



Google Earth AI: **Transforming Planetary** **Data into Actionable** **Intelligence**

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A New Era of Geospatial Intelligence

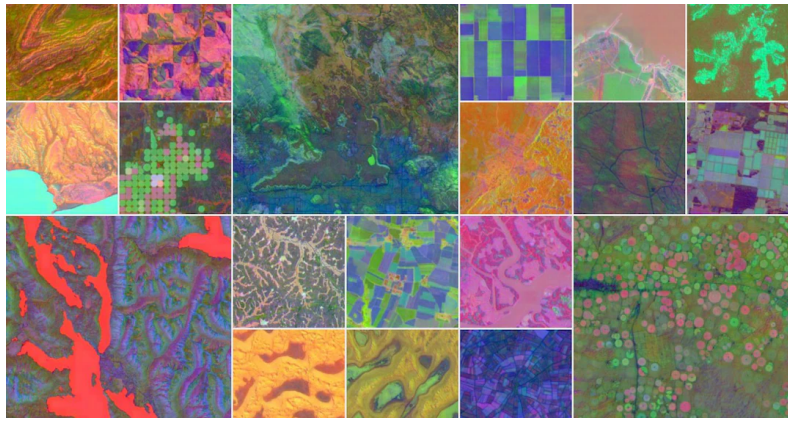
Artificial intelligence is rapidly reshaping the way we study our planet. Once limited to data visualization and manual interpretation, environmental analysis has now entered a new era where AI can reason about the Earth itself. Google Earth AI, unveiled in late 2025 by Google and DeepMind, represents a major leap forward in applying AI to geospatial intelligence. Built on Gemini's advanced reasoning and Google Earth Engine's data infrastructure, it bridges satellite imagery, environmental sensors, and human activity data to help governments, nonprofits, and scientists make faster, better-informed decisions.

What once demanded years of modeling and computation can now be achieved in minutes. Earth AI transforms vast amounts of planetary data into real-time insights, helping users understand how the planet is changing and what actions can be taken. Rather than simply showing maps or charts, the system interprets data, identifying risks, forecasting events, and suggesting responses.

The platform integrates three foundational components

1. **Imagery:** Unifying remote sensing data with cutting-edge AI for diverse geospatial analysis and forecasting, from land-use mapping to object detection in satellite imagery.
2. **Environment:** Harnessing AI for high-resolution weather and climate insights, supporting real-time forecasts, disaster preparedness, and policy impact assessment.
3. **Population:** Combining search trends, demographics, business, mobility, and spatial data to understand the complex interplay between people and places.

What makes Earth AI revolutionary is its geospatial reasoning layer, which connects these datasets through AI logic rather than manual analysis. Instead of just labeling a floodplain or detecting deforestation, the system can infer relationships. This reasoning capability allows researchers to interact with data in natural language, asking direct questions to the AI model. In response, Earth AI can generate visual maps, probability models, and written explanations that synthesize multiple forms of evidence. Integrated with Google Earth Engine and Google Cloud, the platform makes advanced analysis more accessible to universities, nonprofits, and public agencies, reducing technical barriers and accelerating environmental research.



From Monitoring to Modeling: AI for the Planet

Earth AI's environmental layer gives scientists an unprecedented view of how the planet is evolving. Continuous analysis of satellite imagery helps detect deforestation, glacier retreat, soil degradation, and even pollution patterns with striking precision. Projects like Global Forest Watch, powered by Earth Engine, now use Earth AI to forecast where illegal logging is most likely to happen, so that action can be taken before the damage occurs. Similarly, its integration with Flood Hub enables near real-time flood forecasting, combining meteorological, hydrological, and topographic data. On a larger scale, Earth AI's reasoning capabilities make it possible to simulate "what if" scenarios, predicting the environmental consequences of new policies or extreme weather events. This represents a critical evolution: moving from monitoring the planet to modeling its future.

Understanding Humanity: Mapping the Human Footprint

Beyond nature, Earth AI helps us understand the dynamics of human activity across regions and time as it provides a clearer picture of how people move, live, and build. By merging mobility, demographic, and economic data, the system can map population growth, migration, and infrastructure development more precisely than ever. The Open Buildings dataset, already covering more than two billion buildings worldwide, helps governments plan housing, healthcare, and transport in a more sustainable way. For NGOs, this data highlights underserved areas, guiding resource allocation and emergency aid. By layering behavioral signals such as search trends or business activity, Earth AI even reveals how communities recover economically after natural disasters, linking environmental and social realities in a single analytical view.

A Shared Intelligence for Global Action

The strength of Earth AI lies in its scalability and accessibility. Through its integration with Google Cloud and Earth Engine, the platform makes complex environmental analytics available to universities, local governments, and nonprofits without requiring deep technical expertise. While organizations like NASA's Earthdata or ESA's Climate Change Initiative focus on specialized research, Earth AI differentiates itself by combining open, interactive tools with the scale of global cloud computing and the reasoning power of Gemini. In this sense, it is more than an analytical tool: it is a shared intelligence for managing the planet, helping translate observation into sustainable action.



Earth AI captures what applied AI truly means: using intelligence not only to analyze data, but to understand and act upon it. By connecting environmental and population information through reasoning models, it turns planetary complexity into something measurable and actionable. Its integration of Gemini with geospatial data highlights a growing frontier in artificial intelligence: spatial reasoning at planetary scale. More than a single project, Earth AI represents a shift toward AI systems that engage directly with the physical world, where algorithms become instruments for sustainability, policy, and global collaboration.

SOURCES:

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