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SERVIR: Connecting Space to Village

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Countries Around the World Need Satellite Data

SERVIR

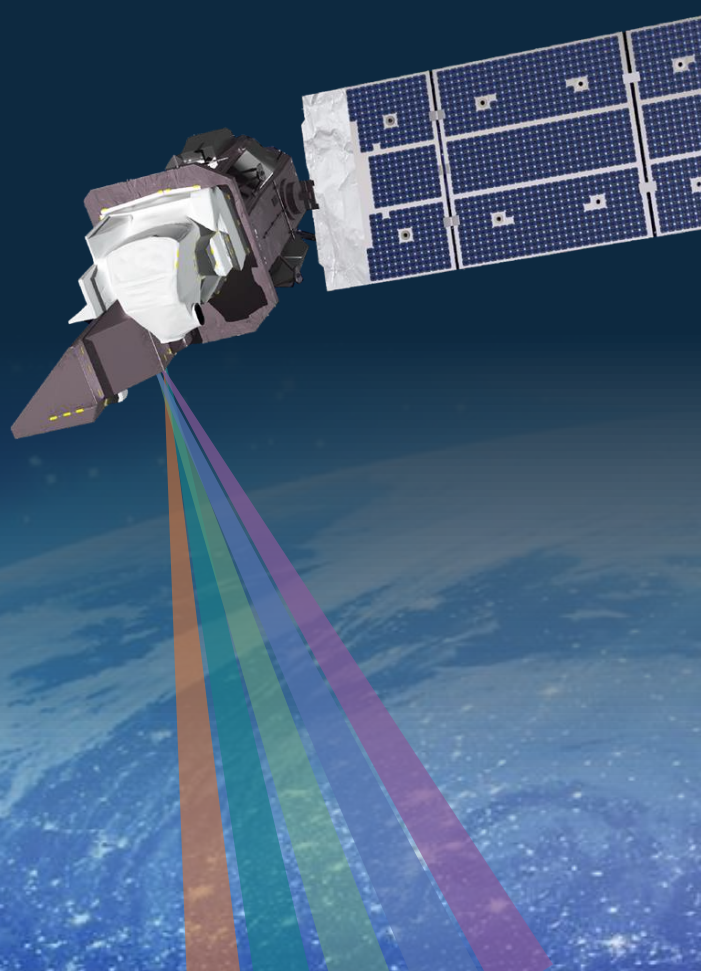
CHALLENGE:

- Climate change impacts are accelerating around the world.
- Disadvantaged and marginalized people are most adversely affected.
- The power of satellite data helps partner countries identify and manage climate risks.

CONNECTING
SPACE TO **VILLAGE**

SERVIR is a joint initiative of NASA, USAID, and leading geospatial organizations in Asia, Africa, and Latin America that partners with countries and organizations to address challenges in climate change, food security, water and related disasters, land use, and air quality.

Using satellite data and geospatial technology, SERVIR co-develops innovative solutions through a network of regional hubs to improve resilience and sustainable resource management at local, national and regional scales.



