

Global High-Resolution Atmospheric Forecasting System

A state-of-the-art global weather model from the most accurate forecaster overall¹

The Global High-Resolution Atmospheric Forecasting System (GRAF) model helps democratize weather forecasts so people, businesses and governments can make better decisions virtually anywhere.

Not all forecasts were created equal—until now

Most locations around the world have not had access to timely and reliable weather information. This is due to a lack of specialized weather equipment and models that update infrequently (~every 6-12 hours) and at a resolution too wide to capture many weather phenomena (~10 km).

GRAF

GRAF is a high precision, rapidly updating global weather model that updates hourly and at a 3 km resolution to provide a clearer picture of weather activity around the globe.

Three key differentiators set GRAF apart:

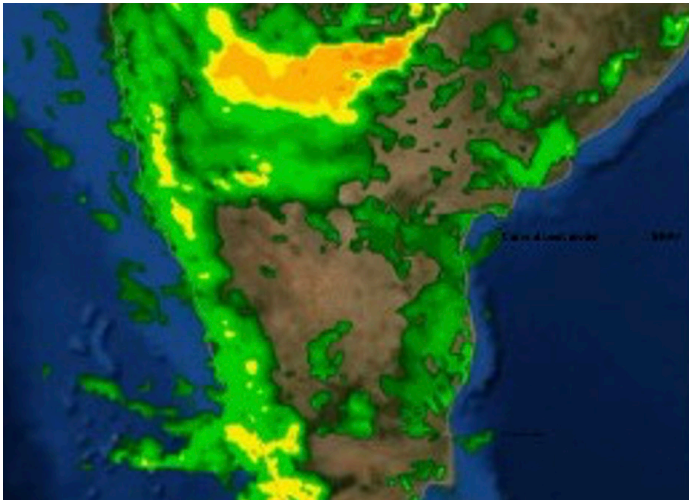
- **Improved global mapping of the atmosphere:** We partnered with the National Center for Atmospheric Research (NCAR) to improve its latest-generation global weather model, which uses state-of-the-art science to forecast the atmosphere at a truly global scale.
- **Better data and observations:** GRAF can incorporate previously untapped data sources to help overcome the lack of specialized weather equipment in many parts of the world.
- **First-ever operational global weather model to run on GPU-accelerated servers:** To handle the increased resolution and updated frequency, the GRAF system runs on an IBM POWER9® based supercomputer optimized for graphics processing units (GPUs).

¹ForecastWatch, Global and Regional Weather Forecast Accuracy Overview, 2017-2022, <https://forecastwatch.com/AccuracyOverview2017-2022>, commissioned by IBM

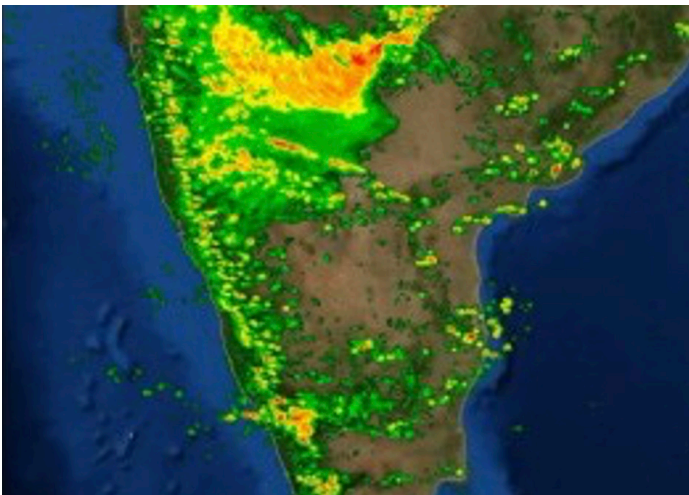
Driving decisions globally

GRAF can give a clearer sense of exactly when and where weather will hit around the globe, empowering:

- Utility companies to better position outage-repair crews for a storm
- Airlines to more effectively route around turbulence
- Farmers to better anticipate and prepare for dramatic shifts in weather
- Broadcasters to keep their audiences more informed and engaged



Current best model



GRAF

Improved predictions from the system are enhancing IBM enterprise offerings and are available for free to consumers using IBM apps and websites (The Weather Channel® and Weather Underground®).

Six key features set GRAF apart:

- **Fidelity:** Takes resolution down from 10 km-12 km to 3 km-4 km
- **Frequency:** Updates every hour instead of 6-12 hours
- **Fresh:** Assimilates weather data more rapidly into forecasts
- **Fine grain:** Up to 5-minute outputs versus 1 hour provides a clearer picture of weather occurrences
- **Fortified:** Exploring incorporation of untapped data sources
- **Forefront:** First operational global weather model to run on a GPU-accelerated supercomputer

To learn more, contact us.

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