

# Atmospheric Scattering

Visualization and Illumination 1  
University of Minho

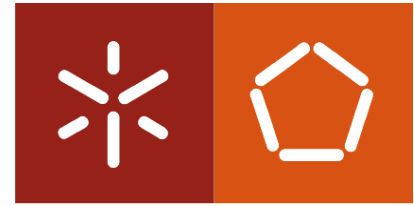
---

BRUNO BARBOSA (A67646)

CARLOS GONÇALVES (A67650)

RAFAEL ANTUNES (A67711)

# Structure of the presentation



Introduction



Atmospheric Scattering



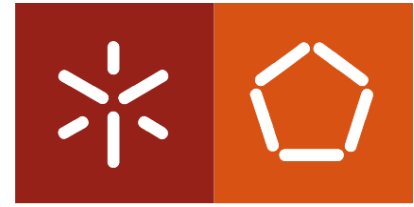
Atmospheric Effects



Examples

# Introduction

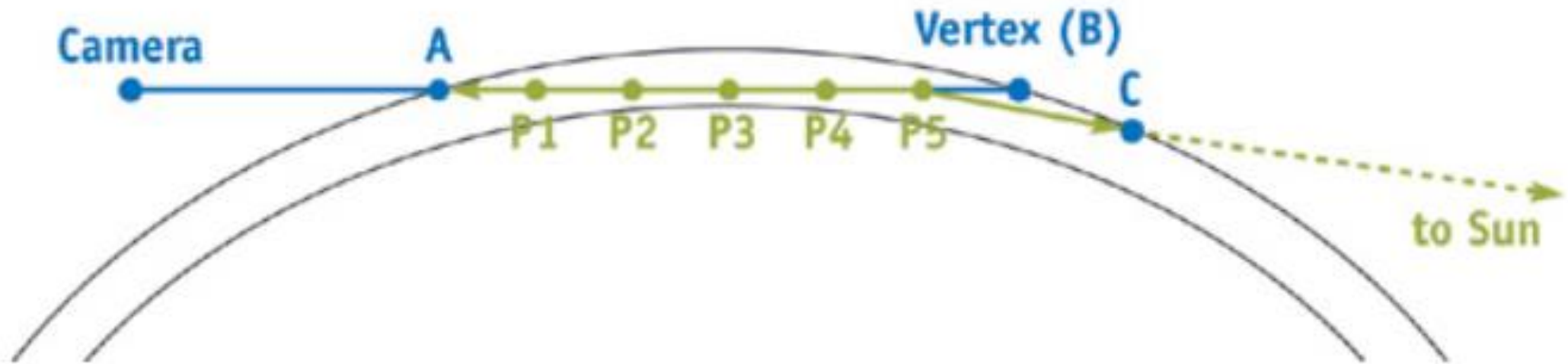
---



- The atmospheric scattering is a essential to render realistic outdoors environments
- The atmospheric scattering is responsible for blue color of the sky as well as reddish sunset color
- We tried to adapt an Unity *shader* already existent to the Nau3D Engine
- In the following slides we will explain how the atmospheric scattering works and how the *shaders* simulate the atmospheric effects

