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FOREWORD

This special issue is devoted to research focusing on Environmental Sciences topics. There are twenty-four (24) papers divided into five main topics including a) wastewater, b) solid waste issues, c) air pollution, d) coastal issues, and e) agrotechnology and energy. Although the papers were divided into these topics, some of the papers deal with more than one topic as expected by the interdisciplinarity that characterizes Environmental Sciences. For example, in some activities, both solid waste and wastewater are produced and require management. If wastewater is not appropriately treated it can result to the pollution and degradation of coastal zones. Treating wastewater can increase the greenhouse effect and adapting renewable energy resources is required during this activity. Statistical analysis and numerical modeling are employed to analyze most of the data and better understand the mechanisms that are taking place. Combining processes in treating wastewater and setting management plans for solid waste are top priorities that would lead to better and efficient results.

There were nine (9) papers dealing with wastewater. Most papers in this section deal with the use of sorbents for wastewater treatment and the removal or recovery of dyes, humic substances, and metals. Chaithra and Ishwara Bhat (2018) found that to make a better sorbent from banana leaf rim chemical activation is needed. They tested this through several characterization techniques and the sorption of Malachite green dye. Yazdanbakhsh *et al.*, (2018) showed that both experimental data and modeling resulted into better performance for activated carbon that supports nanoscale zero-valent iron compared to activated carbon for the removal of humic substances from water. Abbas and Ali, (2018) present a thorough sorption study for three (3) metal ions using dead blue algal biomass. The study includes isotherms, kinetic data and modeling as well as thermodynamic parameters in single metal solutions. Sarioglu and Askal, (2018) presented a careful study on the sorption of a dye onto natural and modified sludge. Several sorption parameters were studied and the sorbents were characterized in order to determine the sorption mechanism.

In some papers, combined processes are presented. Buyukada *et al.*, (2018) found the optimum decolorization efficiency for two dyes using ultrasound assisted sorption through the response surface methodology. The sorbent tested was dehydrated cottonseed cake. Uysal and Bilgic, (2018) tested a sequential biological and chemical treatment that resulted in high removal efficiency for dissolved organics, dyes, and nutrients from wastewater. Ciner, (2018) tested the combined process of sorption onto a local grape molasses soil and Fenton reagents for the removal of a dye from water. The removal was fast and efficient.

Improving biological treatment is also a goal along with the minimization of the ecological footprint of a wastewater treatment plant. Papadimitriou *et al.*, (2018) studied the treatment efficiency and the sludge characteristics of biological treatment at the presence of phenol in wastewater. Conventional activated sludge was compared to activated sludge attached to suspended PVA gel beads. Taseli (2018) demonstrates that lack of disinfection can cause bacteriological water quality problems at the creeks where effluent discharges during low river flows. In addition, the increased usage of electricity can significantly increase the CO_2 emissions in a wastewater treatment plant.

There are three (3) papers dealing with solid waste issues. Although these three papers deal with different types of solid waste, the conclusions of these papers are similar and are related to the lack of proper management. Aydin Temel *et al.*, (2018) uses SWOT analysis for the municipal solid waste management to identify a successful strategic management and to propose options to improve the available waste management practices. Zamparas and Kalavrouziotis, (2018) presents a survey related to Hazardous Medical Waste Management Systems in Western Greece. They found that all efforts are focused on hazardous medical wastes and no effort is made to minimize the rest of the problems associated to waste management. Dede *et al.*, (2018) review the regulatory framework related to dredges handling in the Mediterranean coastal countries to demonstrate the need for a unified and well-planned approach.

There are also three (3) papers dealing with air pollution. The papers use numerical methods and monitoring to determine the sources of air pollution. Akdemir *et al.*, (2018) evaluated a numerical method that was efficient in predicting tropospheric ozone that was influenced by nitrogen oxide, sulfur dioxide, and temperature. Balcilar *et al.*, (2018) observed a seasonal variation between natural and anthropogenic elements in the Eastern Black Sea aerosol. Uzunpinar *et al.*, (2018) used factor analysis to determine the source of 51 volatile organic compounds measured during an air monitoring study that was conducted throughout a year.

There are six (6) papers dealing with coastal issues. Both natural and anthropogenic factors are studied in terms of their effects on water quality and on land management. Kitsiou *et al.*, (2018) proposes a new methodology integrating statistical analysis, spatial analysis methods and mapping techniques to assess water quality in coastal areas. Lofrano *et al.*, (2018) provide a review on methods analyzing marine sediments for organotin compounds that are now listed as priority substances under the European Union Water Framework Directive. Fourniotis, (2018) used three-dimensional numerical simulations to study and present the effect of a severe wind event on the depth of the thermocline. Konuk, (2018) studied

the anthropogenic effects on a coastal area due to tourism. Uncumusaoglu, (2018) performed a detailed seasonal monitoring in a pond and identified the pollution source as a non-point source that is agricultural activity and soil leaching. Aydin *et al.*, (2018) utilized multivariate statistical techniques to identify sediment quality and stressors. Solutions for the improvement of the dam are proposed.

There are three (3) papers dealing with agrotechnology and energy. Both animals and plants are affected by new technologies whereas renewable energy sources are necessary for future development. Kalavrouziotis *et al.*, (2018) suggest that the addition of olive core and olive core ash improves different aspects of the plant they studied. Yalcin *et al.*, (2018) performed feeding experiments with genetically modified maize in New Zealand rabbits and found a statistically significant increase in oxidative stress. Yanmaz *et al.*, (2018) used simulation studies to verify a controller design for wind energy distribution systems.

In summary, within this special issue a wide range of topics related to Environmental Sciences are covered providing insights on current advancements of these issues. Although the development of Science led to environmental deterioration, it is expected that Science will lead to processes that will facilitate environmental protection and restoration.

The guest editors of the special issue,

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