Fine particulate matter concentrations and their nonlinear chaotic behavior observed between two Latin-American megacities

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Introduction

In this work, the author comparing the nonlinear chaotic behavior of particulate matter (PM10/PM2.5) time-series from two megacities: Ciudad de México, México and Santiago, Chile, using nonlinear techniques for the year 2018.

Background

It is well known that particulate matter concentrations present nonlinear behavior at different countries with their cities and megacities highly polluted [1].

Data and Results

able 1 shows preliminary results for the year 2018. It is observed that all values are within the range for chaotic time series. Figure 1 also agrees with these results, corresponding to the recurrence graph for the two stations considered. This agrees with other results obtained by the author [2].

Tabla I. Parameters for nonlinear time-series

Station	Hurst exp.	Lyapunov exp.	Capacity Dimension	Correlation Dimension
HGM	0.1549882	0.619	1.949	4.207
Pudahuel	0.2515731	0.308	2.006	4.019

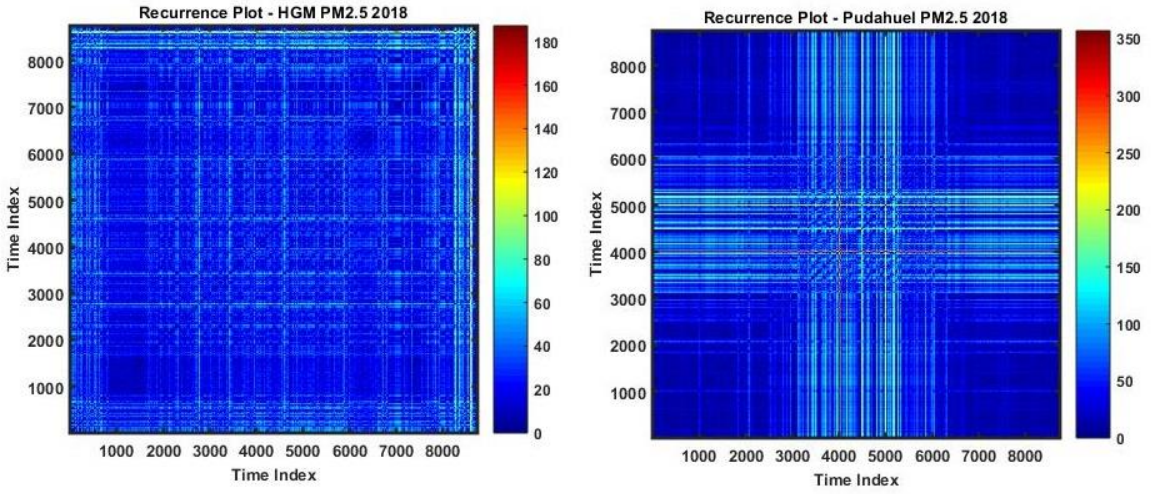

Figure 1: Comparing Recurrence Plots for HGN and Pudahuel Stations, year 2018.

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References

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