



University of Turabo
Gurabo, Puerto Rico
Doctoral Program in Environmental Science

Fluoride in Puerto Rico's Drinking Water: Scientific Evaluation and it's Effect on Public Health

Prepared by: Javier Quiñones Moya
Julia D. Ortiz

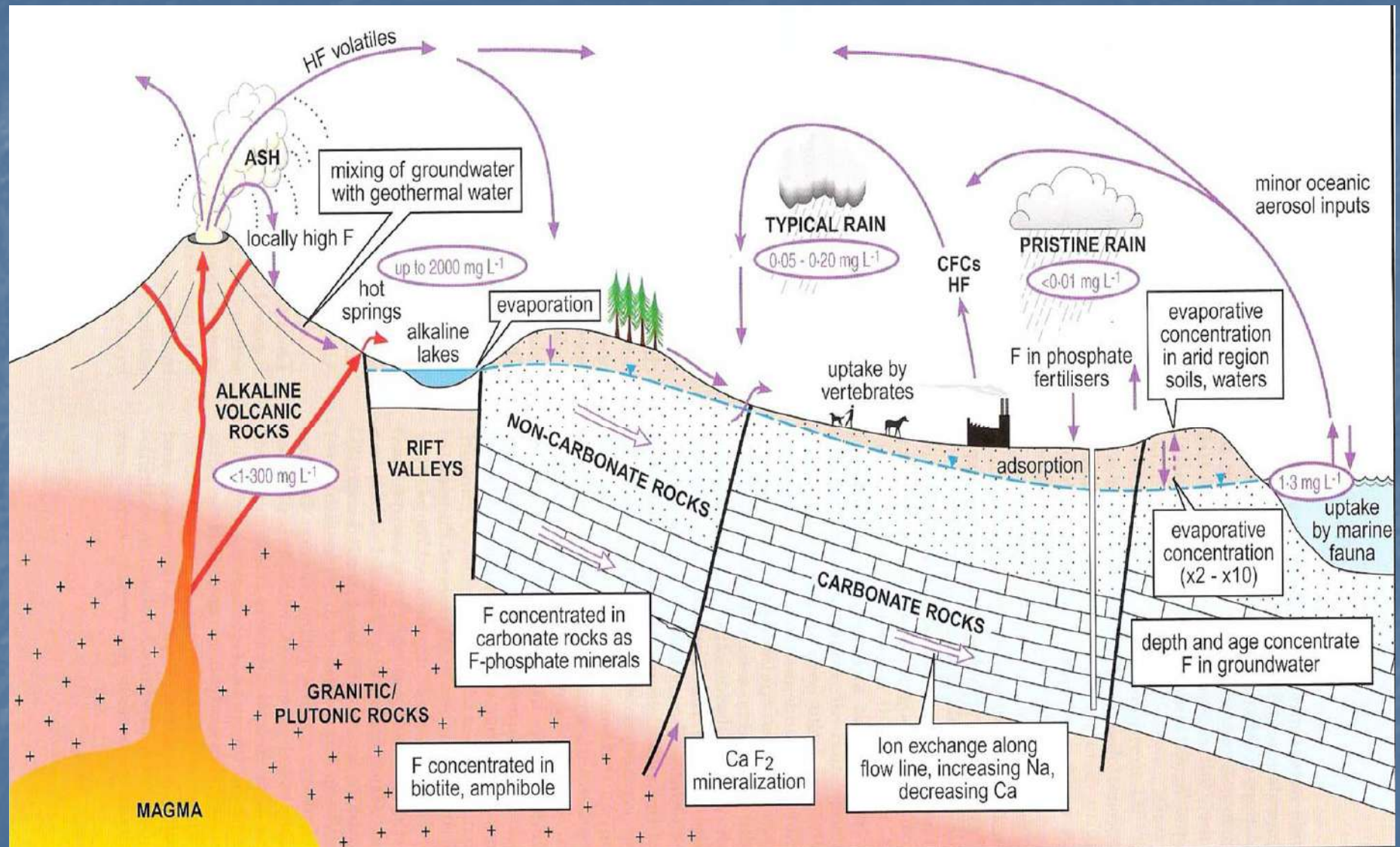
Course ENSC-907: Medical Geology Seminar
Professor: Dr. Fred C Schaffner

Project Summary



- Research indicates that fluoride causes different types of health problems.
- International research findings indicate that excessive intake of fluoride leads to the loss of calcium in teeth and bones, thus creating Fluorosis.
- This research introduce the study of the relationship between public health and the quality parameters of water standards of the AAA.

The Hydrogeochemical Cycle of Fluoride



(Alloway Brian, Selinus Olle, Centeno José A, Finkelman Robert B., Fuge Ron, Lindh Ulf and Smedley Puline, 2005)



Need of the Research

- The AAA have no analysis concerning the findings of fluoride and its geographical connotations and impact in public's health.
- Law 266 regulates fluoride application in water treatment in Puerto Rico, but the AAA does not have any procedures to incorporate fluoride in the water treatment.
- The population in Puerto Rico does not enjoy the systemic benefits of fluoride in a standard concentration.

Subject of the Research

- Research the effect of fluoride on public's health when added to drinking water.
- To identify the fluoride presence in areas where health problems have been associated to it.
- Find any correlation between fluoride and its effects on the population's dental health.
- Relationship between illness and Fluoride levels detected in Puerto Rico's drinking water.

Research Procedure



Planning

- Evaluate the drinking water system against the EPA requirements and identify the deficiencies in fluoride treatment.
- Evaluate the aspects and impacts of environmental process in relation to the treatment of fluoride.
- Review the environmental law and regulations of fluoride treatment in the drinking water systems in Puerto Rico.

Research Procedure



Implementation

- Execute the scientific and research study programs to improve the treatment of drinking water in Puerto Rico.
- Formalize several recommendations about the benefits and negative aspects of fluoride in the environment and public health issues through documentation, research and training.

Research Procedure



Implementation

- Analyze the existing procedure to determine how will the EPA requirement are to be met.
- To fulfill legal and regulations requirements at local and federal agencies.
- Contribute with findings to the parties interested in this issue.

Research Procedure



Revision

- Monitor the accomplishment and improvement if any of the AAA system.
- Conduct internal and external audits to the AAA in order to measure the established procedures from the state and federal agencies.

Research Procedure



Revision

- Conduct preventive and corrective actions through the process of sampling and collecting data.
- Review our objectives to guarantee that during the implementation process total quality control is being achieved.

Expected Results

- Establish relationships, actions, procedures, and toxic findings in accordance to the existent law and regulations.
- Compare the concentrations of fluoride that can help prevent cavities versus the quantities that can harm the teeth (dental fluorosis), and bones development (skeletal fluorosis).
- Proof that excessive exposure of fluoride causes a risk to the balance between water quality, public health and the environment.

Questions?

