MOP38

2-6 NOVEMBER 2026 | KIGALI, RWANDA

Enhancing the regional atmospheric monitoring of substances controlled by the Montreal Protocol (decision XXXVII/1)

Report by the Ozone Secretariat and the Advisory Committee of the General Trust Fund for Financing Activities on Research and Systematic Observations Relevant to the Vienna Convention

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THE KIGALI AMENDMENT 2016–2026

Progress in implementation of decision XXXVII/1

Since the 48th meeting of the Open-ended Working Group of the Parties to the Montreal Protocol (OEWG48), the work of the Ozone Secretariat and the Advisory Committee has focused on:

- Finalizing the process to access European Union grant funds for the establishment and operation of stations monitoring controlled substances
- Finalizing the Secretariat's online tool for estimating costs for the set up and operation of atmospheric monitoring stations
- Discussions with parties interested in hosting such stations in their territories
- Procedures for supporting atmospheric monitoring projects under the General Trust Fund – Initial discussion by the Advisory Committee at its 21st online meeting, held on 19 October 2026

Funding streams in support of atmospheric monitoring

- Current funding streams:



  (a) 2026 budget line from the cash balance of the Trust Fund for the Montreal Protocol **(US$ 100,000)**

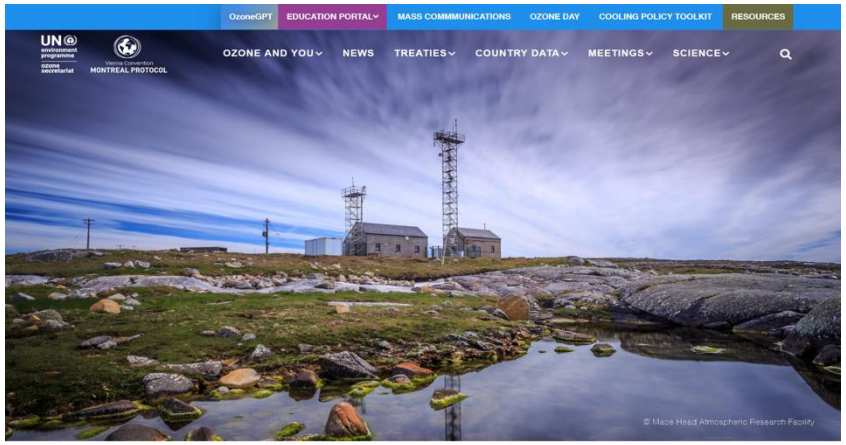
  (b) EU grant to the General Trust Fund (pending) **(€ 4.5 million /~ US$ 5.2 million)**

  Expected to support the establishment and four-year operation of three monitoring stations in developing countries and countries with economies in transition

  (c) MLF funding window – established by Executive Committee decision 98/62 (June 2026) (**US$ 9,250,000** for three pilot projects plus **$1,800,000** for the continuation of operation of three monitoring stations to be established under the General Trust Fund)

- The Secretariat is in the process of finalizing the delegation agreement with the European Commission, expected to be signed by the end of 2026

Online costing tool



- A dedicated page on the Secretariat's website provides access to:
  - The first version of the costing tool
  - Summary of comments and suggestions on the tool submitted by parties and responses by the Secretariat

Atmospheric Monitoring of Substances Controlled under the Montreal Protocol

In 2018, atmospheric scientists reported an unexpected increase in global emissions of CFC-11 based on observations from 2012 to 2017, despite the global phase-out of controlled CFC-11 production and consumption under the Montreal Protocol in 2010. Subsequent studies showed that the increasing trend in global CFC-11 emissions had reversed by 2018-2019. Those findings highlighted the importance of atmospheric observations in evaluating the long-term effectiveness of the Montreal Protocol.

Recognizing the importance of atmospheric monitoring, the parties to the Vienna Convention and Montreal Protocol adopted a series of decisions requesting relevant scientific and technical bodies and expert groups to assess the current state of global atmospheric monitoring, identify gaps in observational coverage, and advise on options for strengthening the systematic observations of controlled substances. In decision XXXVI/1 of the Thirty-Sixth Meeting of the Parties to the Montreal Protocol and decision XIII/2 of the Thirteenth Conference of the Parties to the Vienna Convention, the parties expanded the scope of the General Trust Fund for Financing Activities on Research and Systemic Observations Relevant to the Vienna Convention (VCGTF) to include support for activities related to the atmospheric monitoring of the substances controlled under the Montreal Protocol.