# Atmospheric Scattering

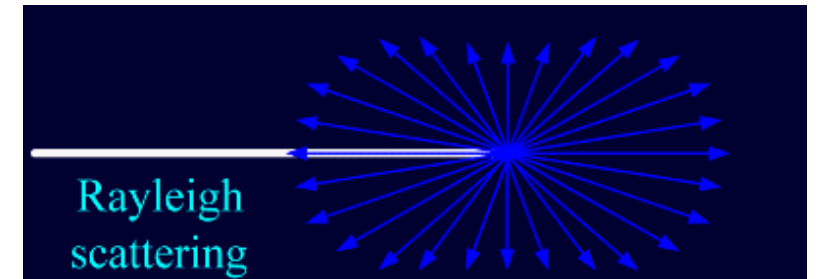
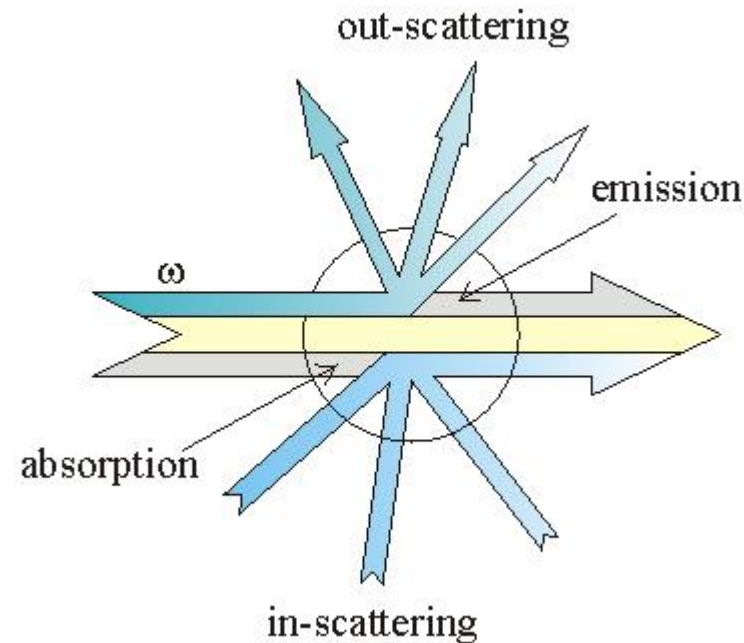
---



