新加坡

【科技一点通】本地研究人员如何利用科技对抗气候变化？

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为促进环保，本地建筑也变更智能。例如登加新组屋未来将出现中央冷却系统，居民无需各自安装冷气机，就能享有冷气供应。

另外到了明年，全国一半的政府组屋将装有太阳能板。记者洪宝玲带你了解本地研究人员如何利用科技协助更有效对抗气候变化。

高楼建筑、政府组屋，构成新加坡的城市景象。全球城市比率只占地球面积的2%，但却消耗60%到80%的全球能源。面对气候变化，城市必须及时应对，使用可再生能源例如太阳能，或许是解决方案之一。

有研究团队就对全球十个城市展开研究，结果发现太阳能板的安装地点直接影响成效。新加坡的城市环境非常适合安装太阳能板。

新加坡-麻省理工学院科研中心未来城市交通研究室研究员朱瑞博士说：“建筑表面往往都有高反射率的东西，比如说玻璃和镜子。那这些在一定的空间范围内，它会有一个太阳能聚集的效应，而这些太阳能聚集区，恰恰是安装太阳能板最理想的位置。”

研究团队于是开发了一套数据库模型，可用来估算城市空间的太阳能分布。

朱瑞博士也说：“对普通消费者来说在目前来看，因为太阳能板的它这个成本还是比较高的，还有安装成本、人力成本，以及维护成本，在这方面的话，新加坡应该跟其他城市，比如说香港是一样的，是有一定的挑战性的。”

到了年底12月，本地天气一般上都是比较凉快的，但最近却出现了一些炎热的天气，而这相信都是因为气候变化的因素。如果全球继续对当前的温室气体排放情况置之不理，新加坡未来预料会出现更多的炎热天气。

[Science and Technology] How can local researchers use technology to combat climate change?

Buildings in Singapore become more intelligent to promote environmental protection. For example, in the new HDB flats, a central cooling system will be available in the future. Residents do not need to install air-conditioners to enjoy the air-conditioning supply.

In the next year, half of the government's HDB flats will be equipped with solar panels. The journalist Hong Baoling introduces how local researchers use technology to confront climate change more effectively.

High-rise buildings and government HDBs make the urban landscape of Singapore. Global cities only occupy 2% of the land on earth but consume 60% to 80% of global energy. Facing climate change, cities must respond in a timely manner, and using renewable energy sources such as solar energy may be one of the solutions.

A research team has conducted a study of ten cities across the world and found that the installation location of solar panels directly affects the conversion efficiency. Singapore's urban morphology is ideal for deploying solar panels.

Dr. Zhu Rui, a researcher at Future Urban Mobility, Singapore-MIT Alliance for Research and Technology, said: "Urban envelopes often have materials with high reflectivity, such as glass and mirrors. It will have an effect of solar accumulation in a certain range of spatial and temporal domain, and these solar accumulative areas are the ideal location for installing solar panels."

The research team then developed a model in a database management system that can be used to estimate the distribution of solar irradiation accurately in urban space.

Dr. Zhu Rui also said, "Because the cost of photovoltaic cells is relatively high at present, as well as installation costs, labour costs, and maintenance costs, it is still difficult for local consumers to utilize solar energy widely in Singapore, which is also challenged in other cities, such as Hong Kong. "

The local weather was generally cool by the end of December, but some hot weather has recently appeared, which is probably due to climate change. If the world continues to ignore greenhouse gas emissions, Singapore may have more hot weather in the future.