In decision XXXVI/1 of the Thirty-Sixth Meeting of the Parties to the Montreal Protocol and decision XIII/2 of the Thirteenth Conference of the Parties to the Vienna Convention, the parties expanded the scope of the General Trust Fund for Financing Activities on Research and Systemic Observations Relevant to the Vienna Convention (VCGTF) to include support for activities related to the atmospheric monitoring of the substances controlled under the Montreal Protocol.

Subsequent decisions requested the Secretariat to prepare cost estimates for establishing and maintaining atmospheric monitoring stations. In response, the Secretariat, in consultation with the Advisory Committee of the VCGTF and experts in atmospheric monitoring of controlled substances, developed the requested cost estimates.

Building on this work, the Secretariat developed an interactive web-tool that enables users to estimate the costs associated with establishing and maintaining an atmospheric monitoring station, based on the estimates prepared. The web-tool can be accessed here.

Summary of the comments on the use and/or functionality received by parties on the initial version of the web-tool and the Secretariat's responses are available here.

Important links

Activities under the General Trust Fund for Financing Activities on Research and Systematic Observations relevant to the Vienna Convention
- Ozone and UV monitoring
- Atmospheric monitoring of controlled substances

Advisory committee

Brochure on the Vienna Convention Trust Fund for Research and Systematic Observations

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Cost Estimation Tool for Atmospheric Monitoring of Controlled Substances

This tool helps estimate the low and high ranges of the capital and operational costs associated with establishing and operating atmospheric monitoring stations for substances controlled under the Montreal Protocol. Estimates are based on cost data and technical information provided by experts on atmospheric monitoring including members of the Advisory Committee of the General Trust Fund for Financing Activities on Research and Systematic Observations Relevant to the Vienna Convention. Users can customize the default cost items by editing or removing individual items or changing default values to reflect country-specific conditions including existing infrastructure. The tool also allows users to create and save multiple scenarios with different input parameters and assumptions which then can be summarized and compared through an interactive dashboard.



Flexible Cost Items

The tool allows users to select individual cost items and adjust their values to reflect local circumstances such as availability of existing infrastructure, regional cost variations and other country-specific factors.

Cost Calculations

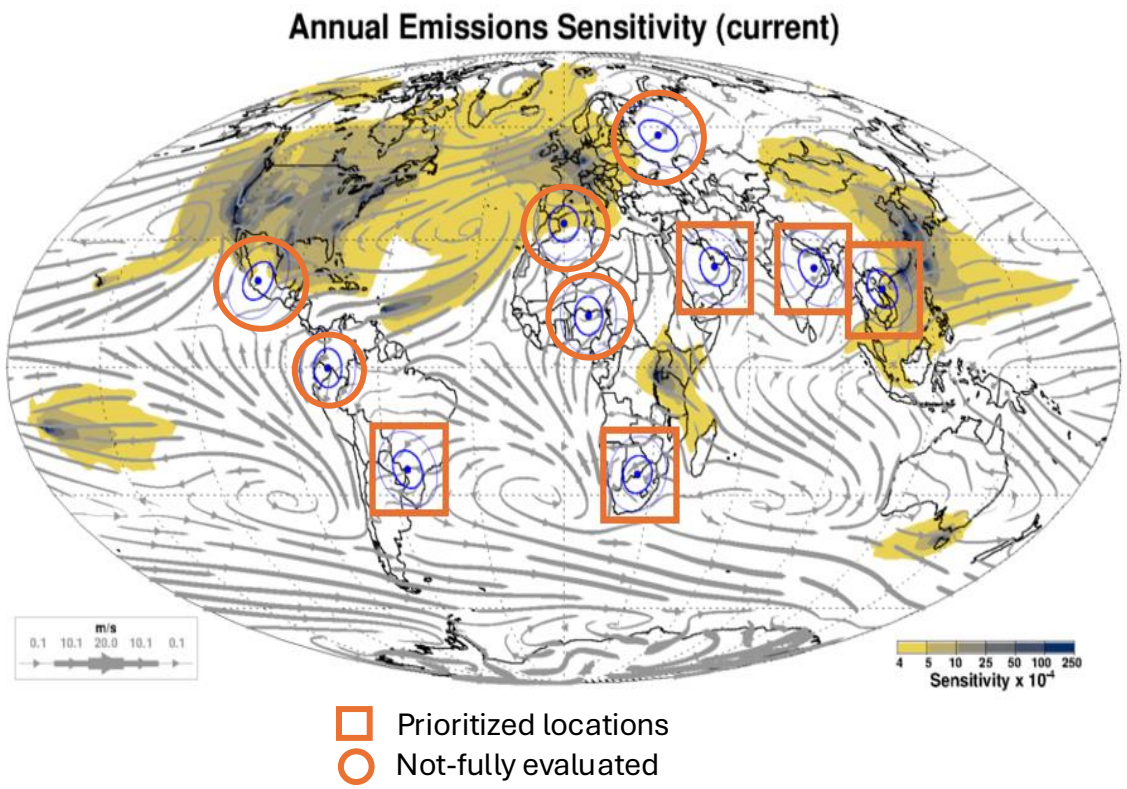
Based on user input, the tool calculates annual breakdown of estimated capital and operational costs, providing low- and high-cost ranges for establishing and operating one atmospheric monitoring station across different regions of the world.

