Abstract: We will talk about two problems arising in the geosciences. The first is modeling underground fluid flow. The water that we all drink generally comes from aquifers deep underground after being filtered through porous rock. In karst aquifers, however, the domain is not so straightforward. Karst aquifers, like the aquifer in Florida, are characterized by irregularities such as springs, caves, sinkholes, fissures, etc. Because of this, water can flow through conduits or pipes in addition to the porous rock. This requires different types of models and we will compare two of them. The second problem is climate change. Climate change is an issue that has gotten a lot of attention lately, with different opinions about what is really happening. Why is it so hard to model this phenomenon? The answer is chaos. We will look at a simplified climate model and compare different numerical schemes used to implement it.