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Assessment of present and future radioactive contamination at global scale

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As a result of plus than two thousand nuclear tests performed since 1945, two war actions and few accidents in nuclear reactor, it does already exists a radioactive contamination at global scale. This contamination has been accumulated mainly in marine sediments, because sea is about 80% of planet surface, and solid fission products released by nuclear explosions are transported by wind first and then by rain to liquid and solid portions on earth, while gaseous fission products are diffused in the atmosphere. In this way, heavy, high yielding fission products, such as Cs-137 get marine sediments, where they are found mixed with heavy radioactive natural elements such as U, Th and their also radioactive decay products. But since alkaline are so abundant on earth, it is also found natural radioactive isotope K-40, 0.0118% of isotopes forming K element, with half life 1.28×10^9 , in the time range of planet age and elements origin. So, one easy way to assess both the importance and evaluation of radioactive contamination at global scale, should be to establish a radioactive contamination factor (RCF) as a percentage of Cs-137 contaminant radioactivity in marine sediments, compared to K-40 natural radioactivity present from the very beginning of earth, both expressed as Bq per gram of sediment. In the frame of these rather general considerations a research project has started in Mexico whose varied purposes are: to characterize sea regions in both vast litorals in the country, by its natural K-40 radioactivity present in sea salts, as well as to determine if Cs-137 traces produced by recent radioactive contamination have reached their coasts. Also, to assess the Cs-137 traces already present in marine sediments as a result of more than two thousand nuclear test explosions performed till now, rather than contamination produced by four main accidents in nuclear reactors during the last 60 years. It is proposed a radioactive contamination factor obtained from samples taken up in both coasts during the last two years, which it should be very useful in two ways: first to assess the real danger of radioactive contamination already present by comparing with natural radioactivity, and second to assess the growth, equilibrium or drop of radioactive contamination, given that nuclear energy is still the best option to solve the large energy demand foreseen in the near future.

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