

## Blue Marble 3000

### Project Goal

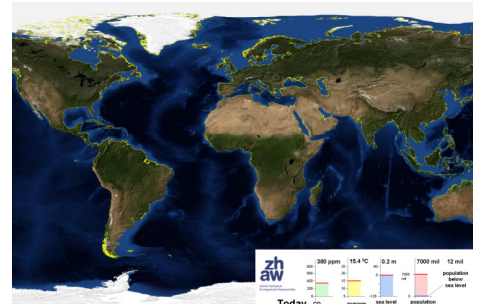
Goal of this project was a realistic as possible visualization of the earth as it has presented from the last glacial maximum (LGM) 21'000 years ago until 1'000 years in the future. Considered are ice coverage, vegetation, as well as sea and lake levels. Synchronously, the CO<sub>2</sub> contingent of the atmosphere, the global average temperature and population are illustrated. The data sources are mainly publicly and freely available in the Internet. The visualization is hence an aggregation (mashup) of existing data. Merely, data that is non existent, e.g. sea ice coverage between LGM and present, is complemented in a consistent, most plausible way.

### Background

The science center in Winterthur (Technorama) visualizes on a globe of 1.5 m diameter several terrestrial phenomena in the so-called Orbitarium. A maxim there is that all visualizations shall be accessible for anybody. Visualizations of the partially rather complex facts have to be as comprehensible as possible. The ZHAW and the InIT respectively have already realized a visualization of the global air traffic for them.

### Realization

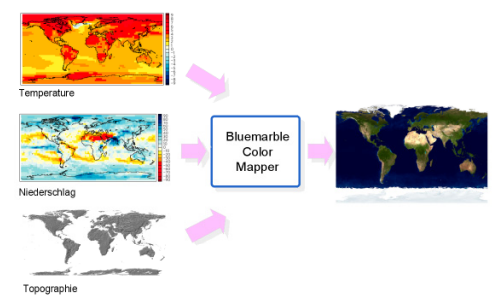
This visualization has been realized in the context of a master thesis of the ZHAW. A novel algorithm has been invented, allowing for generating a NASA Blue Marble like image given climate data (precipitation, temperature) and topography. The data have been collected from different sources (referenced in the master thesis) of the paleoclimatology and glaciology as well as current publications of the future development. The plausibility has been approved by experts of the ETH and the Tokyo University.



Blue Marble 3000 Visualization



Orbitarium in the Technorama Winterthur



Blue Marble Color Mapper

ZHAW School of Engineering

Technikumsstrasse 9  
8400 Winterthur  
info.engineering@zhaw.ch  
www.engineering.zhaw.ch

InIT Institut für angewandte  
Informationstechnologie

Telefon +41 58 934 69 90  
www.init.zhaw.ch