



CERCA Newsletter: July 2020

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Greetings from CERCA!

Indian Institute of Technology Delhi (IITD) has set up a Centre of Excellence for Research on Clean Air (CERCA) in February 2018. CERCA vision is to contribute to restoring Blue Skies and improving Air Quality and Climate Risks in Delhi/ NCR and other cities in India through scientific research and as a Think Tank. CERCA is structured around three broad themes: Resource, Research and Action in the area of Clean air and Climate risks. The Centre aims to become a nodal centre for research on clean air and climate risks in India by utilising the expertise available at IIT Delhi and through collaborations and partnerships.

As part of CERCA public outreach policy, we have been reaching out to a wide section of our society through a weekly newsletter since 2018 providing latest inputs on research on health effects of air pollution, actionable information on air quality data to the Government, Industry and to the Citizens at large for appropriate policy formulation, emerging clean air technologies including new measures/innovative initiatives from across the world to combat air pollution including thought leadership.

It has always been our endeavour that we involve more and more people across our communities in this extremely important initiative thereby enhancing public understanding and participation in promoting Clean Air initiatives at the grass root level.

We want this newsletter to be valuable for you. We always welcome your feedback as we strive to be better through your suggestions which help us to continuously improve. In line with this, we have now decided to change the frequency of this newsletter from weekly to monthly basis as this would provide us an opportunity to include more impactful and qualitative information on clean air and climate change area. It would be our endeavour to include opinion/discussion papers relevant to clean air and climate change research from our faculties/research scholars, local, regional and national level air quality analysis and findings, latest national and international research on emerging clean air technologies including thought leadership and policy discussion.

You can access all our newsletters on our website <https://cerca.iitd.ac.in/>. You could simply unsubscribe by clicking unsubscribe at the bottom of an issue, in case you do not want to receive it. If you would prefer this to come to an alternate email, just send us your contact address on cerca@iitd.ac.in and we shall do the needful while taking utmost care of your privacy.

We are working at the Centre of Excellence for Research on Clean Air to ensure that our regular activities continue to be carried out to the best extent possible, while ensuring the well-being and safety of our staff and partners.

We hope you are staying safe and healthy during these extraordinary times. Wishing you all the best!

CERCA Team

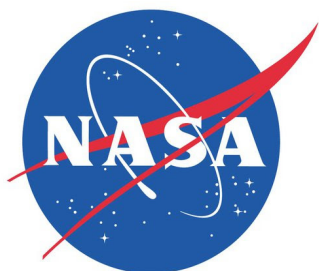
CERCA Events



World Bank co-sponsored Project on Developing Air Quality Management model for the Indo Gangetic Plains

CERCA-IITD to establish an Air Quality Management modelling network among states of Indo Gangetic Plain to support cost effective AQM in the overall IGP region. The main elements of AQM modelling for the IGP would include methods and protocols monitoring, AQ monitoring, Emission inventory, Source apportionment, Health impacts, cost effectiveness and AQM planning.

NASA Citizen Science Project



This project aims to explore the use of low-cost sensors in measuring air pollution through the engagement of citizens. Adequate ground-based measurements of air quality do not exist in most of the country. Satellite data are used to fill this gap, but satellites cannot provide data at nighttime. To provide the required temporal coverage at a minimum cost, low-cost sensors became very popular in the last few years.



MOU signed with West Bengal Pollution Control Board (WBPCB)

A Memorandum of understanding has been signed in February by WBPCB and CERCA for undertaking source apportionment studies, preparing emission inventory and carrying capacity for

three cities in west Bengal namely Durgapur, Asansol and Raniganj. A Meeting in this regard was held on March 16,2020 with Principal Secretary (Environment), WB & Chairman West Bengal Pollution Control Board on finalization of the project.

CERCA in the News



Clean air can help minimize risks of Co-vid infections as the economy opens up

Prof. Dey is coordinator of Centre for Excellence for Research on Clean Air (CERCA) at IIT Delhi and Prof. Apte, assistant professor at the University of Berkeley, California penned down their thoughts regarding the impact of air pollution on co-vid infection as the country enters the unlock phase.



In Bengal, real-time satellite data to be used for round-the-clock air quality management

Till date satellite data has been used by scientists for research, but this is for the first time that real-time satellite data would be used for air quality management in cities on a day-to-day basis, said coordinator of the Centre of Excellence for Research on Clean Air (CERCA).



Scientists use lockdown to get data on unpolluted Delhi air

The shutdown is not limited to a particular sector like industry or vehicles. Neither is it a city-level shutdown. It is a pan-India shutdown, so chances of pollution coming from outside has also been minimized. We are gathering data as this an opportunity that Delhi will not get in years to come,said Coordinator of CERCA at IIT Delhi.