Dynamic Data Visualization

The tool enables users to interactively visualize results based on the user-defined scenario configurations and compare multiple scenarios across selected implementation phases and/or years.

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Regions and locations identified by the Advisory Committee to fill gaps in regional atmospheric monitoring of controlled substances



Shaded areas show the sensitivity of existing stations to regional emissions

Prioritized regions/locations

- Southern Asia (India/Bangladesh)
- South-East Asia (**Viet Nam**)
- Southern Africa (Botswana/**South Africa**)
- Middle East (Saudi Arabia)
- Central/Southern South America (**Brazil**/Argentina)

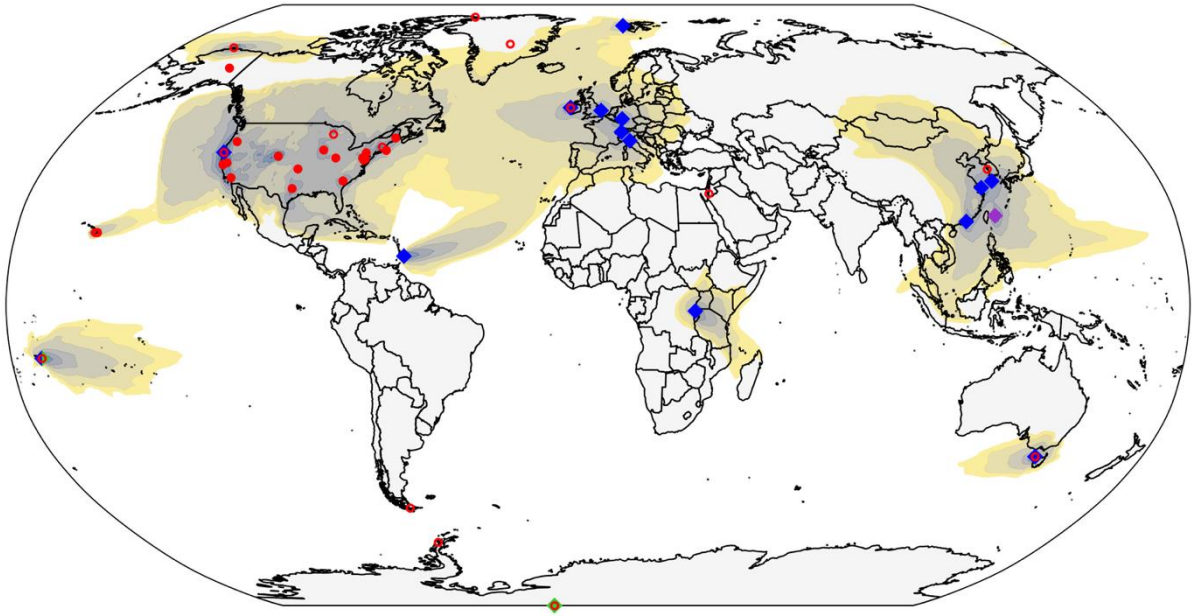
Regions/locations not yet fully evaluated

