

Adobe After Effects Effect Plugin

Fractal Noise 3D



User's Manual version. 1.00
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Fractal Noise 3D is an effect generates cloud works with composition camera and lights.
You can set an obstacle layer in the cloud.

-----Platform-----

Adobe After Effects CS3 or later.
GPU OpenGL version 2.0 or later

-----Install-----

Place the Plug-in to Plug-in folder of After Effects.

Default Folder:

(win CS5.5)

C:\Program Files\Adobe\Adobe After Effects CS5.5\Support Files\Plug-ins

(mac CS5.5)

/Applications/Adobe After Effects CS5.5/Plug-ins

-----Uninstall-----

Remove the Plug-in form the Plug-in folder.

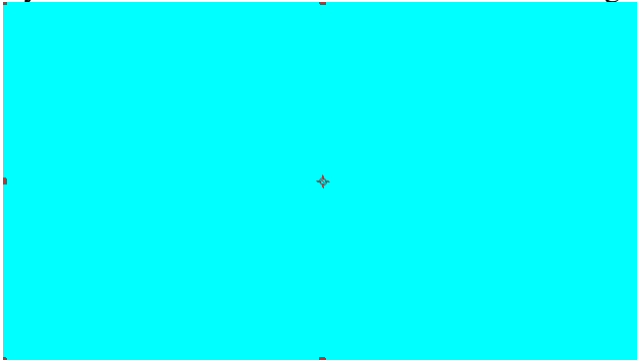
-----Set Up-----

Prepare a layer the same size and pixel aspect ratio as the Composition, and apply the effect to the layer.

This effect is a 3D effect. Do not apply this effect to the layer with the 3D switch on.

-----Error-----

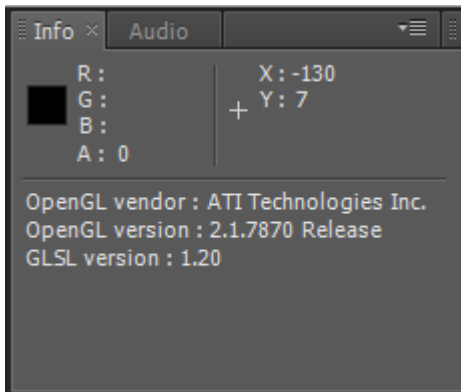
This effect is using GPU with OpenGL. So the machine is required to have OpenGL 2.0 or later. Or a cyan screen will be rendered as an error message.



Cyan screen rendered: The machine do not have the OpenGL 2.0 or later.

-----Check OpenGL version-----

By clicking “About...” button on the top of the effect panel, you can check OpenGL version in the information panel.



Effect Overview

1. Generate 3D Cloud

This effect plugin generates 3D cloudy field, working with composition camera and lights.

2. Geometry Options

3 field geometry options: Uniform, Horizontal, Spherical.

