SOCIO-ENVIRONMENTAL MULTIDISCIPLINARY ANALYSIS OF COVID-19 CONDITIONS IN SOUTH AMERICA

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Abstract:
This study aimed to analyse how socio-environmental conditions affected the early evolution of COVID-19 in 14 urban sites in South America based on a spatio-temporal multidisciplinary approach. The daily incidence rate of new COVID-19 cases with symptoms as the dependent variable and meteorological-climatic data (mean, maximum, and minimum temperature, precipitation, and relative humidity) as the independent variables were analysed. The study period was from March to November of 2020. We inquired associations of these variables with COVID-19 data using Spearman's non-parametric correlation test, and a principal component analysis considering socio economic and demographic variables, new cases, and rates of COVID-19 new cases. Finally, an analysis using non-metric multidimensional scale ordering by the Bray-Curtis similarity matrix of meteorological data, socio economic and demographic variables, and COVID-19 was performed. Our findings revealed that the average, maximum, and minimum temperatures and relative humidity were significantly associated with rates of COVID-19 new cases in most of the sites, while precipitation was significantly associated only in four sites. Additionally, demographic variables such as the number of inhabitants, the percentage of the population aged 60 years and above, the masculinity index, and the GINI index showed a significant correlation with COVID-19 cases. Due to the rapid evolution of the COVID-19 pandemic, these findings provide strong evidence that biomedical, social, and physical sciences should join forces in truly multidisciplinary research that is critically needed in the current state of our region.

Keywords: Climate variabilitySARS-CoV-2PandemicGINIParametric and non-parametric analysis

Biography: Degree in biological sciences. PhD in Biology. Posdoc in Biogeochemistry, Posdoc in Biogeosciences, part of them carried out in Germany. I have received numerous scholarships from national and international organizations. I am currently a researcher at the Austral Center for Scientific Research (CADIC, CONICET, Argentina), a researcher at the Bariloche Foundation (CONICET), an Associate Researcher (Centro i-mar, ULAGOS, Chile). I work on interdisciplinary issues associated with the biogeochemistry of land-ocean interactions, impacts on the health of socio-ecosystems and society. I participated and coordinated research projects with national and international entities, many of them financed by the EU, UNESCO, BMBF (Germany), among others. Previously, I was a researcher at the Climate and Resilience Research Center (CR)2, UChile-UdeC, whit focuses in multi and trans-disciplinary sciences. I have publications in Scientific Journals (20), Chapters Books (1), Congresses and Meetings (+30), Technical Reports (+20) and Divulgation Works (1). Peer review of four Scientific Journals. Member of multiple committee of congress organizations. In academia, I was Assistant Professor at UCSC (Concepción, Chile) with experience in undergraduate teaching for Marine Biology and Environmental Chemistry. Human Resources Training in Marine Biology and Environmental Chemistry, Mg. in Marine Ecology and Mg. Environment. I did university management. Chief Scientist and Scientific Member of Expeditions in the South West Atlantic, Southern Pacific and North/Baltic Seas. PADI Dive Master, Scientific Diver and PADI Rescue. Nautical driver (Navy). I was coordinator of a Protected Natural Area and participated in work

commissions for Safety and Environmental Protection. Private Zero Carbon environmental consultant. My objective is to continue my development in the strategic field of project management, coordinating work teams and institutions to provide knowledge transfer and service provision, promoting sustainable planning and strategic environmental development.

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