- North Africa (Algeria)
- North America (Mexico)
- Northern South America (Ecuador)
- Eastern Europe (Russian Federation)
- West Africa (Nigeria)

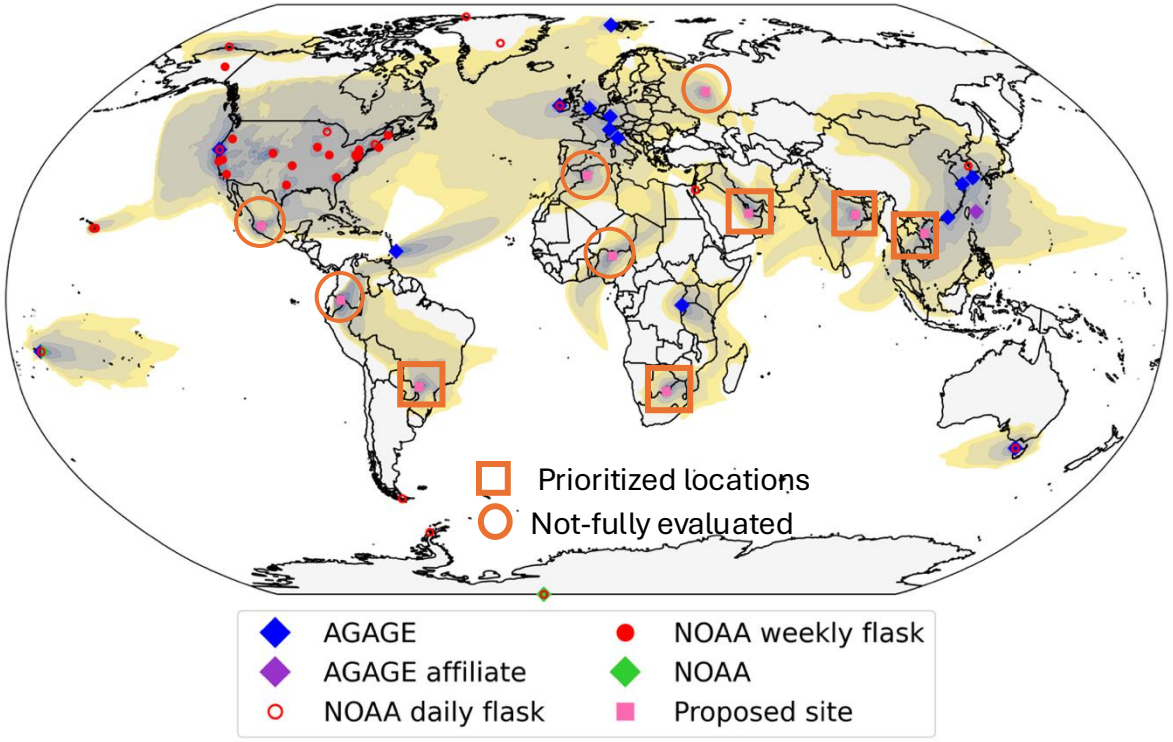
Parties formally expressing interest in exploring the possibility of or setting up stations in its territories