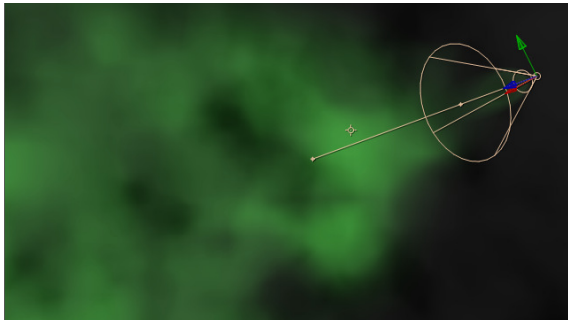


Horizontal Geometry



Spherical Geometry

3. Accept Lights The 3D Cloud is able to accept lights.

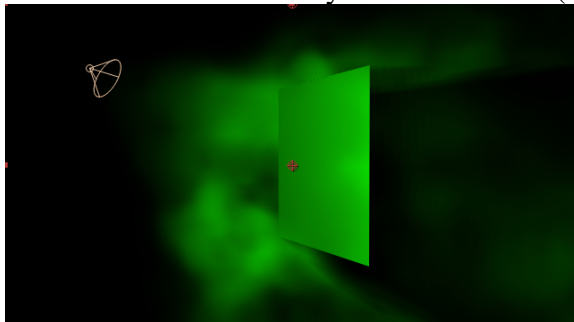


Accept spot light

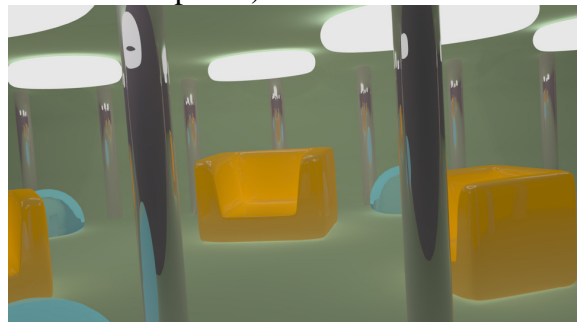


The effect uses at most 8 lights.

4. Set Obstacle Layer/ Back Ground(:for 3D CG composite)



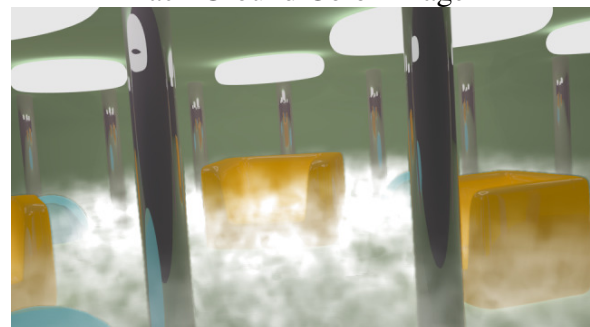
Spot light and Obstacle layer



Back Ground Color Image



Back Ground Depth map



Composite with noise field

What the effect render

1. Generate 3D noise field
The noise geometry is decided by parameters of Geometry topic.
2. Set camera in the field
(active composition camera)
3. Decide rendering rays for each pixel
4. Do volume rendering
From the radius (Raytrace Depth + Transparent Radius) to the radius (Transparent Radius)
See the section Parameter Details for more details.

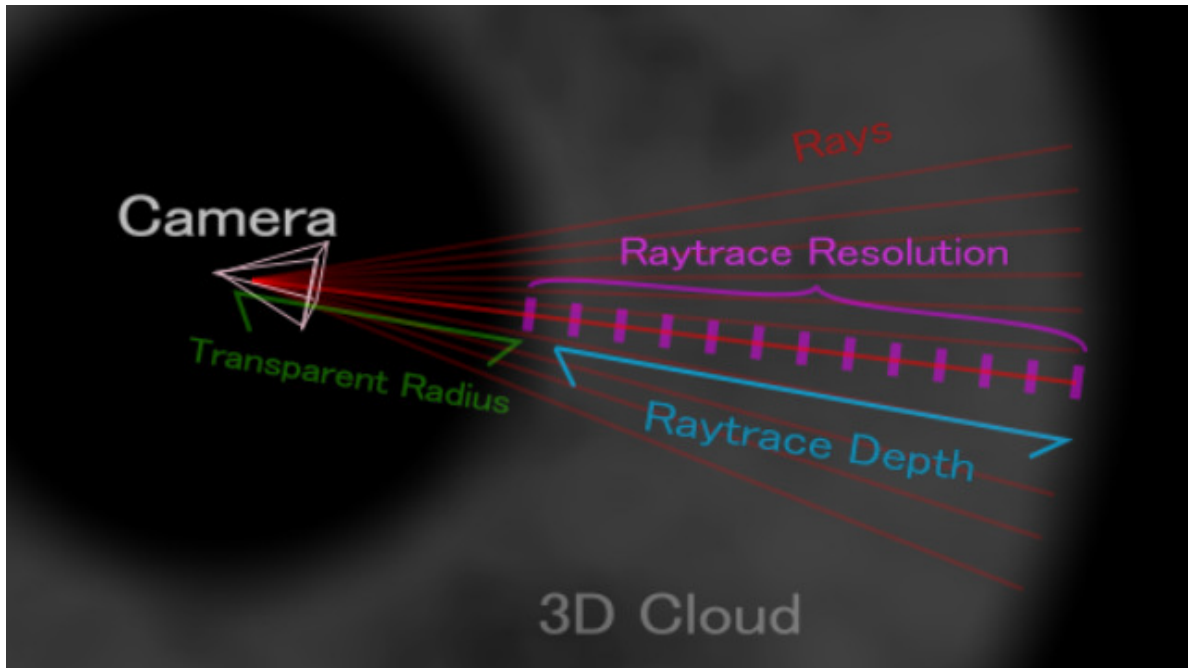


Fig. Rendering parameters and image

Parameter Details

-----Noise Settings Topic-----

Settings of the noise field itself. Those parameters are similar to the parameters of the Fractal Noise.

