

## Reviewer Report

**Title: Evaluating Short-term Forecasting of COVID-19 Cases among Different Epidemiological Models under a Bayesian Framework**

**Version: Original Submission**    **Date: 11/26/2020**

**Reviewer name: Luca Martino**

### Reviewer Comments to Author:

The paper contains interesting material and its a good work.

This has also a value of brief survey. I like a lot Table 1.

I have some suggestions to improve its clarity and increase its impact. See below.

- Please, explain better the equation of sMAPE in Algorithm 1, defining all the variables ( $e_t$ , etc.).

- Please, discuss something regarding the possible discretization of Eqs. (2), (3) or (4).

Specifically, Eq. (4) seems still in continuous time since there are derivatives and not differences. Please, clarify this point.

- Regarding the MCMC and Metropolis part, in order to improve the state-of-the-art discussion, I suggest to discuss more sophisticated versions of the MH algorithm,

such as the Multiple Try Metropolis algorithms and adaptive MCMC schemes, e.g.,

L. Martino, "A Review of Multiple Try MCMC algorithms for Signal Processing", Digital Signal Processing, Volume 75, Pages: 134-152, 2018

A. Mira, On Metropolis-Hastings algorithms with delayed rejection, Metron, Vol. LIX (3-4) (2001) 231-241

H. Haario, M. Laine, A. Mira, E. Saksman, DRAM: efficient adaptive MCMC, Statistics and Computing 16 (4) (2006) 339-354.

F. Liang, C. Liu, R. Carroll, Advanced Markov Chain Monte Carlo Methods: Learning from Past Samples, Wiley Series in Computational Statistics, England, 2010

This discussion can increase the impact of the work (increasing the number of possible interested readers) and completes the survey value of the work.

### Methods

Are the methods appropriate to the aims of the study, are they well described, and are necessary controls included? Choose an item.

### Conclusions

Are the conclusions adequately supported by the data shown? Choose an item.

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Choose an item.

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