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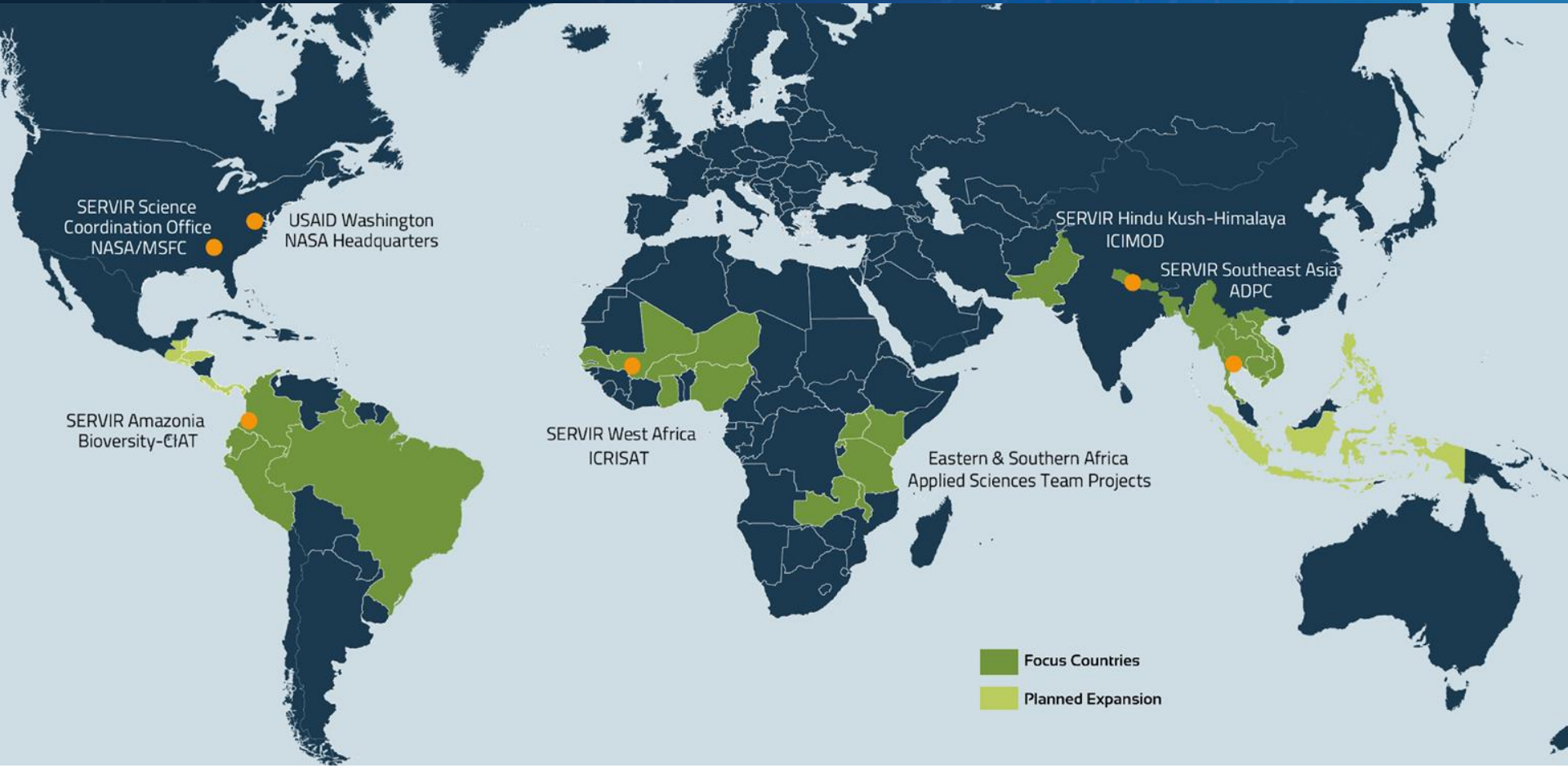
SERVIR Focuses on Countries in Asia, Africa, & the Americas



CONNECTING
SPACE TO **VILLAGE**

Agriculture &
Food Security

Water Security

Ecosystem & Carbon
Management

Weather & Climate
Resilience

Air Quality &
Health

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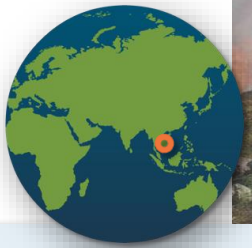
New Air Quality & Health Service Area



Southeast Asia

AQ Monitoring for Sustainable Landscapes and Better Human Health tool uses air quality data to inform and regulate the management of agricultural burning to reduce GhG emissions in SEA.

Hindu Kush Himalaya

ICIMOD has developed a web-based dashboard to facilitate regional air quality monitoring drawing on observation and remote sensing products.