The noise field comprises a base level component and high level components.

For more details of the fractal noise (Perlin noise), visit the below web site:

http://freespace.virgin.net/hugo.elias/models/m_perlin.htm

Brightness

Boost the brightness of the noise field.

Scale

Adjust the scale of the noise field.

Sub Influence

The influence of high level detail noise components.

Sub Scale

The scale of high level detail noise components.

Complexity

Decide max level of the detail component.

Contrast

The contrast of the noise field.

Evolution

The evolution of the noise field.

Offset XY

Offset Z

Offset of the noise field.

Sub Offset XY

Sub Offset Z

Offset of the sub noise components.

-----Geometry Topic-----

In this topic, you can choose the geometry of the noise field.

Geometry Uniform|Horizontal|Sphere

Uniform : generates “uniform noise” field. Any other parameters in this topic are invalid (gray out).

Horizontal : under the y of the Geometry Center XY parameter is uniform, over the point, noise decrease up to Fadeout Distance parameter.

Sphere : makes uniform noise cloud sphere. Position and radius are decided by the parameters below.

Geometry Center XY

Geometry Center Z

Radius

Fadeout Distance

The distance fadeout the noise field.

Fadeout Factor

Decide how much fade out the noise. If this parameter is 1, the noise field completely clear up outside of the geometry. If this parameter is 0, geometry becomes Uniform.

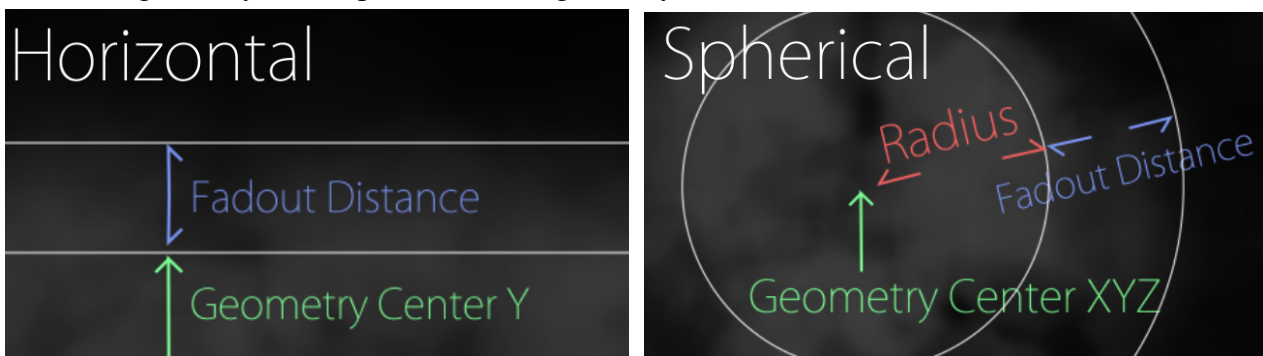


fig. Geometry types and parameters.

-----Shading Topic-----

With the parameters in this topic, the noise material and shading are adjusted.

Absorption

This parameter is absorption factor: if this parameter is high, the lights behind the cloud do not reach the camera by the absorption. The amount of the emission of the light from the cloud is proportional to this parameter. So if this parameter is 0, then no absorption and no emission from/by the cloud.

Scattering

Scattering factor: if this parameter is 0, no reaction from composition lights. But if this factor is too high, no composition lights reach the camera because of too many scatterings of the lights (too many diffusions).

Emission

Adjust emission of the light from the cloud. The actual amount of the emission is also proportional the Absorption parameter.

Emission Color

The color of the cloud.

Choose 8 Lights from Upper Layers|Name Begins "FN"|Name Begins "Light"|Name Begins "L_"

The cloud accept at most 8 composition lights. This parameter decide the regulation of the composition lights the effect uses. Name Begins "... " is the option choose lights name begin with the word.

