

Alaska Groundwater Animations

Members: Spencer Gordon

Project: Interactive Animations for the University of South Florida's Geology Department

Date: June 2020 through September 2020

Person of Contact: Mark Rains

Resources: Unity, AStar Pathfinding

Purpose: Create an interactive animation to display how water usage by houses in a developing community in Alaska affects the water levels of the aquifer, and nearby river. This would be used in a research presentation in order to inform that developing community.

Process: The project is an animation created in Unity which changes the river level and color depending on the water usage of houses alongside the river. I started development with the parameters that change when houses use water. Water is taken out of the aquifer, lowering the total water in it, and is placed into the house. The water used by the house would turn into waste, eventually finding its way back into the water. All of the water in the aquifer that is not used by the house runs into the river, affecting its level as well. I turned this into an animation by abstracting water into small droplets, and having them follow paths created by using the AStar pathfinding package in Unity. Depending on the level of the water usage, represented by a faucet, these droplets would either rise into the houses or continue along their straight path in the aquifer. The animation was also designed to have a delayed effect in mind, mimicking how real-life water cycles work.

Major Design Decisions

Graphic Design: I chose a visual style that resembles a geological cross-section. This allows the animation to be easily identifiable by professionals in the field, while also having the perspective and tool to be understood by an average audience member.

Delayed Effects: The waste particles were deliberately slowed down, to mimic how percolation functions in reality. It is meant for the researchers at USF to be able to show members of the developing community how the waste their septic tank produces will affect the environment, even though it might not look like it is at the moment.

