



AI for Meteorology and Hydrology

How AI is Creating New Tools for Forecasters and NMHSes

Olivia Graham | June 2025

Advancing the state of the art with Google Research and Google DeepMind

Impossible? Let's see.

Whether foundational research, Quantum AI or AI for science and society, collaborating with Governments and communities, we strive to continuously progress AI research, and improve the lives of billions of people.

We publish hundreds of research papers each year, sharing our latest developments in order to collaboratively progress computing and science.



Google DeepMind awarded the Nobel Prize in Chemistry for their work developing AlphaFold.

AI is Unlocking New Opportunities and Creating New Tools

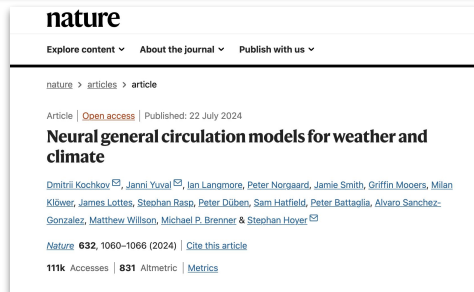
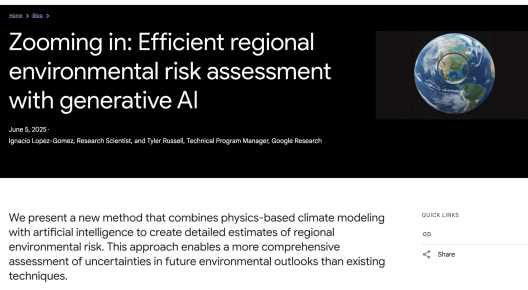


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How we are using AI for reliable flood forecasting at a global scale

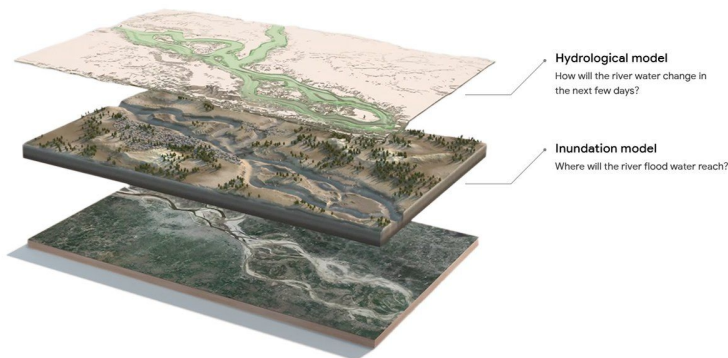
Mar 20, 2024
4 min read

A paper published in Nature today shows how Google Research uses AI to accurately predict riverine flooding and help protect livelihoods in over 80 countries up to 7 days in advance, including in data scarce and vulnerable regions.



Many of these tools are open source, and the models have been published for use by the external ecosystem.

These Tools Are Supporting NMHSes and WMO



Ministerio
de Ambiente

Czech
Hydrometeorological
Institute



"Working with the Google team has been an excellent experience. Their professionalism, innovative approach, and collaborative spirit have greatly contributed to the success of the project. I look forward to future opportunities to work together." **Nguyen Hoang Minh - NCHMF**

Flood Forecasting Pilot w/ WMO

Google and U.S. Experts Join on A.I. Hurricane Forecasts

The National Hurricane Center will experiment with the company's DeepMind program to enhance the work of its expert meteorologists.

Share full article



Specialized to focus on hurricanes, Google DeepMind's Weather Lab model tracks a storm's development for up to 15 days, predicting not only its path but also its strength, an ability that earlier A.I. models lacked. NASA Earth Observatory



By William J. Broad

June 12, 2025

For the first time, the [National Hurricane Center](#) in Miami is working with an artificial intelligence company to improve its forecasts of the powerful storms that kill thousands of people globally every year. The Atlantic season has just begun and runs through November.



The union of skilled human forecasters and the A.I. tool... has the potential to create "a really powerful partnership." - **Wallace Hogsett, NHC**

Cooperative Research and Development with the NHC

Looking Forwards...

01

**Rapid
Progress on
Technical
Challenges**

02

**New Tools
Which Can
Support
NMHSes**

03

**From
Research to
Reality**

Our mission is to organize the world's information and make it universally accessible and useful.

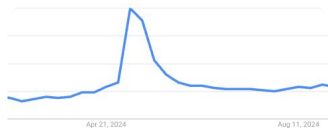
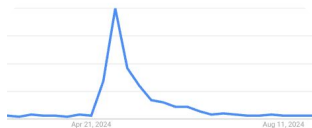
Our approach during a crisis: Support our users, partnering Governments and IGOs, during critical times of need.

People turn to Google in times of crisis



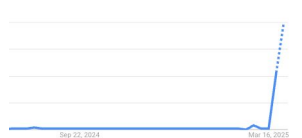
2024 Rio Grande do Sul floods

📍 Brazil 📅 2024



Myanmar (Burma) earthquake

📍 Myanmar 📅 2025



Crisis Response

Early warnings can significantly reduce fatalities and the economic impact of natural disasters.

Our Crisis Response efforts began in 2012 and are rooted in our responsibility to keep users safe.

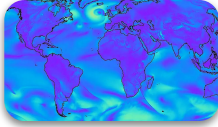
Wildfires Early
Detection



Flood
Forecasting



Weather
models



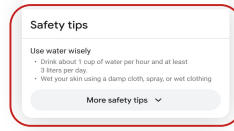
Damage
assessment



Building
footprint



Safety Tips



Connectivity



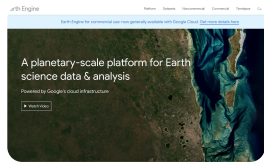
Detection & Forecasting

Preparedness & Response

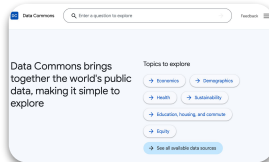
Disaster Risk Knowledge

Warning Dissemination

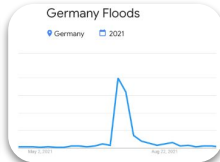
Google Earth Engine



Data Commons



Google Trends



Flood Mapping



Fire Boundary
Mapping



CAP Alerts