Boost Diffusion Light

Boost diffusion of lights: point, spot, parallel lights.

Boost Ambient Light

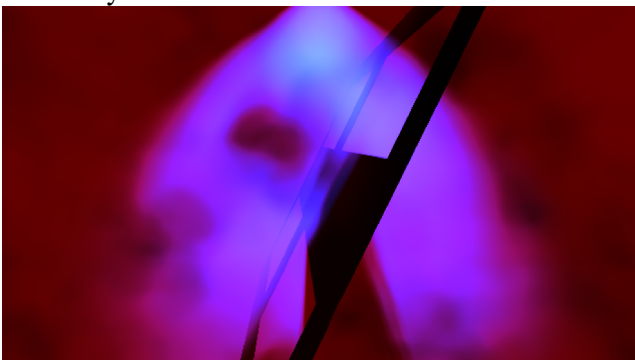
Boost the brightness of ambient lights.

Attenuation Factor

Attenuation factor of the point and spot light.

-----Obstacle Topic-----

You can use a 3D layer as an obstacle of the lights in the noise field. You can use a 3D back ground as an opaque obstacle. When use obstacle layer option, put the obstacle 3D layer under the effect layer.



Obstacle Layer

Choose a 3D Layer used by obstacle. Vector layer (shape layer and text layer) is incompatible. Use precompose for vector layer.

Softening Light

Softening light and shadow edge of the obstacle layer.

Depth Map

For composite of 3D scene. Choose a layer used as a depth map. Deeper cloud than the depth map is cut out.

Depth Channel

Choose a channel used as a depth value.

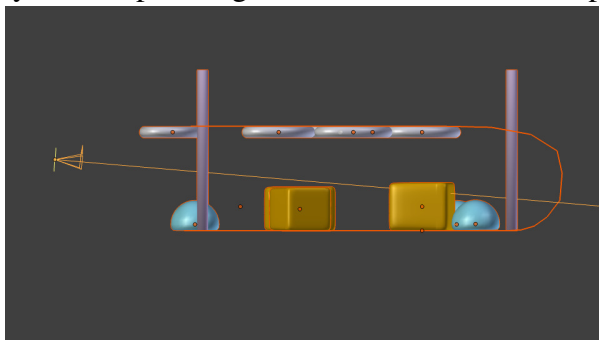
Depth of Black

Designate the depth value of the point channel value is 0 .

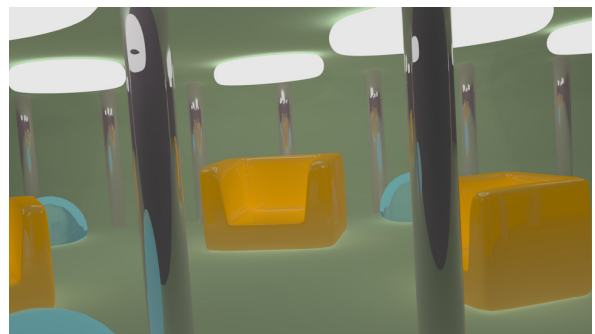
Depth of White

Designate the depth value of the point channel value is 1 (255 (8bpc), 32767(16bpc), 1.0(32bpc)).
...Example:

Below is a sample scene I made by 3D CG tool. I exported a color image (right top), depth map (left bottom). The white out point of the depth map is 4,000 pixel length in AE unit, and black is 0. So I set the Depth of White parameter to 4,000 and Depth of Black to 0, Transparent Radius + Raytrace Depth are greater than 4,000. I also exported the camera in the 3D tool to AE.



