

ON APRIL 01, 2025 WE INAUGURATE

Clear Skies Challenge 2025: Innovate, Solve, Breathe!



A National Ideathon & Hackathon for Air Pollution Mitigation

The '**Clear Skies Challenge 2025**' is a national-level Ideathon and Hackathon focused on air pollution mitigation through AI-powered geospatial solutions. The program is part of Operation Dronagiri (initiated by DST's Geospatial Innovation Council), with **IIT Tirupati Navavishkar I-Hub Foundation (IITTNiF)** as the nodal agency. The initiative is supported by IISc Bangalore's Centre for Data for Public Good (data partner), Google (industry partner), A-PAG (Knowledge partner) & TiE Delhi-NCR.

Event Details



Launch Date:
April 01, 2025



Venue: **IIT Delhi
Research Park**



Target Cities:
**Gurugram, Varanasi,
Vizianagaram**

Why This Challenge?

Air pollution poses severe health risks and economic losses, with over 1.67 million air pollution-related deaths annually in India. The Clear Skies Challenge 2025 aims to leverage AI, geospatial data, and IoT-driven innovations to create scalable solutions for air quality management. This two-stage event—Ideathon & Hackathon—will foster AI-powered geospatial solutions to tackle the impact of air pollution.

Challenge Structure

Stage 1: Ideathon – AI & Geospatial Solutions for Air Quality

Teams will propose innovative geospatial and AI-driven air pollution mitigation ideas, by integrating air-quality data (from Google Air View+) and geospatial data (from GDI- Geospatial Datasharing Interface).

Stage 2: Hackathon – Solution Development

Selected teams will develop functional solutions for deployment in real-world environments in any of these three cities- Gurugram, Varanasi, Vizianagaram. Solutions must be geospatial-based models and AI-powered..

Stage 3: Final Pitch & Implementation

Winning solutions will be showcased to key stakeholders, including policymakers, industry leaders, and research institutions, for potential support, further development, and integration into national clean-air initiatives.



Focused Areas & Problem Statements



Agriculture: AI-GIS-Based Pollution-Resilient Farming

Problem: Air pollution (O₃, SO₂, NO₂) causes 9% wheat and 3% rice yield losses annually in India.

Challenge Statements:

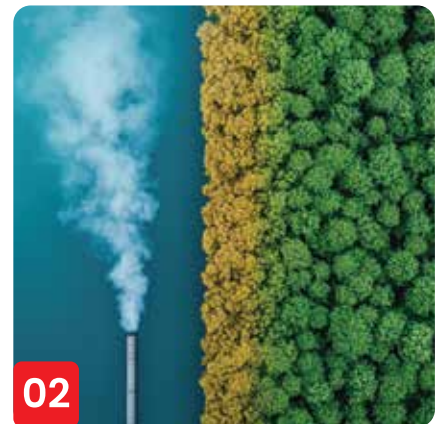
- Develop AI-GIS models to predict pollution impact on crops and optimize farming strategies.
- Design precision agriculture tools using real-time air quality and meteorological data.
- Develop geospatial pollution monitoring for targeted fertilizer application and pollutant-resistant crops.

Smart Cities: Predictive AI for Air Quality Management

Problem: Indian cities lack high-resolution, predictive air quality mapping systems.

Challenge Statements:

- Develop an AI-powered geospatial model for real-time air quality monitoring.
- Build a smart city dashboard that integrates satellite and sensor-based pollution data.
- Use drone-based remote sensing for monitoring urban pollution sources.



Infrastructure & Clean Mobility: AI-GIS for Pedestrian & Bicycle Pathways

Problem: Traffic congestion and vehicular emissions are major contributors to urban air pollution.

Challenge Statements:

- Use geospatial AI models for urban mobility planning.
- Optimize pedestrian and cycling infrastructure based on real-time pollution and traffic data.
- Integrate LiDAR and satellite imagery to design green corridors for clean mobility.

Industrial Emission Control: AI & Satellite-Based Monitoring

Problem: Industries contribute heavily to NO₂, SO₂, and PM_{2.5} emissions, but real-time emission monitoring is weak.

Challenge Statements:

- Design an AI-powered emission tracking system for industries.
- Develop a satellite-integrated monitoring framework for regulatory compliance.
- Use predictive analytics to recommend emission reduction strategies.



Focused Areas & Problem Statements



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Healthcare: Personalized Air Quality Risk Management

Problem: PM2.5 exposure causes 1.67 million deaths annually, with urban areas exceeding WHO air quality limits.

Challenge Statements:

- Develop AI-driven health risk prediction models based on pollution exposure data.
- Build geospatial health risk alert systems for real-time personalized notifications.
- Integrate wearable sensor data with geospatial insights to monitor respiratory health.

Sustainable Travel & Eco-Tourism: Low-Pollution Route Optimization

Problem: Air pollution reduces tourism, with polluted areas seeing a 93.4% drop in return visits.

Challenge Statements:

- Develop a GIS-based travel route planner that prioritizes low-pollution paths.
- Create an AI-powered eco-tourism mapping tool to promote clean-air destinations.
- Identify real-time pollution hotspots for better travel planning.



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Real Estate & Urban Planning: Pollution-Resilient Infrastructure

Problem: 75% of urban India exceeds WHO air quality standards, affecting real estate values and public health.

Challenge Statements:

- Develop a geospatial AI framework for pollution-aware real estate development.
- Create predictive models to optimize building design based on air quality.
- Use geospatial insights for low-emission urban planning.

Community-Driven Air Quality Solutions: Crowdsourced Monitoring

Problem: Public participation in air quality monitoring is low, and citizens lack tools for real-time pollution tracking.

Challenge Statements:

- Build a citizen-led air quality monitoring app using geospatial and sensor data.
- Use crowdsourced mobile sensor data for localized pollution mapping.
- Develop a real-time public alert system for high-risk areas.



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Participants are welcome to work on other significant problem statements as long as they contribute to managing and mitigating the adverse impact of poor air quality.

Who Can Participate?

- Students (UG, PG, Ph.D.) • Researchers
- Startups & Innovators

Why Participate?

- National Recognition & Cash Prizes
- Exclusive Access to Google's Geospatial & Air Quality Data
- Opportunity to Deploy Real-World Solutions
- Exclusive access to Google's AirView+ data & GDI's geospatial data for three cities-<https://blog.google/intl/en-in/company-news/using-googles-ai-and-local-ecosystem-to-generate-actionable-air-quality-insights-in-india-with-air-view/>
- USD 500 Google Cloud Credits for the top 50 teams (valid for 5 months after redemption)
- Interactive Google organized AI Workshops for group learning
- one-on-one mentoring for the top15 teams from Google and Industry experts

PRIZES WORTH

First Prize: ₹2,00,000

Second Prize: ₹1,50,000

Third Prize: ₹1,00,000

Special Awards for Innovation & Best Team



Registration Link



Website Link

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