions between the ALMERA laboratories of the same area. On this basis, the KINS proposed to organize the meeting in April 2009 in the Republic of Korea. The meeting will be combined with a seminar on uptake of radionuclides into staple crops in the Asian region.

The ALMERA participants highly recommended organizing training courses for the Latin American participants to work on practical exercises, and to refresh and up-date knowledge and skills in radioanalytical techniques. The first course should be on gamma spectrometry and possibly organized in 2009 jointly in collaboration with the RILARA network (Ibero-American Laboratories Network of Radioactivity Analysis in Food), coordinated by CIEMAT, Spain.

The ALMERA participants suggested that the IAEA should provide to the active ALMERA members, the IAEA reference materials free of charge and within limited amount, where they are used for method validations and method development in the frame of ALMERA.

Considering that a large number of participants from Latin America joined the ALMERA network in the period 2007-2008, the ALMERA participants highly recommended that all the ALMERA Latin America members participate in the proficiency tests that will be organized in 2009 for the ALMERA members.

The ALMERA participants requested that during each ALMERA meeting one session should be devoted to discuss the “Not acceptable” results obtained by the members in the ALMERA proficiency tests, in order to identify gaps and areas where further development are needed.

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Participants to the fifth ALMERA coordination meeting

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