Parties informally expressing such interest

Filling major gaps in atmospheric monitoring of controlled substances

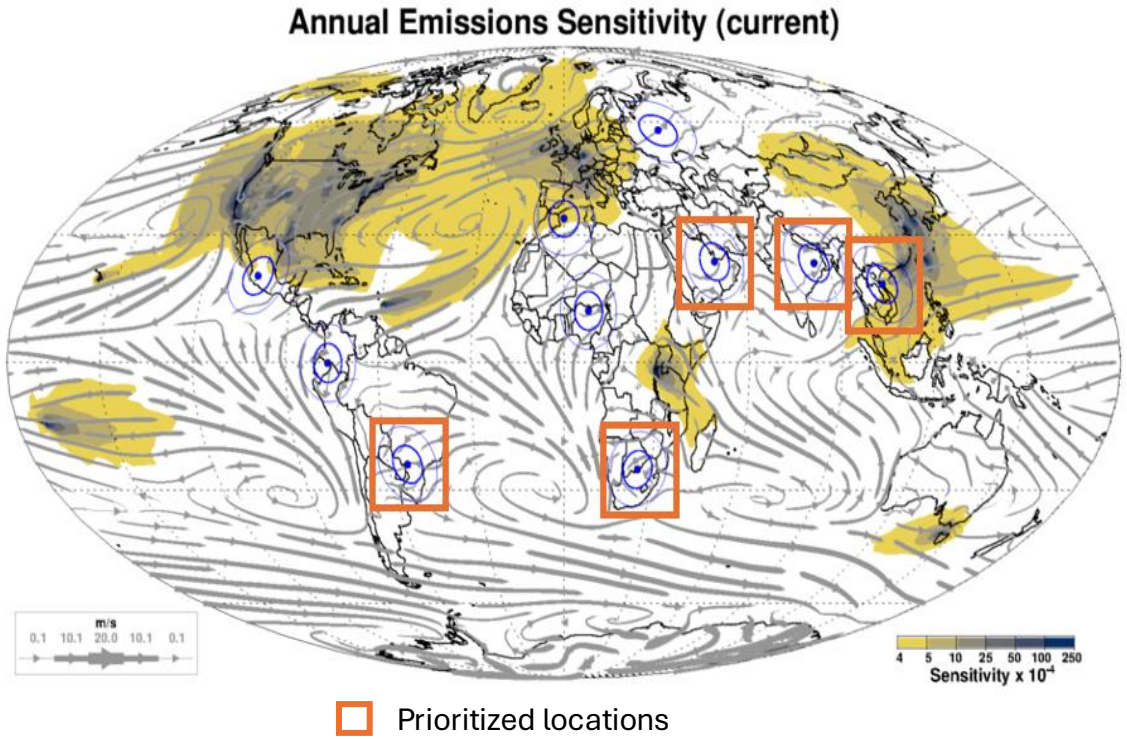


Shaded areas show the sensitivity of stations to regional emissions



Ten proposed locations suggested by the Advisory Committee of the General Trust Fund based on consideration of emission patterns, wind fields, available infrastructure and scientific expertise

Update on the regions and locations identified by the Advisory Committee to fill gaps in regional atmospheric monitoring of