# Atmospheric Scattering

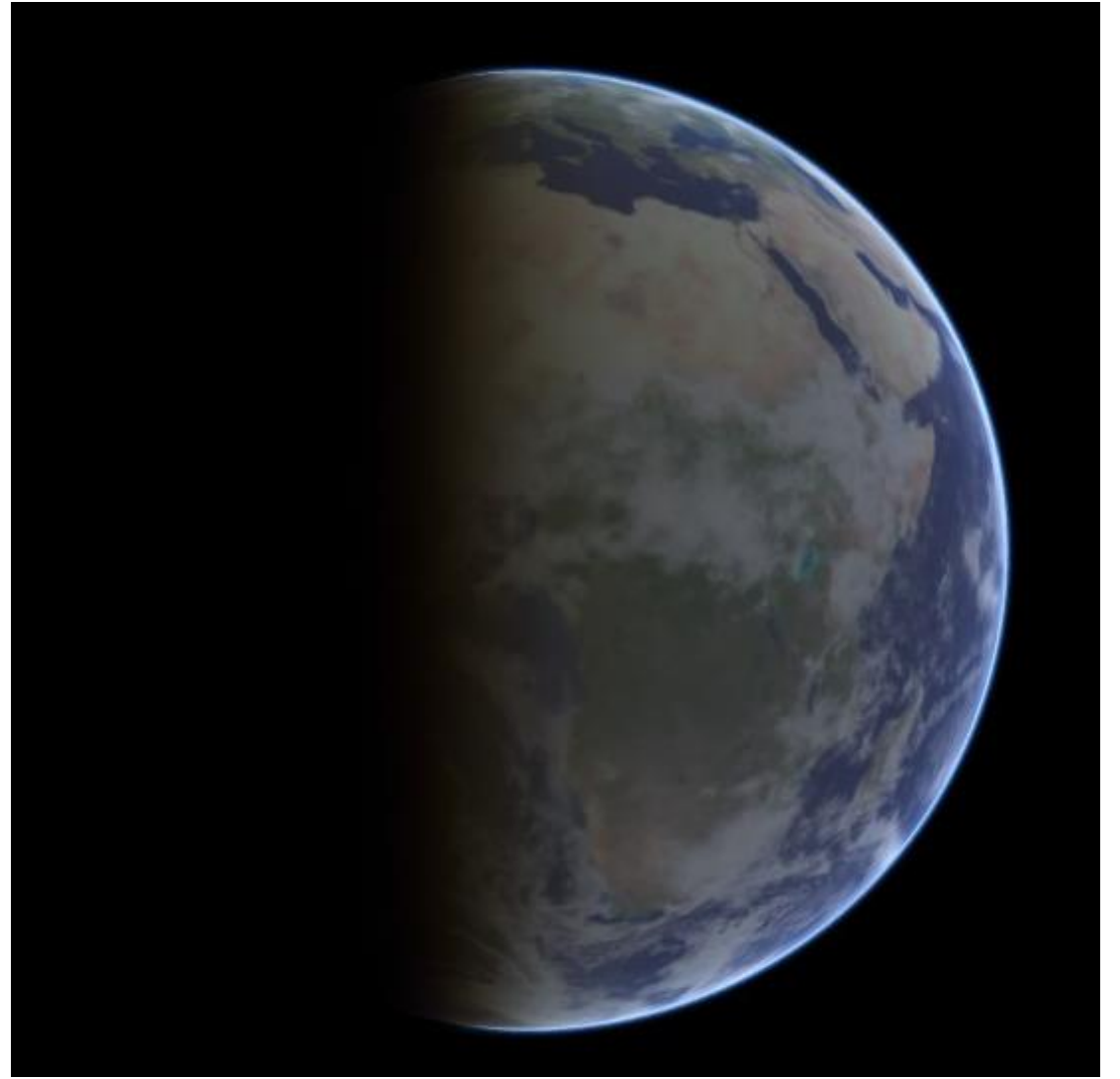
- The atmospheric scattering is based on these atmospheric effects