Opinion Papers

India whose action plan is very similar to that of China, i.e. more focus on restricting anthropogenic PM_{2.5} emissions, and could face a problem of severe Ozone pollution in future. Therefore, more focus on combination of NO_x and VOC emission controls to overcome the effect of decreasing PM_{2.5}, is required, and one way is to identify potential nonattainment cities based on Ozone concentrations.

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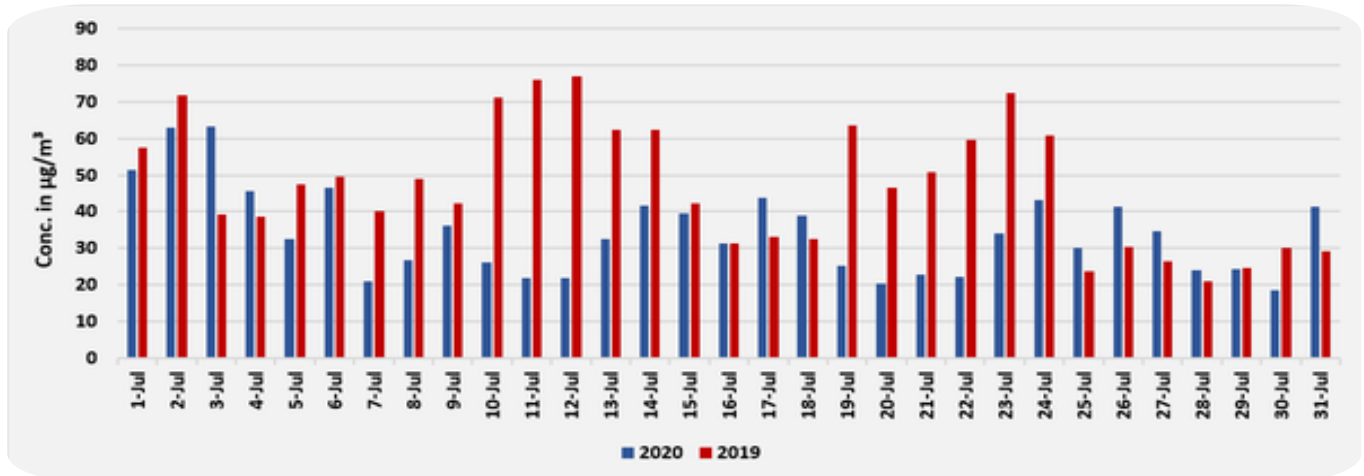
Air quality management and assessment of aerosol climate effects over a large area require the strategic placement of regionally representative monitoring sites (RRMS) to capture the required information. Ground-based, fine particulate matter (PM_{2.5}) concentrations measured for a long duration at high spatial resolution i.e. at several potential locations in a region help identify an optimal regionally representative site for the network. However, in the absence of long-term PM_{2.5} concentrations with high spatial resolution, identification of RRMS is a challenge. To identify RRMS for such situations, a novel methodology utilizing satellite-derived PM_{2.5} is presented in this study.

The effectiveness and cost are always top factors for policy-makers to decide control measures and most measures had no pre-test before implementation. Due to the COVID-19 pandemic, human activities are largely restricted in many regions in India since mid-March of 2020, and it is a



progressing experiment to testify effectiveness of restricted emissions.

Delhi Air Quality Trend for 24 hr. Daily Average



About 28 % decrease in PM2.5 levels in July 2020 in comparison to July 2019 have been observed. The drastic measures taken by governments because of the spreading of the novel coronavirus, and the partial shutdown of factories, commercial establishments, and vehicular movement, has resulted in a drop in the concentration levels across Delhi.

Data Source: CPCB

News Highlights



Nitrogen dioxide levels fell by more than 70% during COVID-19 lockdown in New Delhi: UN

Levels of nitrogen dioxide fell by more than 70 per cent during the lockdown in New Delhi, a UN policy brief said on Tuesday, warning that the environmental gains could be temporary if the cities reopen without policies to prevent air pollution and promote de-carbonisation.

Source: The Tribune & Guardian

Air pollution cuts Indians life expectancy by 5.2 years: Report



Source: Hindustan Times



Source: Science Daily



Source: Bloomberg

Pollution levels in India shave off 5.2 years from the life expectancy of the average Indian and it most acutely hits people living in the Indo-Gangetic plains, according to an assessment.

Identifying sources of deadly air pollution in the United States

A new study from University of Minnesota researchers provides an unprecedented look at the causes of poor air quality in the United States and its effects on human health.

The World's Worst Air Isn't in Beijing or New Delhi

Nestled in a valley in central Chile, near lakes and snow capped mountains, sits one of the world's most polluted cities.

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