**Reading Questions**

McDowell, W.H. 1998. Internal fluxes in a Puerto Rican rain forest.

1. **Does this scientific paper have a hypothesis? If so, what is it? Or is this paper simply a quantification of nutrient fluxes? Explain your answer.**
2. **In the first full paragraph on page 522 (“Characterization of nutrient cycles in tropical forest…”), McDowell mentions that humid tropical ecosystems can be defined by a “tightness of nutrient cycling.” What does he mean by this?**
3. **In November 1984 Hurricane Klaus hit the eastern portion of Puerto Rico which is where the Luquillo Experimental Forest in located (see Figure 1). How might this intense hurricane affect the results reported in this paper? Were there elements of the experimental design that may have help control for such a disturbance?**
4. **Leaf litter is another major source of nutrients in forest and stream ecosystems. How do fluxes of certain nutrients compare between throughfall and litter fall? Why such large differences considering that one of the main sources of throughfall nutrients is the leaching of leaf-derived nutrients when rain drops fall onto leaves.**
5. **At the end of the paper McDowell mentions that fluxes of inorganic N are much higher than levels of inorganic N in the stream runoff. Why are the processes of plant uptake and denitrification important at the ecosystem level?**