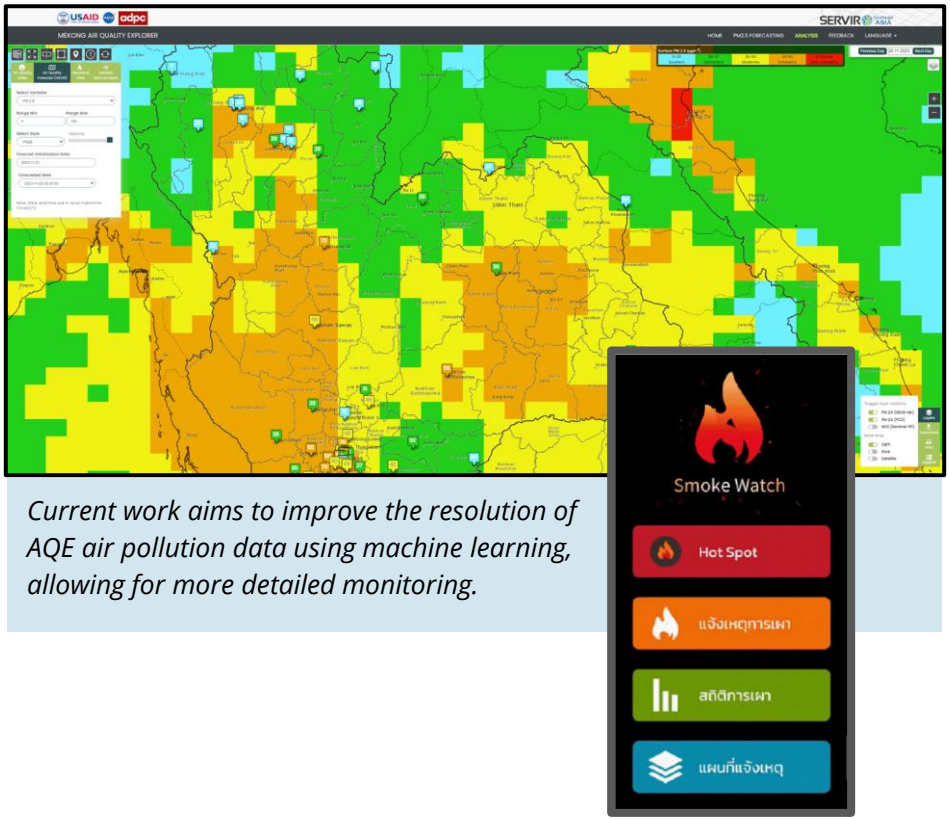
Eastern & Southern Africa

NASA's AST is engaging meteorological departments in Kenya and Rwanda to co-develop a regional air quality forecasting and decision-making tool.

SERVIR Improves Air Quality, Reduces Fire Impact in Thailand

SERVIR Southeast Asia's Air Quality Explorer (AQE) tool is used for burn ban decisions in Thailand

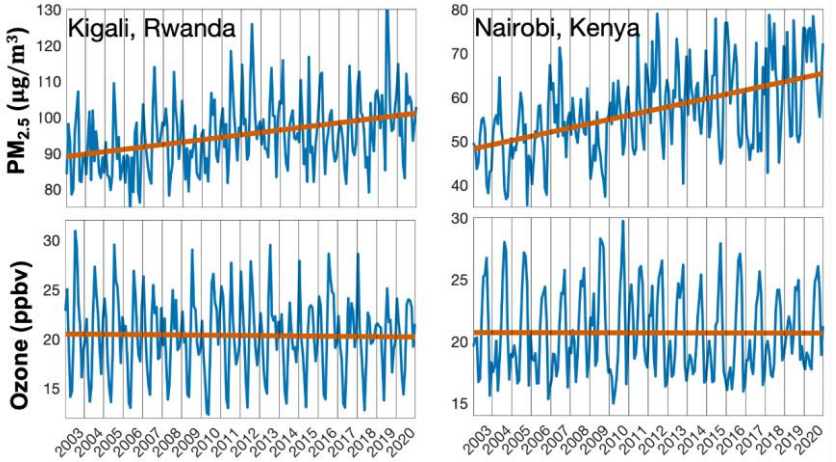
- Across south and southeast Asia, air pollution causes over 2 million deaths annually.
- Thailand's Pollution Control Department (PCD) seeks to reduce the impact of poor air quality (AQ), but ground observations provide only limited information on AQ.
- The public-facing AQE and derivative Smoke Watch applications now **enable country-wide monitoring and forecasting for Thailand and improves PCD's ability to issue effective prescribed burn bans.**



Current work aims to improve the resolution of AQE air pollution data using machine learning, allowing for more detailed monitoring.

