Scientific report for the intercomparison of two different radon monitors in the Mediterranean environment.

- Purpose of the visit

The purpose of the visit was to compare two radon monitors working based on different measurement principles. One is measuring 222-Rn concentration in a glass sphere flushed by atmospheric air and the second one is measuring the 222-Rn daughter activity (214-Po and 218-Po) collected on the quartz glass filter, and assuming constant disequilibrium between Rn and Rn daughter, the 222-Rn concentration in the atmosphere is calculated. The comparison was planned for two contrasting environments.

- Description of the work carried out during the visit

The comparison was planned for two contrasting environments. The first part was performed in the high mountain environment of Kasprowy Wierch station (Southern Poland) in July 2011.

The granted visit took place from 17 to 28 of October 2011 (including travel).

During this visit the second part of the intercomparison was done in Delta del Ebro station (40°44'N 0°47'E). The station is located at the eastern coast near the Ebro river estuary to the sea (Fig 1).

Figure 1 Location of Delta del Ebro station on map (A) and outside view (B).

It is surrounded by very wet area, mainly rice paddies (Fig 2) reducing significantly radon exhalation rate in the close vicinity, casing low Rn background and making possible analysis if different air masses influence.

Figure 2 Station vicinity.

Two radon monitors (Fig 3)were running in parallel between 16 and 26 of October 2011. During my stay at the station everyday inspection of the instruments were carried out as well as some routine procedures were done (regeneration of the dyer, collecting of the air samples, real-time data evaluation and preliminary interpretation of the data).

Figure 3 Radon monitors installed at the station.

- Description of the main results obtained

The results obtained during 10 days of parallel measurements are in a good agreement. A mean value obtain with radon progeny monitor equals 2.14±0.95 Bq/m^3 compared to 2.23±1.02 Bq/m^3 obtained with radon monitor. The difference equals 0.09 Bq/m^3 which is much less that standard deviation obtained from both monitors. Both records are presented on fig. 4.

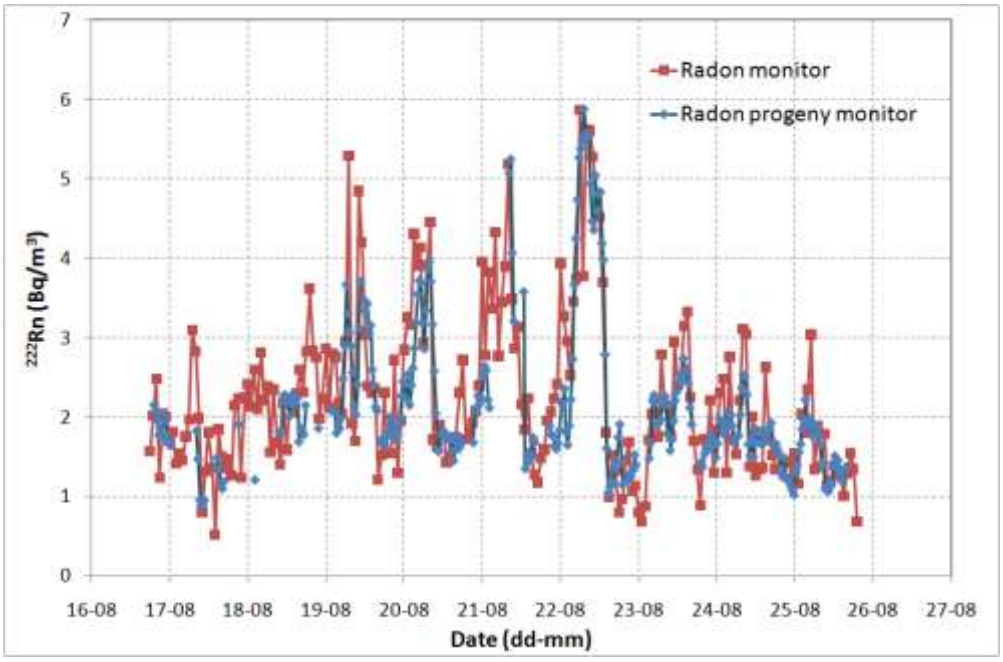

Figure 4 Radon concentration obtained during the measurement campaign in Delta del Ebro station.

Most of the time both monitors reported the same value (within instrument precession). Both low and high concentration values were followed by the instruments however there are some events (18.08 evening, 22.08

midnight) where a difference occurred. Interpretation of this events needs closer look into the data and comparison with meteorological conditions existing during this events and will be a subject of a common publication.

- Future collaboration with host institution *(if applicable)*

The partners declared their willingness to continue cooperation in the Rn concentration measurements.

- Projected publications/articles resulting or to result from your grant

The poster containing the results of the intercomparison will be presented on the IMECC final assembly in Garmisch-Partenkirchen on 22-23 September 2011.

There is also planned a submission of the technical note describing obtained results in one of the journals by the end of 2011

- Other comments *(if any)*