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Research across Disciplines Regarding the Covid-19 Outbreak

[*1]Rahul Pratap Singh Kaurav

[*1]Department of Physics, Meerut College Meerut, Uttar Pradesh, India.

Abstract

The analysis of the aerosol load in the atmosphere before and after the COVID-19 spread is the foundation of this interdisciplinary discussion article. The investigation reveals that the aerosol load in the atmosphere has significantly decreased as a result of numerous anthropogenic activities. Aerosol Optical Depth (AOD) statistics at the 550nm wavelength band were obtained by the authors after analysis of the last 20 years (2000-2019) of Moderate Resolution Imaging Spectroradiometer (MODIS) data sets. With the exception of a few places in Central and South West India, the AOD anomaly from COVID-19 week indicates a noticeable decrease in AOD across the entire Indian subcontinent. This might be because the industrial units in these locations are taking longer than usual to shut down. This analysis has further highlighted the need for us to use air pollution-related resources wisely in the future.

Keywords: Lock down, covid-19, and optical depth with aerosol (AOD)

Introduction

In terms of culture, socioeconomics, demographics, and academic perspectives, India is a diverse nation. About 1.3 billion people, including the general public, doctors, police officers, and those who provide important services, were issued general guidelines by the Indian government. Despite all government efforts, the COVID-19 case count (as of May 14 at 8:00 IST) was 49219 active, 26234 cured, and 2549 dead. This is due to social inequities and issues affecting migrant labour. In order to determine how to best move society ahead, it was necessary to examine all facets of the pandemic's growth, global spread, and fatalities of COVID-19 cases in nearly all age categories. A team of elite individuals is working in this direction day and night in an interdisciplinary manner to find the best solution in terms of openings, the economy, the social and emotional life of the nation, the natural balance, and changes in nature seen throughout the world after the cessation of various activities. An interdisciplinary convergence of all elite sectors results from the lockdown and suspension of human activity around the world.

We have examined a few natural event features in this presentation that were analysed using satellite data both before and after the COVID-19 events. Making a roadmap for upcoming activities or preparing in a more independent manner would benefit greatly from this study.

Methodology

Global access to the Aerosol Total Optical Depth (AOD) data from the Moderate Resolution Imaging Spectroradiometer (MODIS) is accessible at the following URL: https://modis.gsfc.nasa.gov/data/. The Indian Subcontinent's Long Period Average (LPA) of 20 years was calculated using this worldwide data that was retrieved. The anomaly from LPA was then calculated using the reference week of 01–07 April 2020, COVID-19. This study generates a graphic depicting this deviation from the reference week over the Indian Subcontinent.

Results and Discussions

The Indo Gangetic Plain (IGP) is one of the major sources to India's aerosol load, according to the Long Period Average (LPA) at 10 x 10 MODIS data, which was created from 20 years of data (2000-2019). During the lock down period of COVID-19's propagation in India, this potential contribution is noticeably diminished over the IGP region.

When choosing on our anthropogenic activities in a thoughtful manner, this information is really helpful. The probable link between dust and respiratory illnesses is well acknowledged. Therefore, a reduction in the amount of dust in the air is beneficial for boosting the immune systems of people of all ages. The analysis' findings opine that many sectors of the economy, including those in agriculture, social welfare, and industry, should be phased in. Both human life and the ecological balance of the entire ecosystem will be supported by this.

Conclusion

During the COVID-19 spread's lock down period, the Aerosol Optical Depth is noticeably reduced over the IGP region and virtually the whole Indian subcontinent. We can make staged decisions on the commercial, social, or economic activity by

***Corresponding Author:** Rahul Pratap Singh Kaurav

looking at the possible AOD zone. India has some areas where there is a slight fall in AOD values; this could be due to delayed closure of businesses or factories, or it could be a local inflow of moist convection that has been suspended nearly motionless over the area for a few days.

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