- Rayleigh scattering
- Mie scattering
- Out-Scattering
- In-Scattering

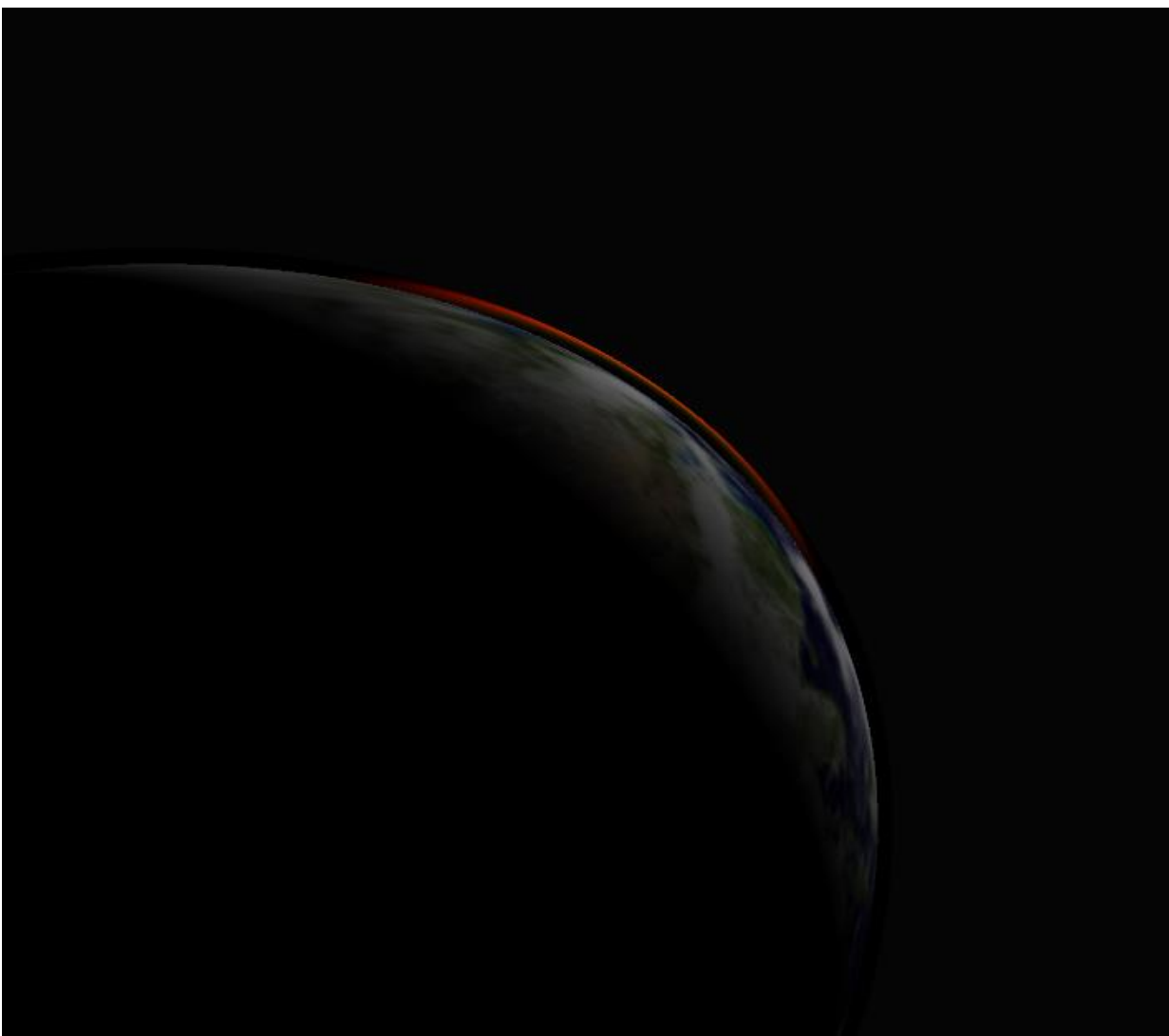




Nau 3D



Unity 3D



Nau 3D



Unity 3D

Statistics

**Audio:**

Level: -74.8 dB	DSP load: 0.6%
Clipping: 0.0%	Stream load: 0.0%

**Graphics:** 52.8 FPS (18.9ms)

CPU: main 18.9ms	render thread 0.4ms
Batches: 3	Saved by batching: 0
Tris: 79.3k	Verts: 40.7k
Screen: 1298x637 - 9.5 MB	
SetPass calls: 3	Shadow casters: 0
Visible skinned meshes: 0	Animations: 0

**Network: (no players connected)**

Click and drag mouse to rotate light





Statistics

Audio:

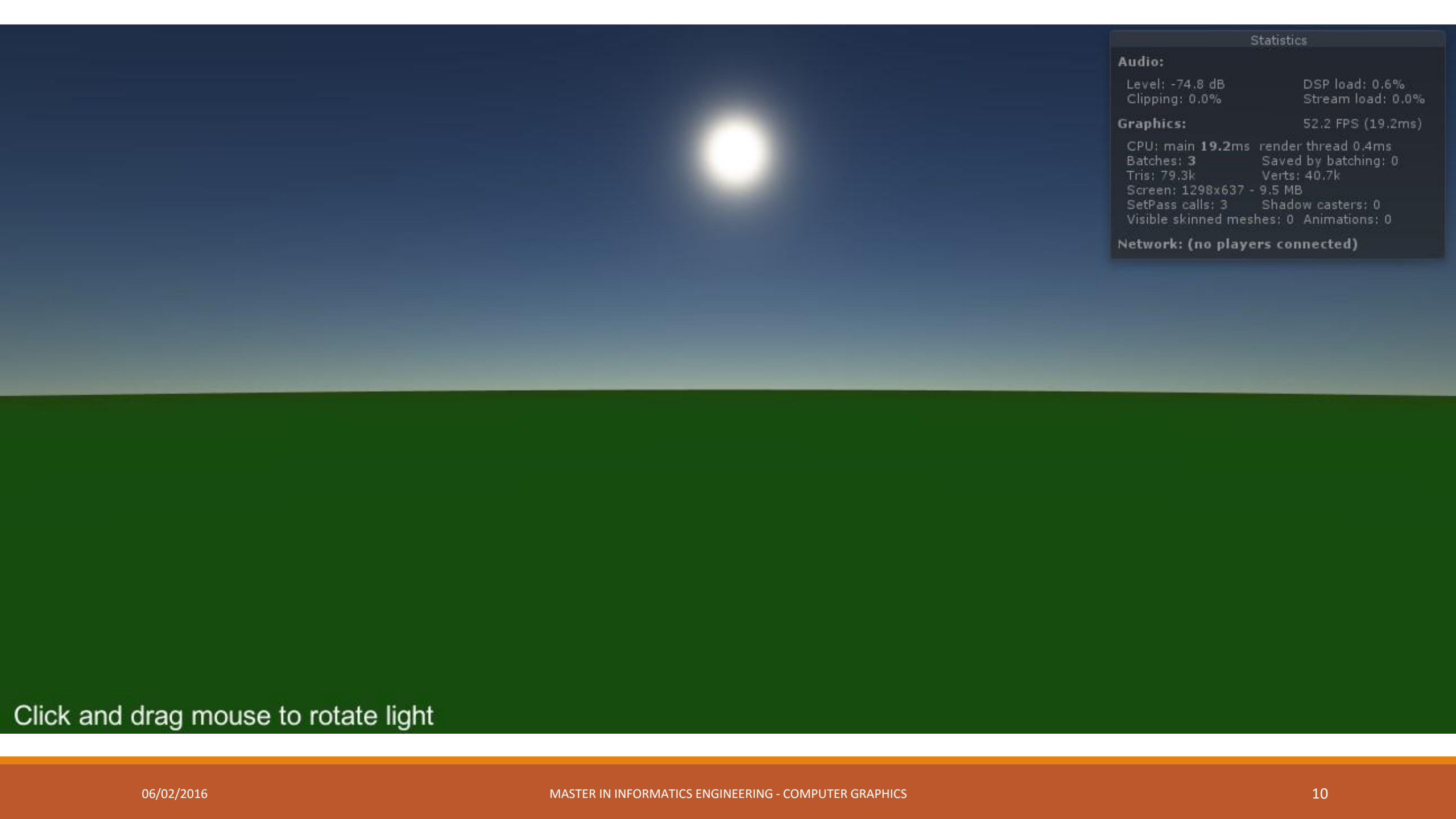
Level: -74.8 dB      DSP load: 0.7%  
Clipping: 0.0%      Stream load: 0.0%

Graphics:

52.1 FPS (19.2ms)  
CPU: main 19.2ms    render thread 0.4ms  
Batches: 3      Saved by batching: 0  
Tris: 79.3k      Verts: 40.7k  
Screen: 1298x637 - 9.5 MB  
SetPass calls: 3      Shadow casters: 0  
Visible skinned meshes: 0    Animations: 0

Network: (no players connected)

Click and drag mouse to rotate light



Statistics

**Audio:**

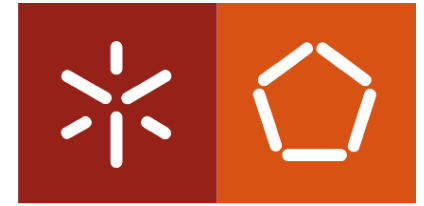
Level: -74.8 dB	DSP load: 0.6%
Clipping: 0.0%	Stream load: 0.0%

**Graphics:** 52.2 FPS (19.2ms)

CPU: main 19.2ms	render thread 0.4ms
Batches: 3	Saved by batching: 0
Tris: 79.3k	Verts: 40.7k
Screen: 1298x637 - 9.5 MB	
SetPass calls: 3	Shadow casters: 0
Visible skinned meshes: 0	Animations: 0

**Network: (no players connected)**

Click and drag mouse to rotate light



# Atmospheric Scattering

Visualization and Illumination 1  
University of Minho

---

BRUNO BARBOSA (A67646)

CARLOS GONÇALVES (A67650)

RAFAEL ANTUNES (A67711)