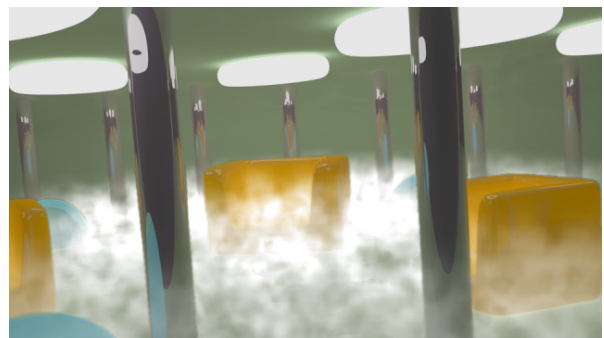
3D CG scene



Color Image



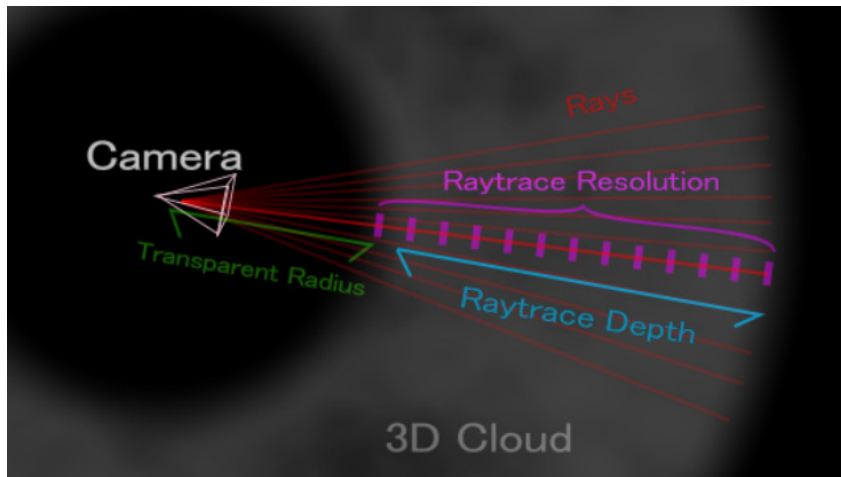
Depth map



Composite Result

-----Rendering Topic-----

You can adjust the rendering result with this topic.



Transparent Radius

The radius from the camera, noise field does not exist.

Raytrace Depth

The depth noise field exists.

Raytrace Resolution

The resolution of the depth for raytrace. This is very important parameter for the quality and load of the machine.

Random Seed

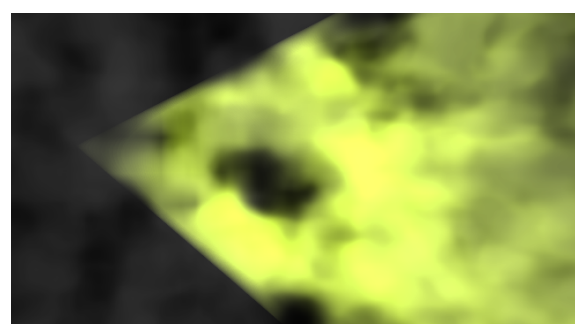
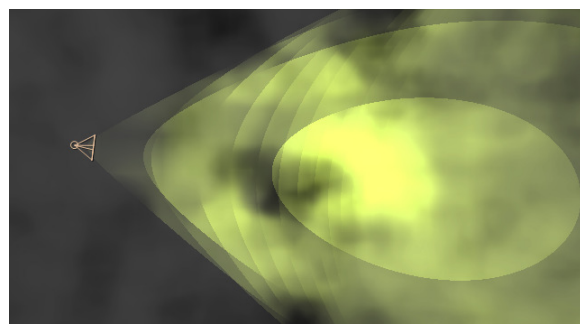
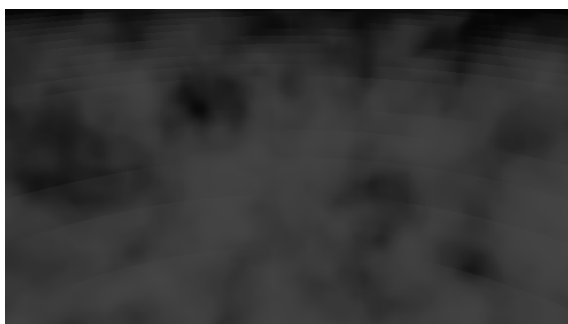
Random seed value.

Tips

How to Erase the Band

The next situations cause the band rendering: Noise with High Contrast, geometry with Low Fadeout Distance, the spot light with sharp feather, obstacle layer with sharp edge.

For prevent that, increase next parameters: Raytrace Resolution, Fadeout Distance, Softening Light. Geometry band (left upper) and Sharp spot light band (right upper).resolution = 20



Those bands are disappear with high raytrace resolution (bottom).resolution = 200(left),400(right)