Air Quality Forecasting to Support Rwanda

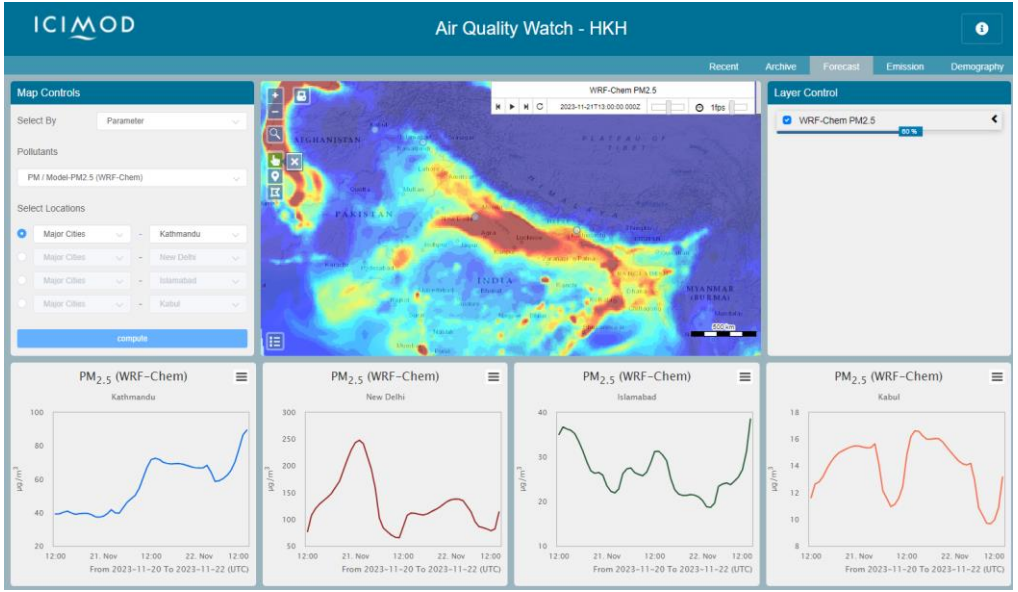
- SERVIR Applied Sciences Team project, led by UCAR's Rajesh Kumar, is helping Meteo Rwanda and Kenya Met Agency to forecast air quality in Kigali and Nairobi.
- Meteo Rwanda has installed the air quality modeling system on their computer cluster. We are working with KMD to get there.
- The 3-year project aims to co-design and co-develop a regional air quality forecasting system that provides near-real-time and next-two-day information about air quality.



City-scale averages of modeled particulate matter and Ozone

SERVIR Monitors and Forecasts Air Quality in South Asia

SERVIR Hindu Kush Himalaya's applied sciences team contributes air quality monitoring and forecasting products to the Air Quality Watch



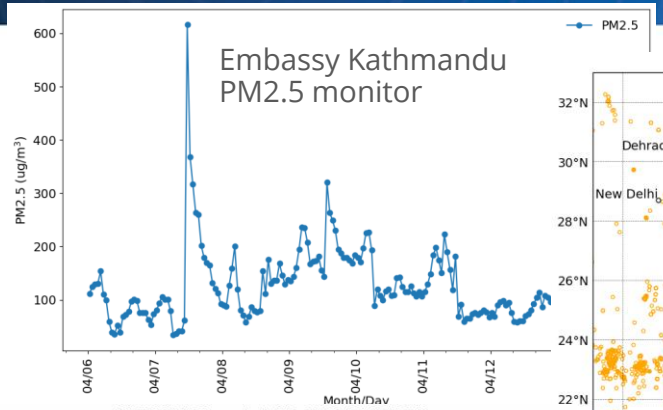
- Air Quality Watch ingests near real-time air pollution data from a suite of satellite instruments with special attention on geostationary instruments (AMI, GEMS)
- Forecast products provide a 2-day forecast of PM2.5 pollution and other criteria pollutants (NO_2, SO_2, O_3) down to 4 km resolution across Nepal.
- Tailored, value-added satellite and model products developed for the region

