

Does Hong Kong have a building stock?

This paper investigated Hong Kong's building stock, developing urban building energy models for residential, office, and hotel buildings. Firstly, various open-source data was collected for data mapping and integration to create a GIS-based building dataset.

Can rooftop solar energy models be used in Hong Kong?

The case study successfully demonstrated the context. development of urban building energy models in Hong Kong based on various open-source datasets. The rooftop PV potential results can provide valuable insights for renewable energy planning considering the shading from surrounding buildings, especially in this high-density city.

Can urban wind turbines be used in Hong Kong?

This research is expected to be helpful for the wind power industry in several aspects. The assessment results can facilitate urban wind turbine deployment(e.g.,turbine siting and selection) in Hong Kong,and the methodology is transferable to other areas.

How does urbanization affect rainfall in Hong Kong?

Urbanization is one of the possible causes for the increasing trend and regional variation of rainfall in Hong Kong. Higher temperature in urban areas enhances convective activities and the increase in concentration of suspended particulates from urban activities favours the formation and development of rain-bearing clouds.

How reliable is building data in Hong Kong?

The building data employed in this study,sourced from the Common Spatial Data Infrastructure Portal provided by the Hong Kong government,is authoritative and reliable. However,the 3D building data was simulated from basic building blocks and heights,which do not capture the intricate shapes of buildings.

How much solar energy does Hong Kong use?

Hong Kong's roof area, totaling 26.08 km², shows a physical potential of approximately 4.00 × 10¹³ Wh, reflecting the significant solar energy collection capacity. Similarly, building facades, covering about 330.05 km², possess a physical potential of 2.48 × 10¹⁴ Wh. In 2022, Hong Kong's total electricity consumption was approximately 44.7 TWh.

building energy efficiency programs in Hong Kong. Highlights o Developed urban building energy models in Hong Kong based on open data sources o Big data mapping and integration for city ...

extreme UHI events in Hong Kong for both summer and winter will be set up in this paper. 2 Data and methodology 2.1 Observations and definition of UHIs in Hong Kong The Hong Kong Observatory Headquarters (HKO) is a representative urban weather sta-tion and a common choice of UHI studies in Hong

Kong (Fung et al. 2009; Memon et al. 2009).

Urbanization effects on the heat energy balance in the urban area. Urbanization effects on the low level wind flow over the urban area. In Hong Kong, the UHI effect is primarily a nighttime phenomenon. The UHI effect (temperature difference between urban and rural areas) is more significant in winter and is usually best displayed on individual ...

In summary, for a 1 °C ambient temperature rise, the energy cost of Hong Kong would probably increase by HK\$1.6 billion per year. ... Studies showed that, in the urban context of Hong Kong, ...

The subtropical climate in South China brings Hong Kong hot and humid summers, and the city is experiencing a long-term warming trend under global climate change with a greater rate during 1991-2020 [] pound heat waves embracing both daytime and nighttime extreme heat were dominant ones in China over the half past century [] Hong ...

Urban building energy modeling (UBEM) is an efficient way to simulate the energy use of building stocks and conduct retrofit option assessments, supporting the implementation of carbon ...

Lamma Winds turbine (Photo from Clean the Air Energy Blog) Subsuming these estimates, renewable energy sources could provide for nearly half of Hong Kong's total electricity needs, affirming that Hong Kong's potential far surpasses the government's goal of 3-4%. Unfortunately, Hong Kong is unlikely to achieve this potential in the short- to medium- term ...

6 °C; According to the Paris Agreement, countries have pledged to achieve carbon neutrality in the second half of this century (Schleussner et al., 2016). Cities today represent almost 75 % of global energy demand and two-thirds of carbon emission because about 55 % of the world's population lives in urban areas (Bouckaert et al., 2021). Cities must satisfy the increasing ...

of UHIs in Hong Kong In this study, we chose the Hong Kong Observatory (HKO) Headquarters as the urban site. The HKO is a representative urban weather station and a common choice for UHI studies in Hong Kong (Fung et al., 2009; Memon et al., 2009). However, HKO is located in an urban park and close to the coast, which may affect its

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This study carried out the eddy covariance measurements over a highly-dense and compact urban area in Hong Kong. The energy fluxes exhibited obvious diurnal variations but no significant difference among the four seasons of study period. Q N and Q F respectively ranged from 50 to 600 Wm⁻² and from 150 to 750 Wm⁻².

A building and its surrounding urban microclimate are highly interdependent in a high-density city, such as Hong Kong. Overshadowing by neighbouring buildings affects solar radiation incident on a building's facade; temperature fluctuations of external wall surfaces modify external long-wave heat exchanges; breezeways and relatively sheltered areas affect the ...

Study of urban geometric effects on urban surface temperature retrieval and energy flux modelling : an application in Hong Kong @inproceedings{Yang2017StudyOU, title={Study of urban geometric effects on urban surface temperature retrieval and energy flux modelling : an application in Hong Kong}, author={Jinxin Yang}, year={2017}, url={https ...

The Hong Kong Government has counted the energy consumption of the nine energy end-uses in the three types of buildings in 2020, presented in Supplementary Fig. 1 52. Since the energy efficiency ...

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