

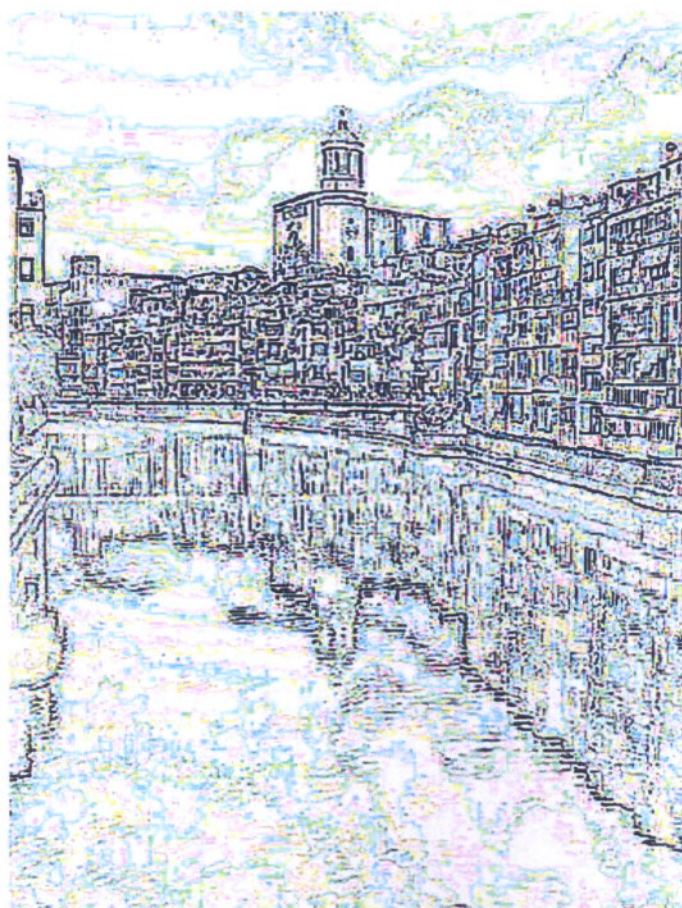


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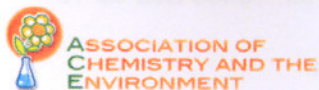
9th European Meeting on Environmental Chemistry



Programme and book of Abstracts

**Escola Politècnica Superior Girona, Catalonia, Spain -
3-6th December 2008**

- **EMEC9 is organised by:**



Grup Metalls i Medi Ambient
Escola Politècnica Superior
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VARIATIONS OF RADON AND AIR-IONS CONCENTRATIONS IN INDOOR AIR

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Air-ions and radon are basic constituents of outdoor and indoor air the lower tropospheric air. Air-ions are composed of the central ion and 4–12 molecules of water around, depending on polarity. The structure of dominant air-ions in indoor air is determined by water, ammonia, nitrogen oxides and radical of nitric acid (NO₃). Their mobilities are $\geq 0.5 \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$ and life time up to 100 s. Near the ground level, air-ions originate mostly by radon α -decay and cosmic radiation. In order to clarify relation between radon and air-ions, and their behaviour in indoor space, we performed series of measurements. The air-ions detector "CDI-06", made in the Institute of Physics, Belgrade, and with "RAD7" - Electronic Radon Monitor/Sniffer were utilized for measurements. Several representative indoor places were chosen to perform measurements: ground floor houses, different buildings and cellar. The results have shown that air-ions pair production rate is mostly caused by radon activity. Outdoor meteorological conditions and local geophysical properties of surrounding soil determining daily changes of radon emanation and consequently air-ions concentrations. Also, concentration of the air-ions have minimums and maximums with period of about 12 hours what are closely connected with measured changes of radon activity. Higher values of radon and consequently air-ions are about one hour before sunrise when they can reach values of few tenths above daily concentrations. Relation between air-ions expressed in the ions/m^3 and radon activity in Bq/m^3 for positive and negative air-ions are between $10\text{-}15 \times 10^{-6}$ depending on humidity, air pollution and quantity of electrostatic surfaces in indoor area.