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Short-Term Forecasting of Daily Confirmed COVID-19 Cases in Malaysia Using RF-SSA Model

By: [Shaharudin, SM](#) (Shaharudin, Shazlyn Milleana)¹; [Ismail, S](#) (Ismail, Shuhaida)²; [Hassan, NA](#) (Hassan, Noor Artika)³; [Tan, ML](#) (Tan, Mou Leong)⁴; [Sulaiman, NAF](#) (Sulaiman, Nurul Ainina Filza)¹

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Abstract

Novel coronavirus (COVID-19) was discovered in Wuhan, China in December 2019, and has affected millions of lives worldwide. On 29th April 2020, Malaysia reported more than 5,000 COVID-19 cases; the second highest in the Southeast Asian region after Singapore. Recently, a forecasting model was developed to measure and predict COVID-19 cases in Malaysia on daily basis for the next 10 days using previously-confirmed cases. A Recurrent Forecasting-Singular Spectrum Analysis (RF-SSA) is proposed by establishing L and ET parameters via several tests. The advantage of using this forecasting model is it would discriminate noise in a time series trend and produce significant forecasting results. The RF-SSA model assessment was based on the official COVID-19 data released by the World Health Organization (WHO) to predict daily confirmed cases between 30th April and 31st May, 2020. These results revealed that parameter $L = 5$ ($T/20$) for the RF-SSA model was indeed suitable for short-time series outbreak data, while the appropriate number of eigentriples was integral as it influenced the forecasting results. Evidently, the RF-SSA had over-forecasted the cases by 0.36%. This signifies the competence of RF-SSA in predicting the impending number of COVID-19 cases. Nonetheless, an enhanced RF-SSA algorithm should be developed for higher effectivity of capturing any extreme data changes.

Keywords

Author Keywords: [COVID-19](#); [eigentriples](#); [forecasting](#); [recurrent forecasting](#); [singular spectrum analysis](#); [trend](#); [window length](#)

Keywords Plus: [SINGULAR SPECTRUM ANALYSIS](#); [RAINFALL](#); [CORONAVIRUS](#); [PREDICTION](#); [TREND](#)

Author Information

Corresponding Address : Shaharudin, Shazlyn Milleana (corresponding author)

Univ Pendidikan Sultan Idris, Fac Sci & Math, Dept Math, Tanjung Malim, Malaysia

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- ▼ ² Univ Tun Hussein Onn Malaysia, Fac Appl Sci & Technol, Dept Math & Stat, Data Analyt Sci & Modelling DASM, Parit Raja, Malaysia
- ▲ ³ Int Islamic Univ Malaysia, Kulliyah Med, Dept Community Med, Kuantan, Malaysia

Affiliation

International Islamic University Malaysia

- ▼ ⁴ Univ Sains Malaysia, Sch Humanities, Geog Sect, Geoinformat Unit, Gelugor, Malaysia

E-mail Addresses: shazlyn@fsmt.upsi.edu.my**Categories/Classification****Research Areas:** Public, Environmental & Occupational Health**Funding**

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