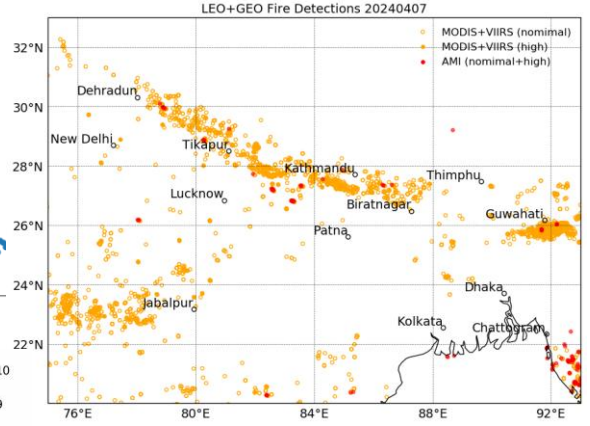
Dashboard **enables country-wide monitoring for Nepal and neighboring countries and improves Nepal Department of Environment's ability to disseminate information to the public.**

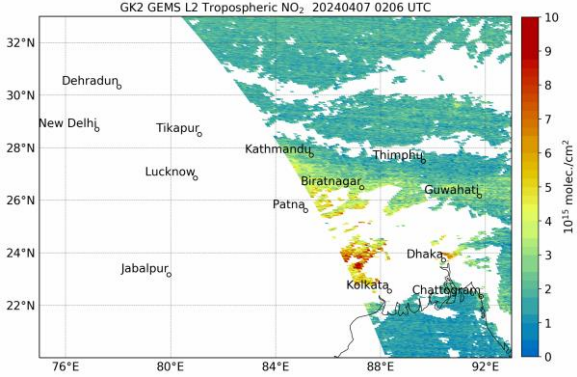
SERVIR Monitors and Forecasts Air Quality in South Asia

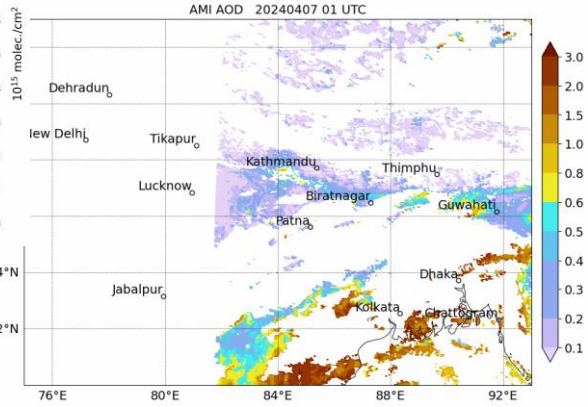
SERVIR Hindu Kush Himalaya's applied sciences team has led trainings in the region & continues to enhance products based on stakeholder feedback

- Preparing for training event in Kathmandu, Nepal in May 2024
- Training materials consisting of technical documents, user guides, Articulate Rise 360 modules, and quick guides
- Developing use cases and hands-on training utilizing Air Quality Watch dashboard









In a Nutshell and Next…

- SERVIR has several projects focused on advancing air quality monitoring and forecasting in its portfolio
- SERVIR is exploring how these air quality efforts can shed a light on our new thematic area – health.
- In the short term, we are exploring ways to connect the existing body of work (short-term forecasts as well as sub-seasonal to seasonal forecasts) to tackle heat challenges in Nepal.

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