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WORK STORY

PhD Student.

Present : consultant in environnement and energy.

2008-2014 : Analyst and researcher at the department of analysis and nuclear technology of the Institut National des Sciences et Techniques Nucléaires (Madagascar – INSTN).

COMPUTING KNOWLEDGE

- Computing: C/C++ language, Matlab.
- Operating system: Windows, Linux.
- Html, Xhtml.
- Hardware.

EXPERIENCES

- Elaboration of energy and environmental project.
- 2012. Fellowship at the department of radio-ecology and environment of CNESTEN Maroc concerning the use of radiotracer to study sedimentation and erosion. (*Bourse offerte by the International Agency of Atomic Energy*)
- 2009 – 2010 – 2011. Environmental impact study and consultant in dosimetry and radioactivity in the site of exploration and exploitation (VARUN, Mainland, Mada mining....)
- 2012. Technical person responsible of the study of vibration and resonant disruption in the exploitation sites of Mandena and Sainte Luce
- 12-16/09/2011, Workshop on Inter-Comparison Feedback of Neutron Activation Analysis and other Analytical Techniques. Antananarivo – Madagascar (IAEA / INSTN). (International Workshop)
- 2010 : Developement of deconvolution method for gamma ray spectra with application in radioactive soil samples. (INSTN).

EDUCATION

- **M.Sc in Nuclear Physics.**

November 2010. University of Antananarivo.

Thesis title : deconvolution of gamma ray spectra with application in radioactive soil samples.

- **B.Sc Physics.**

Septembre 2006. Université d'Antananarivo.

- **DUES I and DUES II en Physics – Chemistry**, University of Antananarivo.

LANGUAGE SKILLS

- French, English, German (notion).

ABSTRACT

Seism is a natural phenomenon difficult to predict. Until today, the forecasting of seism is still impossible. The only elements whose seismologists have are the statistics on the occurrence and the magnitude of the earthquakes in a region. When we know the seismological history of a region for a long time, we can have an idea, not only for the intensity of the earthquakes susceptible to happen, but also their frequency. That permits to determine the probability of occurrence of earthquakes in the region. The problem is that this method is not able to predict seism at short term.

The projects that we propose try to overcome the impossibility to predict earthquake at short term. Research papers report that there is a link between earthquake and the variation of concentration of radon in atmosphere. An anomaly of concentration of radon is followed by earthquake. Let's note that anomalies correspond to the brutal variation of radon. This work unifies several disciplines of science such as environmental radioactivity, sismology and artificial neural networks (RNA). The RNA serves us to foresee the temporal evolution of the concentration of radon. The concentration of radon is the input parameter of the neural network. If radon anomaly is detected, we can give a prediction of some day to 1 month of earthquake. We use radon meter for measuring the radon emanation and matlab for the computing tools.

Statement of Interest

I have a great interest in the formation Ecological and Epidemiological Modeling in Madagascar. Modeling is an important part of my research. In 2010, I already worked on a project that aims to separate peaks that interfere. Our method was based on curve fitting using the nelder-mead optimization and least square method. I think that after this training, we would be able to find another more advanced method. Another research work that I have already done is the sediment dating using models called CRS (Constant Rate of Supply), CIC (Constant Initial Concentration), CFCS (Constant Flux and Constant Sedimentation), SIT (Sediment Isotope Tomography) and PM (Proportional Model) MBM (Mass Balance Model) for erosion estimation and DMM (Diffusion and Migration Model) and PDM (Profile and Distribution Model). I hope that after this training, we will be able to improve these models or even create our own model. The same goes for the prediction of earthquake.

In summary, before, we simply used to use models already developed by other researchers my goal after the training is to be able to create models that could improve the results we have already achieved.