Spotlight on Sustainability

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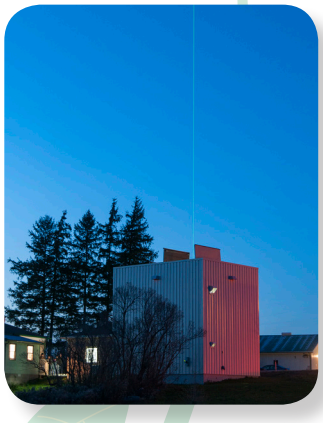
Higher atmosphere detects weather signatures on surface

The short term weather forecasters observe the atmosphere 10-15 km above the surface. Can studying higher altitudes give a more accurate long-term weather prediction?



Research, led by Physics and Astronomy Chair and Atmospheric Scientist Dr. Robert Sica, examines the atmosphere far above the surface in order to answer this question. Sica uses a high resolution LIDAR, a laser radar, that measures air density, pressure, temperature and water vapour up to 110 km in altitude! Higher altitudes show signatures of atmospheric change more clearly without any surface interferences. One interesting atmospheric feature Sica studies is gravity waves. As the waves heat and cool, they climb, gain amplitude, and sometimes break like waves on a beach; this churns air and sends particles flying! Dr. Sica's findings on high-energy gravity waves are integrated into climate models for a more accurate representation of atmospheric processes, contributing to a better prediction of weather and climate patterns on the surface. The current pace and potential impacts of climate change mean that advanced climate models and an enhanced capacity to detect extreme climate events are essential to the protection of cities and the environment.

Sustainable-minded cities strategically plan the location of stores around neighborhoods to allow for walkability. Look for your city's local walkability index online to check street connectivity and retail outlets nearby your work or residence.

Taking action

This *Spotlight on Sustainability* gives a tip-of-the-hat to the Meteor Physics group for considering the environment while resolving a cost and comfort issue.

Despite two air conditioners constantly running, the temperature inside of the Meteor Physics research trailer was uncontrollable as a result of heat-generating radar transmitters in combination with the summer sun beating down on the roof. So, last month the facility's roof was insulated. Now, the air temperature inside the trailer is stable at a set 25° C and the air conditioners only run intermittently, when required, resulting in significant cost and energy savings.

Clever thinking!

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