Shaded areas show the sensitivity of existing stations to regional emissions

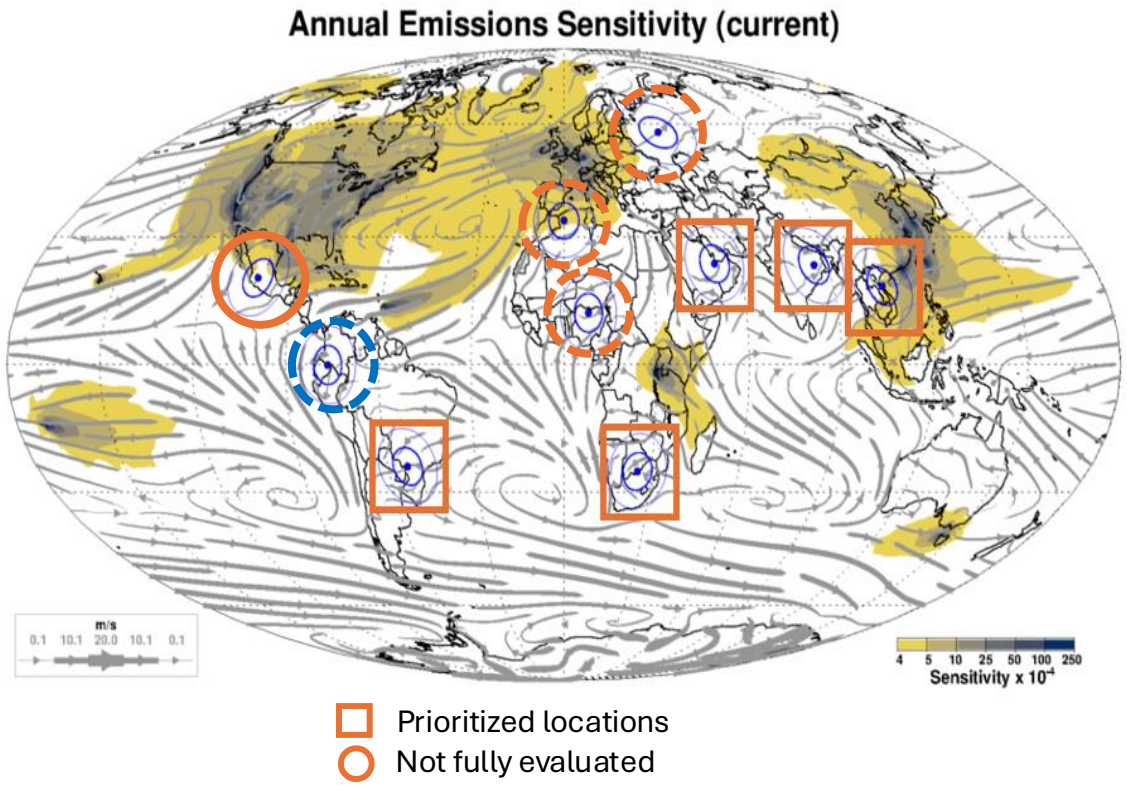
Prioritized regions/locations

- Southern Asia (India/Bangladesh)
- South-East Asia (Viet Nam)
- Southern Africa (Botswana/South Africa)
- Middle East (Saudi Arabia/Other parties)
- Central/Southern South America (Brazil/Argentina)

Update on discussions:

- Significant discussions with South Africa and Brazil
- Formal discussions with Vietnam and Saudi Arabia
- Initial approach with India
- Scientific discussions with institutions involved in monitoring in the Middle East

Update on the regions and locations identified by the Advisory Committee to fill gaps in regional atmospheric monitoring



Shaded areas show the sensitivity of existing stations to regional emissions

Prioritized regions/locations

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- South-East Asia (Viet Nam)
- Southern Africa (Botswana/South Africa)
- Middle East (Saudi Arabia/other countries)
- Central/Southern South America (Brazil/Argentina)

Regions/locations not yet fully evaluated

- North Africa (Algeria)
- North America (Mexico)-Multiple discussions
- Northern South America (Ecuador) - Scientific discussions
- Eastern Europe (Russian Federation)
- West Africa (Nigeria)

Essential needs for a successful station

Messages from the whitepaper, workshop, pilot project and ongoing discussions

- Scientific capability, interest, and willingness to be a part of the effort
- OSSEs for the specific site before setting up a station
- Infrastructure – Electricity, AC, internet connectivity, roads, security, etc.
- Logistical support to transport sampling flasks through customs and other regulations – especially for phase 1 (the “survey flask sampling period”)
- Additional analytical capabilities have emerged (in USA, Europe and China), thus ensuring all samples from proposed sites will be analyzed in a timely manner
- Employing a common calibration scale: AGAGE and/or NOAA (which frequently intercompare) to be propagated or used. Additional calibration scale propagation capacity has been developed in Europe and is emerging in China
- Data to be shared with the scientific community for extensive examination and to be deposited in accessible data centres

Advisory Committee work and emerging considerations

Advisory Committee work on atmospheric monitoring

- Committee members have been providing relevant advice to the Ozone and MLF secretariats
- The Committee held its 21st meeting on 19 October 2026, while atmospheric monitoring members have been meeting informally via video calls or opportunities during relevant scientific meetings, e.g., the meeting of the Scientific Assessment Panel in July 2026

Emerging considerations

- Consistency in the scientific processes between the General Trust Fund, the MLF and the associated implementing agencies for rapid decision-making and implementation
- Development of procedures for provision of scientific direction, guidance and advice on projects related to atmospheric monitoring under the General Trust Fund
- Clarification of the Committee's role in project development and implementation, including consideration of conflict of interest
- Recognition that atmospheric monitoring of controlled substances is more a research-oriented project than a routine operational one

Additional considerations by the Advisory Committee

The Committee:

- Agreed that EU and MLF funding will help obtain emission information from six sites located in the most important regions of interest over the next few years. The potential for MLF funds to continue measurement at sites funded by the EU beyond four years is a major advantage
- Agreed that the function of the Committee for atmospheric monitoring will include providing guidance to stations throughout their operation in data acquisition, quality control, calibration, and inverse modeling (*Somewhat different from those related to projects on Ozone and UV monitoring*)
- Is constantly liaising with various measurement sites, stations, and scientists involved to find synergies between monitoring MP gas and those done for climate and air quality to minimize costs.
- Is cognizant of and liaising with other measurements projects, e.g., a survey study of Georgetown University funded by an NGO
- Will prioritize the remaining potential regions and sites in the coming months
- Discussed various technical issues to ensure the success of the projects

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Thank you for your attention

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