

Project Management

Prof. Dr. Frank Zimmer
Nicolas Fischöder

Students

Group Manager
Antonio Sarcevic, Medien- und Kommunikationsinformatik B.Sc.,
antonio.sarcevic@hsrw.org

Laura Cosio, Digital Media M.A.,
laure.cosio@hsrw.org

Majda Suljanovic, Medien- und Kommunikationsinformatik B.Sc.,
majda.suljanovic@hsrw.org

Lucas Osten, Medien- und Kommunikationsinformatik B.Sc.,
lucas.osten@hsrw.org

Panagiotis Tsitsos, Medien- und Kommunikationsinformatik B.Sc.,
panagiotis.tsitsos@hsrw.org

Sebastian Gols, E-Government B.Sc.,
sebastian.gols@hsrw.org

Marcel Paturej, Medien- und Kommunikationsinformatik B.Sc.,
marcel-lukas.paturej@hsrw.org

Dustin Koschmann, Medien- und Kommunikationsinformatik B.Sc.,
dustin.koschmann@hsrw.org

Max Lietzau, E-Government B.Sc.,
max.lietzau@hsrw.org

Angela Arzumanjan, Communication and Information Engineering B.Sc.,
anwela.a@gmail.com

Daniel Angenendt, Medien- und Kommunikationsinformatik B.Sc.,
daniel.angenendt@hsrw.org

Michael Delany, Environment and Energy B.Sc.,
michael.delany@hsrw.org

Leonie Bremer, Environment and Energy B.Sc.,
bremer.leo.2@web.de

Anna Böstrajakova, Communication and Information Engineering B.Sc.,
ann.bystrjakova@gmail.com

Anna Kopal, Environment and Energy B.Sc.,
anna.kopal@hsrw.org

The Future of the Sun and the Earth – A Scientific Animation



Problem Statement

- Create an animation showing the progression of the Sun
- Show how these changes will affect Earth
- Starting in the present day
- Ending with the Sun’s transition to a planetary nebula
- 3D animation using Blender

Blender as a Tool

- Free and open source 3D graphics software
- Supports modeling, rigging, animation, simulation, rendering, compositing and motion tracking
- Large online community with many tutorials and forums to help new Blender users get started

Timeline of Simulation

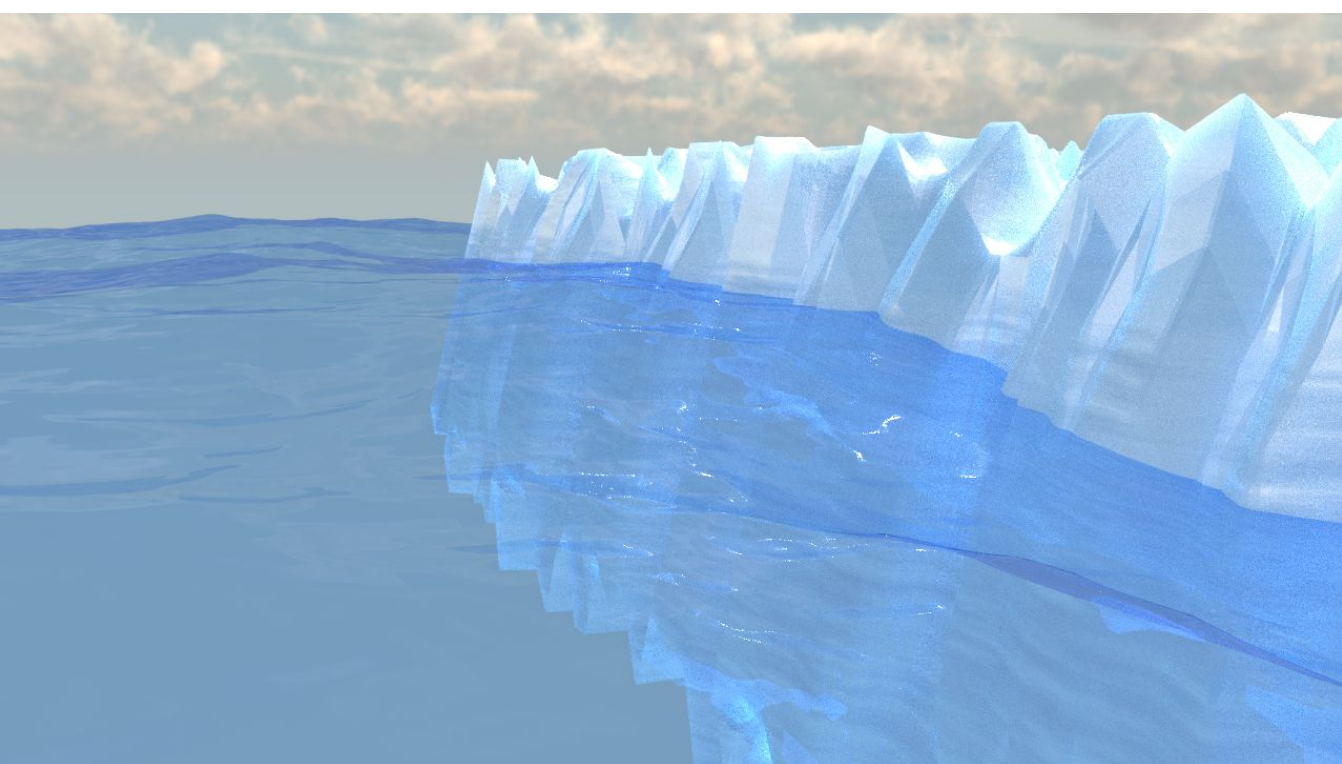
The simulation starts at the current time and shows the Earth in its current state.

