



Nvidia has committed to building a super-computer capable of modelling earth's climate at a very high resolution | Photo source Nvidia

Innovation > Sustainability > Nvidia reveals supercomputer for modelling the entire Earth

## NVIDIA REVEALS SUPERCOMPUTER FOR MODELLING THE ENTIRE EARTH



**Nvidia has announced it is building a supercomputer which will be capable of modelling the entire planet at metre-scale resolution – allowing development of much more accurate climate models**

**Spotted:** The recent COP26 UN climate change conference has concentrated minds on the need to reduce greenhouse emissions. But it is difficult to develop strategies for mitigation and adaptation without a model that can predict climate behaviour in different parts of the globe over decades, and at metre-scale resolution. Now Nvidia is stepping in with Earth-2, which the company describes as, ‘the world’s most powerful AI supercomputer dedicated to predicting climate change.’

Climate modelling is complex, and involves modelling the atmosphere, the water cycle, land surface changes, and human activities over decades of time. While today’s climate simulations are configured at 10 to 100-kilometre resolution, greater resolution – and much more computing power – will be needed to simulate elements such as clouds that reflect sunlight back to space.

To achieve this, the Earth-2 will be built using the Omniverse, a multi-GPU development platform for 3D simulation. The supercomputer will allow Nvidia to create a ‘digital twin’ of the planet by combining GPU-accelerated computing, deep learning, neural networks, and AI, as well as vast quantities of data. Combined with super-resolution techniques, the system will be able to do ultra-high-resolution climate modelling.

Nvidia founder and CEO Jensen Huang wrote about the hope that the super-resolution techniques will mean, “We may have within our grasp the billion-x leap needed to do ultra-high-resolution climate modelling. Countries, cities and towns can get early warnings to adapt and make infrastructures more resilient. And with more accurate predictions, people and nations will act with more urgency.”

Supercomputers are increasingly being used to develop more accurate models. At Springwise, we have recently seen researchers use supercomputers to model potential flooding from [tsunamis](#) and a company developing [quantum-ready algorithms](#) in anticipation of the first practical quantum computers.

Written By: Lisa Magloff

6th December 2021

Website: [nvidia.com](https://www.nvidia.com)

Contact: [nvidia.com/en-us/contact/](https://www.nvidia.com/en-us/contact/)

### **Takeaway:**

While Nvidia has not yet announced when the supercomputer that will power Earth-2 will be up and running, but the company's Cambridge-1 supercomputer took just 20 weeks to build. The hope is that accurate modelling will allow scientists to make better predictions about when and where extreme weather events will occur – possibly decades in advance. This will allow affected areas to prepare. The model could also help find broader solutions to global warming, by rapidly running large numbers of simulations to find those that will work best and at lowest cost.