

Scheduled System Maintenance: On Saturday, July 22, IEEE Xplore will undergo scheduled maintenance from 9:00 AM-1:00 PM ET (1:00-5:00 PM UTC). During this time, there will be periods when the website will be unavailable. We apologize for any inconvenience.

IEEE.org IEEE Xplore IEEE SA IEEE Spectrum More Sites

Cart Create Personal Account Sign In



Browse My Settings Help

Access provided by: Dr B C Roy Engineering College

Sign Out

Access provided by: Dr B C Roy Engineering College

Sign Out

All



ADVANCED SEARCH

Conferences > 2022 International Interdisci... ?

Impact of Meteorological Conditions on PM2.5 Concentration in Delhi

Publisher: IEEE

Cite This

PDF

Ishita Lai ; Sandip Maji ; Md. Meraj Alam ; Anirban Chattopadhyay All Authors



11 Full Text Views

Alerts

Manage Content Alerts Add to Citation Alerts

Abstract



Document Sections

- I. Introduction
II. Methods of Analysis
III. Results and Discussions
IV. Conclusion

Abstract: Air pollution has been a widespread concern in recent years. It is an alarming issue due to the adverse effects of impurities, particularly on human health. The presence ... View more

Metadata

Abstract:

Air pollution has been a widespread concern in recent years. It is an alarming issue due to the adverse effects of impurities, particularly on human health. The presence of the influence of the meteorological factors on the concentration of pollutants becomes the major subject of interest, as the determination of the correlation would help to explore the dynamics of the concentration of air pollutants. In this work, the existence of cross-correlation between pollutant PM2.5 and four meteorological factors, including temperature, humidity, pressure, and wind speed has been unraveled for Delhi using Multifractal cross-correlation detrended fluctuation analysis (MF-X-DFA) method. The daily data of the air pollutant PM2.5 and four meteorological factors have been obtained from the Central Pollution Control Board (CPCB) for the years 2015 to 2019. The exploration shows that the cross-correlation between PM2.5 and all the four factors are persistent and long-range correlated also confirming multifractality. Meanwhile, the strength of the multifractal spectrum of wind speed is found to be strongest thus the effect of wind speed on PM2.5 concentration is obvious to be most pronounced. Hence it becomes evident from Hurst exponent values and multifractal spectrum that not only wind speed rather temperature, humidity, and wind speed combined can bring a massive change in concentration of PM2.5.

Authors

Figures

References

Keywords

Metrics

IEEE websites place cookies on your device to give you the best user experience. By using our websites, you agree to the placement of these cookies. To learn more, read our Privacy Policy.

Accept & Close

Published in: 2022 International Interdisciplinary Conference on Mathematics, Engineering and Science (MESIICON)

Date of Conference: 11-12 November 2022

INSPEC Accession Number: 22932516

Date Added to IEEE Xplore: 10 April 2023

DOI: 10.1109/MESIICON55227.2022.10093446

► ISBN Information:

Publisher: IEEE

Conference Location: Durgapur, India

Ishita Lai

Department of ECE, Dr. B. C. Roy Engineering College, Durgapur, India

Sandip Maji

Department of ECE, Dr. B. C. Roy Engineering College, Durgapur, India

Md. Meraj Alam

Department of ECE, Dr. B. C. Roy Engineering College, Durgapur, India

Anirban Chattopadhyay

Department of ECE, Dr. B. C. Roy Engineering College, Durgapur, India

☰ Contents

I. Introduction

In recent years, Pollution has been a global issue, pertinent mostly where urbanization, industrialization, and population growth are rampant. Air pollution and its harmful effect on the environment and human health in the capital city of India, New Delhi, has drawn prominent attention for quite a while.

Authors ▲

Ishita Lai

Department of ECE, Dr. B. C. Roy Engineering College, Durgapur, India

Sandip Maji

Department of ECE, Dr. B. C. Roy Engineering College, Durgapur, India

Md. Meraj Alam

Department of ECE, Dr. B. C. Roy Engineering College, Durgapur, India

Anirban Chattopadhyay

Department of ECE, Dr. B. C. Roy Engineering College, Durgapur, India

Figures ▼

References ▼

Keywords ▼

Metrics ▼

IEEE websites place cookies on your device to give you the best user experience. By using our websites, you agree to the placement of these cookies. To learn more, read our [Privacy Policy](#).

Accept & Close

More Like This

An investigation of air pollution in southern Ontario, Canada, with MODIS and MISR Aerosol Data
2007 IEEE International Geoscience and Remote Sensing Symposium
Published: 2007

Urban air pollution monitoring using differential optical absorption spectroscopy (DOAS) and wind lidar
2012 IEEE International Geoscience and Remote Sensing Symposium
Published: 2012

Show More

IEEE Personal Account

Purchase Details

Profile Information

Need Help?

Follow

CHANGE
USERNAME/PASSWORD

PAYMENT OPTIONS
VIEW PURCHASED

COMMUNICATIONS
PREFERENCES

US & CANADA: +1 800
678 4333

f in   

DOCUMENTS


PROFESSION AND
EDUCATION

WORLDWIDE: +1 732
981 0060

CONTACT & SUPPORT

IEEE websites place cookies on your device to give you the best user experience. By using our websites, you agree to the placement of these cookies. To learn more, read our Privacy Policy.

Accept & Close

[About IEEE Xplore](#) | [Contact Us](#) | [Help](#) | [Accessibility](#) | [Terms of Use](#) | [Nondiscrimination Policy](#) | [IEEE Ethics Reporting](#)  | [Sitemap](#) | [IEEE Privacy Policy](#)

A not-for-profit organization, IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity.

© Copyright 2023 IEEE - All rights reserved.

IEEE Account

- » [Change Username/Password](#)
- » [Update Address](#)

Purchase Details

- » [Payment Options](#)
- » [Order History](#)
- » [View Purchased Documents](#)

Profile Information

- » [Communications Preferences](#)
- » [Profession and Education](#)
- » [Technical Interests](#)

Need Help?

- » **US & Canada:** +1 800 678 4333
- » **Worldwide:** +1 732 981 0060
- » [Contact & Support](#)

[About IEEE Xplore](#) | [Contact Us](#) | [Help](#) | [Accessibility](#) | [Terms of Use](#) | [Nondiscrimination Policy](#) | [Sitemap](#) | [Privacy & Opting Out of Cookies](#)

A not-for-profit organization, IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity.

© Copyright 2023 IEEE - All rights reserved. Use of this web site signifies your agreement to the terms and conditions.

IEEE websites place cookies on your device to give you the best user experience. By using our websites, you agree to the placement of these cookies. To learn more, read our [Privacy Policy](#).

Accept & Close