As time goes on, the climate on Earth gets more extreme, this is shown by a close-up of Earth’s surface with strong rain and forest fires.



The animation showing the shifting of the climate zones is then viewed from space.

The next scene shows the melting of all polar ice, viewed from the Earth’s surface.



The melting then transitions into a view showing the surface water of the Earth starting to boil and evaporate.

This occurs around 1 billion years from now.

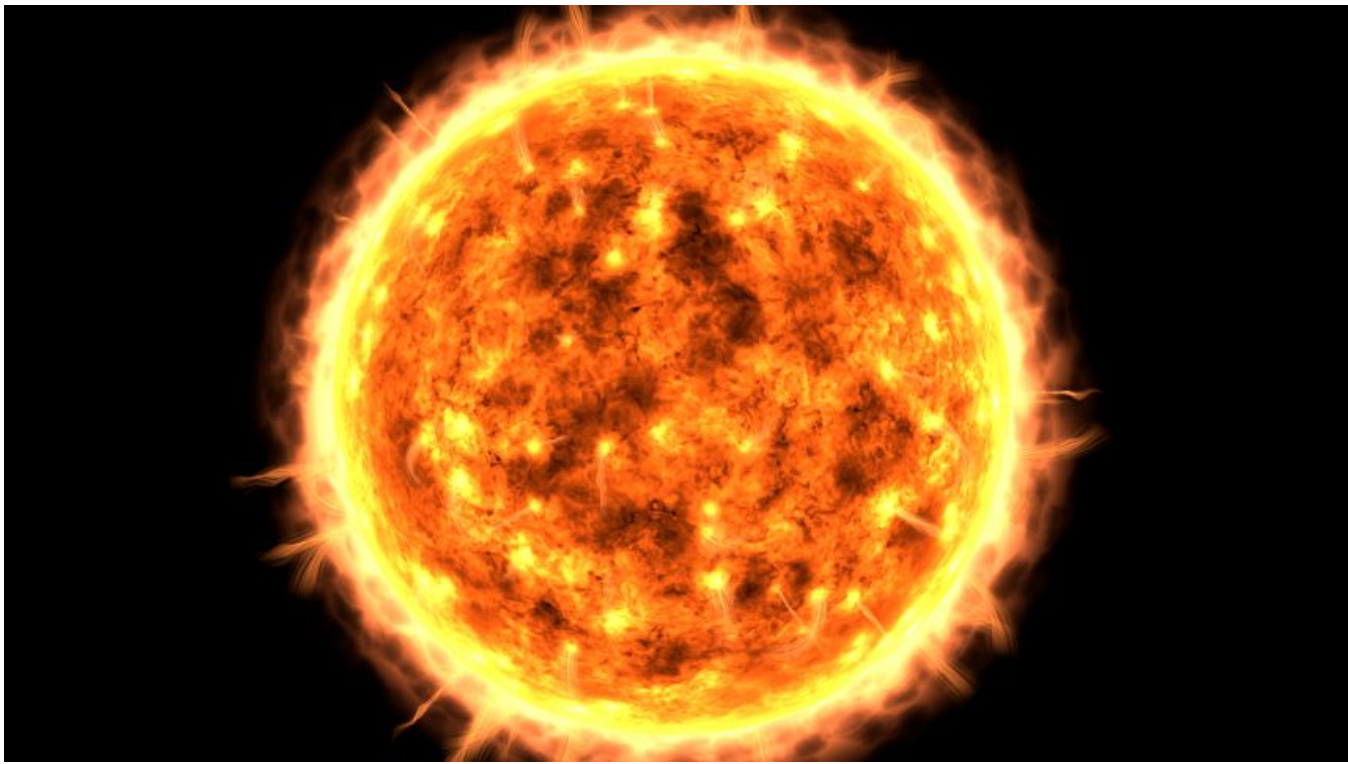
The evaporation of the water leads to a dense, Venus-like atmosphere, which is shown from space.

The following loss of the atmosphere leaves the Earth as a brownish planet.

For the next part of the simulation, the focus shifts to the Sun, which is growing in size and changing in colour.

It progresses from white, to orange, and then to red while also increasing in luminosity.

This all occurs as the Sun develops into a red giant.



It continues to undergo various changes, until it reaches the end of the asymptotic-giant-branch, whereupon it undergoes a dramatic transition to a planetary nebula.



Discussion

- Animation contains shortcomings
 - Unpredictable variables
 - Insufficient scientific data available
 - Difficult to visualise certain aspects (such as extreme luminosities) with animation
- Shortcomings are stated in Project Paper