NEWS RELEASE

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Weathernews to collaborate with NVIDIA on an AI project to develop high precision visualization and forecasting of global precipitation distributions

Using cutting edge Deep Learning technology to mitigate damage in areas of frequent heavy rain disasters, such as Southeast Asia

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Weathernews Inc. (Head Office: Mihama-ku, Chiba-shi; CEO: Chihito Kusabiraki) will collaborate with NVIDIA (head office: Santa Clara, California) in launching an AI project to forecast precipitation around the world with a high degree of accuracy, in order to mitigate the damage caused by weather disasters. dAignosis Inc. (hereinafter referred to as dAignosis, head office: Minato-ku, Tokyo, CEO: Shigehisa Omatsu), a participant in NVIDIA's Inception startup support program, will contribute by developing Deep Learning technology.

There have been repeated weather-related disasters in recent years due to the impact of climate change. Particularly in areas that experience frequent disasters due to heavy rain, such as Southeast Asia, the ability to understand weather conditions and make detailed forecasts is vital, and progress is still at the developmental stage in terms of improving the meteorological observation infrastructure and training staff to operate those technologies. However, the completion of a weather observation infrastructure and personnel training are challenging, both financially and in terms of speed. What's more, forecasting technology based on existing physical models is approaching its limits.

Therefore, Weathernews is taking a completely new AI-based approach, using cutting-edge Deep Learning technology from NVIDIA to visualize and predict precipitation distributions. In this way, we will help mitigate damage due to heavy rain by providing information and collaborating with local weather stations, etc.

| Click here for AI video & image	https://global.weathernews.com/news/12254/

Weathernews and NVIDIA launch an AI project to aid in disaster mitigation and visualize global precipitation

With weather disasters increasing in various places due to the impact of climate change, particularly in areas such as Southeast Asia that experience frequent disasters from heavy rain, it is important to understand weather conditions and make accurate forecasts. However, there are three major challenges to achieving these goals.

Three challenges to visualizing and predicting global precipitation distribution

(1) Many countries are still in the process of developing their meteorological observation infrastructure and training personnel to operate the related technologies, requiring enormous expense and time.

(2) It is not possible to capture information on rainfall in areas outside the range of weather radar, such as at sea

(3) Forecasting technology based on existing physical models is approaching its limits
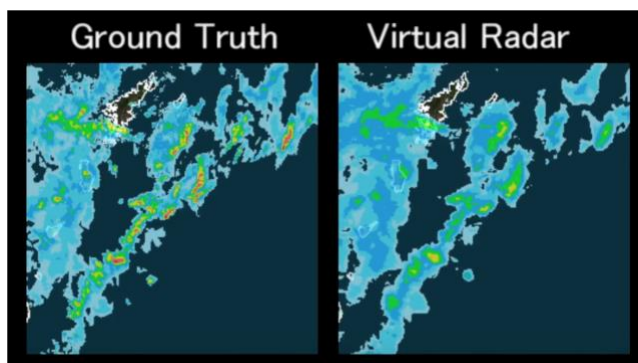
The image on the left shows rain clouds observed by existing weather radar, and the image on the right is a virtual rain cloud radar image generated from a satellite image using Deep Learning technology. This enables more precise forecasting.

Now, Weathernews will utilize NVIDIA's world-leading AI supercomputers to overcome these three challenges with Deep Learning technology.

In this project, high precision satellite images centered around Japan along with radar precipitation echo images will be used as training data to generate simulated radar-like images based on satellite images for visualizing and forecasting precipitation conditions. In other words, even for areas where weather observation infrastructure such as weather radar is incomplete, as well as over oceans, the completion and management of that infrastructure will become unnecessary.

We plan to start by using Southeast Asia as our target area for analysis, and then expand into other areas later.
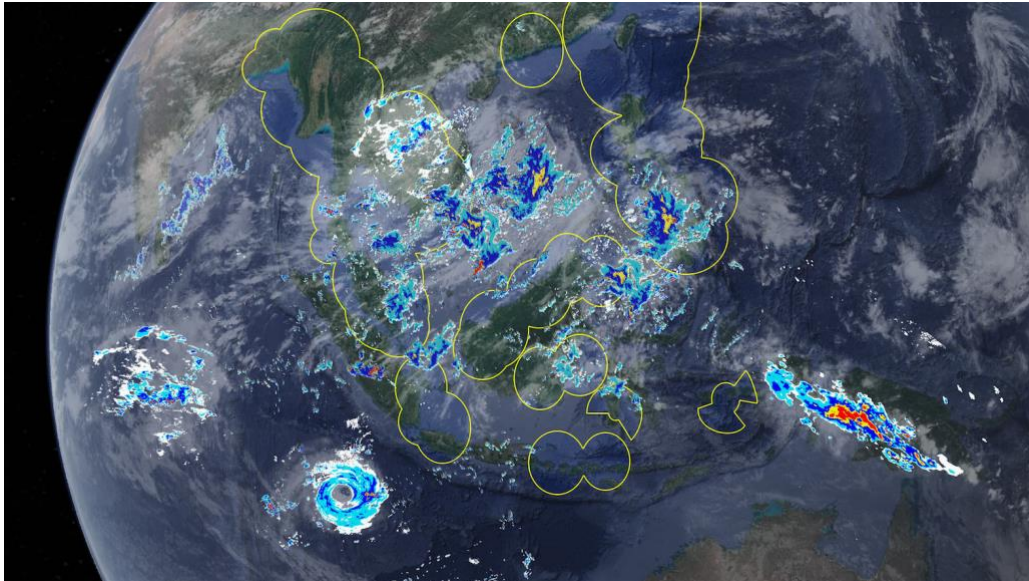
A virtual radar image generated from a satellite image. (simulation) The yellow lines indicate the range of where it is possible to supplement existing weather radar images. This project will make it possible to understand precipitation conditions in areas within Southeast Asia where it was previously not possible.

For this project, NVIDIA will provide the hardware and software stack for GPU computing, along with related knowhow, dAignosis will develop Deep Learning technology to utilize the NVIDIA® DGX-1™, and Weathernews will develop new weather models and operate the system.

NVIDIA's AI platform will contribute greatly to this project, not just with its high-level computing power, but also by reducing costs. Due primarily to economic constraints, only 17% of the earth's surface is currently covered by radar, and it is said that complete coverage would require 4,000 radar installations. On the other hand, 50 DGX-1 systems would be enough to generate virtual radar images for every minute of the entire world, at 1/8000 of the cost.