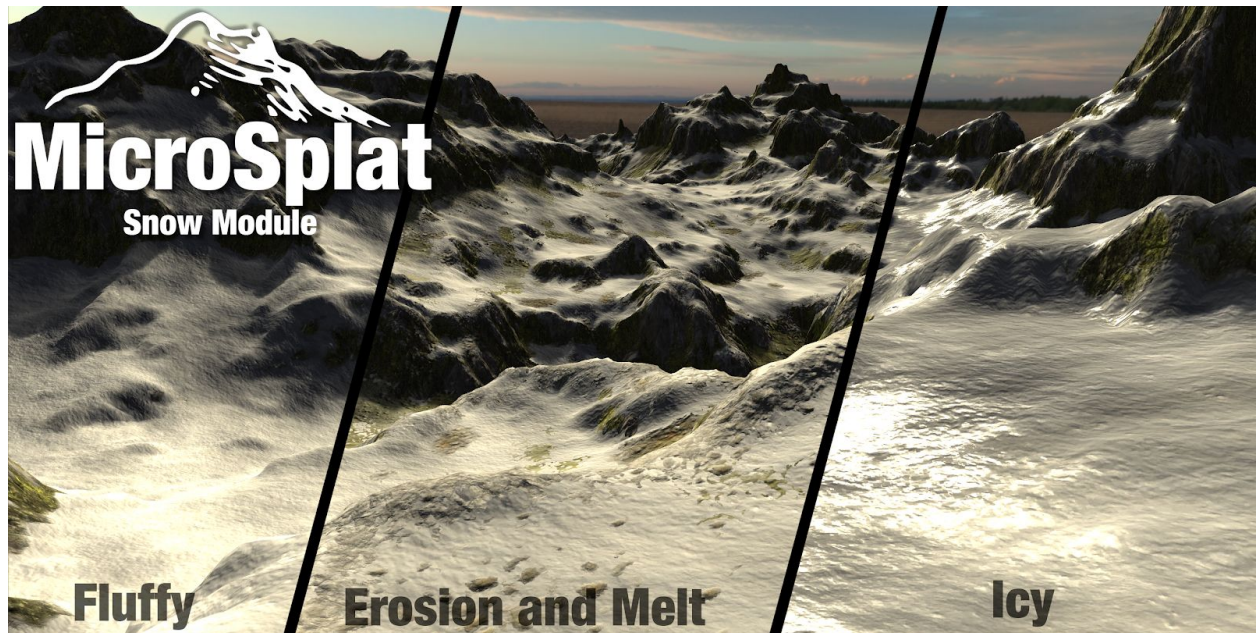


MicroSplat

Snow Module, Documentation



Overview

The Snow module adds dynamic snow to the scene, and features the ability to erode or age the snow into an icy surface.

Shader Features



Turning on the 'Global Snow' option will recompile the shader and add two additional options for Snow. The snow comes in two flavors,

The Snow Normal Noise option allows you to blend in a normal map over the snow. The Snow Distance Resample option will resample the snow textures with a different UV scale, blending between the two over a distance. These features are both easy and cheap improvements to the shader, allowing you to add additional variation to break up tiling and give a larger sense of scale to the snow.

If the Texture Clusters module is also installed, an option for Stochastic Sampling the snow is also available. Stochastic sampling is another anti-tiling technique which completely eliminates all tiling artifacts, but requires 3 samples per texture instead of 1.

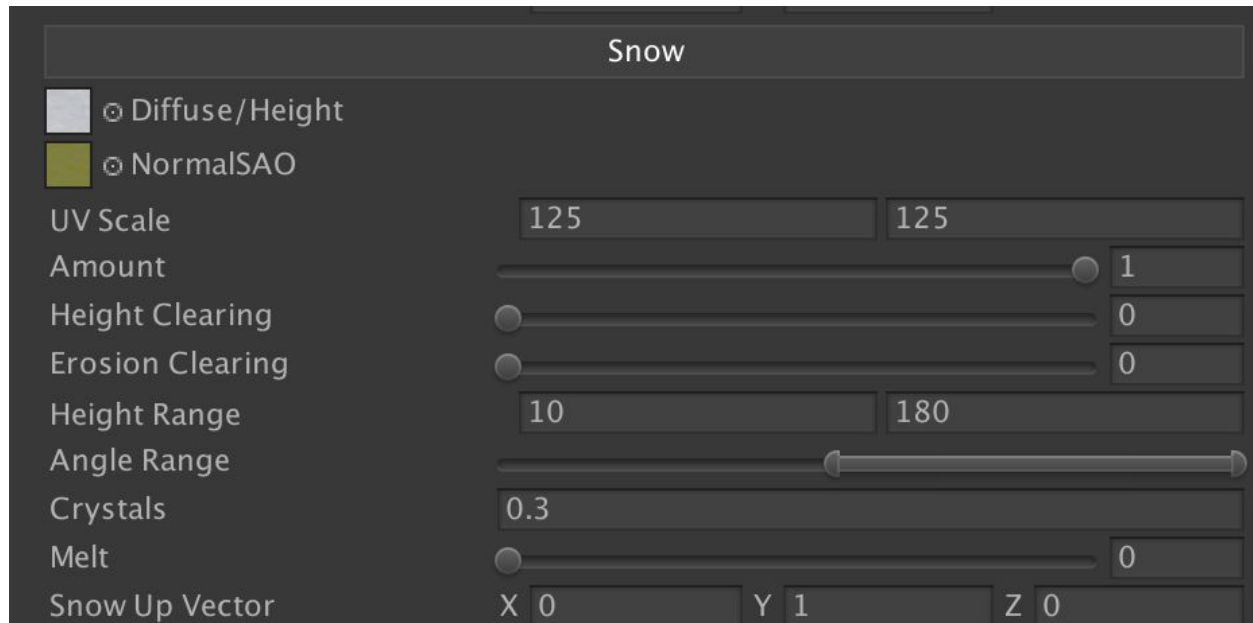
The Snow Mask option allows you to specify a global snow mask. The red channel will specify the maximum value of snow, so if its value is 1 it will have no effect on the snow, but areas which are painted 0 snow will never appear on. The green channel controls the minimum amount of snow in an area, so a value of 1 will always have snow, and a value of 0 will only have snow when it is supposed to accumulate there.

