ASSESSMENT OF LAND SURFACE TEMPERATURE BEFORE, DURING, AND AFTER THE EASEMENT OF THE FIRST COVID-19 TOTAL LOCKDOWN: CHANGES OF HUMAN ACTIVITY LEVEL IN METROPOLITAN MANILA

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ABSTRACT

RAMA, NERO JOAQUIN P., Department of Engineering Sciences, College of Engineering, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines, **MAY 2023, ASSESSMENT OF LAND SURFACE TEMPERATURE BEFORE, DURING, AND AFTER THE EASEMENT OF THE FIRST COVID-19 TOTAL LOCKDOWN: CHANGES OF HUMAN ACTIVITY LEVEL IN METROPOLITAN MANILA.**

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A strain of coronavirus called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) caused a highly contagious respiratory illness named coronavirus disease 2019 (COVID-19), which has disrupted the lives of millions of people since the first quarter of 2020. The COVID-19 infection causes a variety of respiratory symptoms, including a runny nose, sore throat, cough, and fever. World leaders implemented preventive measures in response to the spread of COVID-19, resulting in a significant reduction in human activities. This study was conducted to examine the effect of reduced anthropogenic activities on land surface temperature (LST) in Metropolitan Manila. LST data were obtained from the Landsat 8 Operational Land Imager (OLI) and Thermal Infrared Sensor (TIRS) and processed using QGIS 3.22.11 software. Satellite images without significant cloud cover for the year 2020 were compared with the images obtained for the baseline years, 2014 and 2017. Results showed that during the COVID-19 lockdown, the LST in Metropolitan Manila exhibited relatively higher temperatures. The lowering of air pollution in the region could impact the temperature during the lockdown period. After the easement of lockdown, the LST did not make substantial changes in the region. The results

suggested that the lockdown in the region does have a direct impact on the LST variations and may be affected by other factors aside from the reduced human activity.

Keywords: Urban Heat Island, Land Surface Temperature, Landsat 8, remote sensing, COVID-19

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