Closing editorial: Forecasting of epidemic spreading: lessons learned from the current covid-19 pandemic

When Elsevier launched the open Special Issue on *Modeling and Forecasting of Epidemic Spreading*, the Covid-19 pandemic had just started to affect our societies and economic systems, and yet its effects were devastating.

Today, with more than 800,000 victims in the world (and still increasing), the consequences are daily under our eyes, and occupy the headlines in newspapers, television and social media.

We are still far from the end.

The health consequences are literally catastrophic, and the unprecedented social and economic upheaval will be felt long after the virus is brought under control.

Such a public health crisis has burdened all mankind and forced all countries to expend trillions of dollars to avoid a global depression.

As we indicated in our opening Editorial [1], our intention was to solicit the scientific community to come together and provide novel and better methods, strategies, forecasting techniques and models to understand and mitigate the effects of this and future pandemics.

Motivated by the urgent demands of society for maps to navigate the uncertainty, thousands of colleagues from physics, mathematics, data science, and other quantitative disciplines rapidly brought their talents and techniques to bear upon the modeling of this pandemic.

In many cases, compartmental and homogeneous models were utilized to fit the growing body of knowledge and data *that was being generated in real time* to model the Covid-19 disease.

The rapidity of the progression of thousands of analyses, models and results is unprecedented. Many other efforts concentrated on enriching existing models with the novel aspects of this pandemic such as global connectivity and global mobility.

The result of our call to action was an incredible and unbelievable flow of submissions: more than 1300 original research papers were submitted to our Journal in less than 4 months!

This put the Journal, Editors and editorial and review processes under continuous and severe stress.

Fast editorial and review processes were needed and we were obliged to close the issue early.

We would like to express our deep gratitude to all Authors who submitted their research papers to our attention, as well as to all Referees who helped us in such a titanic undertaking.

Indeed, we needed more than ever peer review, as extraordinary amounts of work without revision flawed by governmental and social media misinformation.

At the same time, colleagues with expertise on epidemics were completely saturated with manuscripts with wildly varying quality.

Yet, we ended up collecting about a hundred of papers (with a rejection rate of more than 90%), which are forming part of this Special Issue.

Some of these works will age well while others will have results that will not survive added knowledge of the virus and the world's reaction to the pandemic. Indeed, we have compressed years worth of modeling into just a few short but intense months, with data and the world situation changing radically every day .

We understand that our Editorial decisions may have frustrated the expectations of some of our colleagues, but we did our best to accept Manuscripts reflecting honestly the attempts to deal with the need of society to predict the evolution of a such a rapidly progressing disease.

We are living through the first pandemic with global connectivity, where scientists had to face the challenge of dealing with very fast mobility, as well as citizens with immediate access to the knowledge of the situation and a huge interest and pressure from the lay public in results.

The interaction between humans was affected by self-regulation of their social interactions, as well as by non-pharmaceutical measures that were decided by probing the situation on a daily basis.

All these factors presented novel challenges for modelers, since they led to an extremely widespread, yet also focalized pandemic, with no precedent in history.

Our hope is that the material collected here will help the scientific community to learn lessons from the current case, while revealing insights into a deeper understanding of epidemic spreading processes for enabling us all to mitigate the social, economical and sanitary effects of future pandemics.

As Guest Editors of this Focus Issue we are supremely proud of our worldwide scientific community's response to this grave pandemic, and of the desire of our colleagues to better our current and future conditions (as humans) through their hard work, creativity and talents.

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Reference

[1] Boccaletti S, Mindlin GB, Ditto W, Atangana A. Modeling and forecasting of epidemic spreading: The case of Covid-19 and beyond. Chaos, Solitons and Fractals 2020;135:109794.