Simple vs. Rich Snow

Simple snow is visually similar to rich snow, but disables or simplifies a few features which make it hard to compute the snow coverage on the CPU (for footsteps and other effects which need to know if they are on snow). There is a SnowUtilities script included which allows you to query the snow coverage of a given world position, as a 0 (no snow) to 1 (full snow)

value. When set to simple snow, the query should be exact. When rich snow is enabled, the Height Clearing, Erosion Clearing, and per-texture snow strength options are enabled, which can significantly change the look of the snow. Note that you can use the Rich snow and get accurate snow coverage on the CPU if you keep the settings reasonable.

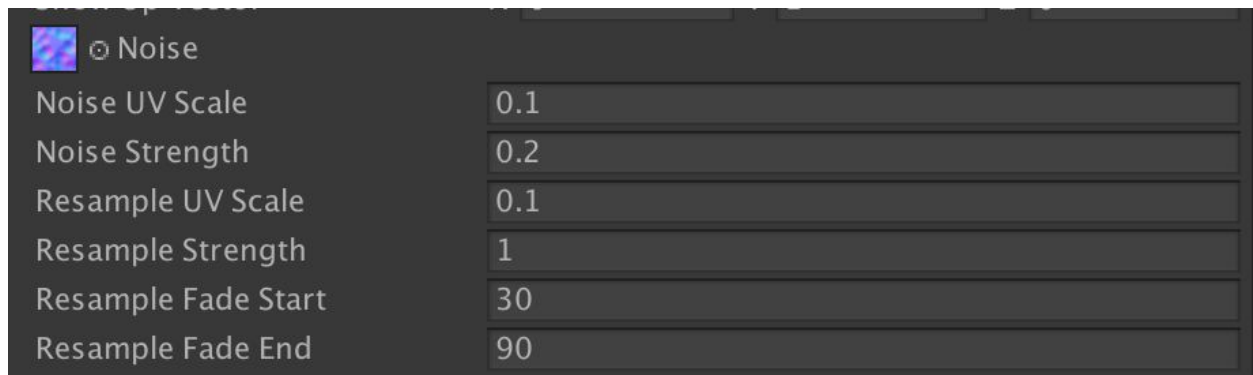
Shader Parameters



The main shader parameters available for snow are described below:

- Diffuse/Height
 - This is the albedo (RGB) and height map (A) texture packed into a single texture
- NormalSAO
 - This is the Normal (RG), Smoothness (B) and Ambient Occlusion (AO) of the snow packed into one texture
- UVScale
 - UV Scale for the snow texture
- Amount
 - Amount of snow
- Height Clearing
 - Causes snow to not appear on the tops of surfaces

- Erosion Clearing
 - Causes snow to erode on surfaces with high ambient occlusion values
- Height Range
 - Height at which snow begins to appear and height at which it is 100% snowy
- Angle Range
 - Angles in which snow will accumulate
- Crystals
 - How crystalline (Icy) the snow is. Values around 0 are fluffy snow, where as values above 1 are very icy.
- Melt
 - How large the area of wetness should be around the snow edge
- Up Vector
 - The direction the snow accumulated from. Can be used to simulate snow in heavy winds, where accumulation happens on one side of the mountain but not the other.



Additional properties are available for Snow Normal Noise and Distance Resampling.

- Noise
 - A bump map to tile over the terrain
- Noise UV Scale
 - Scales Snow UV coordinates by this amount
- Noise Strength
 - How much to blend in this normal into the base normal
- Resample UV Scale
 - Scale of UVs for distance based resampling
- Resample Strength

- How much should we blend in the distance samples
- Resample Fade Start/End
 - The distance range in which we should cross fade the samples
- Stochastic Contrast
 - Contrast of the blending when stochastic sampling is enabled.
- Stochastic Scale
 - Size of the stochastic triangles when stochastic sampling is used.

Finally, the amount of snow which appears can be controlled on a per texture basis in the per-texture properties settings.

Adding Snow To Objects

If you own the Terrain Blending module, you can use it to add snow to many meshes in your scene. Simply add the `MicroSplatBlendableObject` component and make sure the snow feature is turned on, and you can adjust settings to make the snow appear on top of meshes.