

Using High-Resolution Remote Sensing Images to Detect Suitable Rooftops for Solar Pv Installation in Urban Areas in Da Nang City

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SUMMARY

Global warming due to climate change has become an issue of great concern worldwide, especially for countries suffering from direct impacts and facing great risks of damage from climate change like Vietnam. Reducing and phasing out fossil fuels together with promoting, investing in and developing alternative green energy sources such as solar energy are important not only for Vietnam but also for the global sustainable development. . In a context where the energy industry is one of the largest GHG emitters in Vietnam, the Vietnam Government is focusing, with great efforts, on how to promote the use of solar energy on building rooftops. This paper presents the first results of the World Bank's project "Assessment of Technical Rooftop Solar PV Potential in Vietnam" carried out by Effigis Geo-Solutions Inc., Canada, and CEFD, Hanoi University of Science. In this project, a stereo pair of WorldView-3 images of the central urban area of Da Nang City were geometrically processed, pan-sharpened and then used for rooftop and shadow detection, as well as rooftop height, slope and aspect computing using, among others, machine learning methods. Terrain data will be used for validation of image processing results. Based on a suit of technical criteria required for PV installation, some 500 rooftops were selected from 646,958 ones in total by using image interpretation techniques. These 500 suitable rooftops then were used in field survey for validation purposes.

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