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Physics

Using Kites to Conduct Wind Speed Measurements

The toys have been used for science in the past

Ever since the time of Benjamin Franklin, kites have been used as scientific equipments in a variety of simple and complex tasks. This has been owed to the fact that they are inexpensive to operate, and also capable of carrying a fair amount of sensing equipment given sufficient wind to lift it up. Sensors are even today commonly used in kite studies, and researchers believe that they could potentially develop a way of using the toys to measure the speed of winds at designated locations.

But experts know that using kites in order to assess various traits of the atmosphere and the wind is a fairly error-prone process. Generally, placing sensors under the direct influence of sunlight can produce temperature variations within the electronic device, which in turn affects its accuracy. Now, it would appear that a group of experts in the United Kingdom, at the University of Reading, managed to get past this limitation. The team here was able to develop a technique that allows for the kite itself to be used a wind-measuring device, rather than installing stand-alone sensors on the aircraft.

The kite method is portable and cheap, and removes the need for a mast to support an anemometer. A particular use is to provide measurements above those reached by masts, [even though] it will work less well at low levels, or in very turbulent conditions. We expect to refine the kite design to allow operation in a wider range of conditions, and to encourage wider adoption of our approach," explains Giles Harrison, who is a professor of atmospheric physics at the university. He is also one of the co-creators of the new type of kite.

The other co-creator is Kieran Walesby, an applied meteorologist at Reading. The two published a paper describing their new instrument in the latest issue of the American Institute of Physics' journal Review of Scientific Instruments. Wind speed is measured by analyzing the tension in a wire connecting a Rokkaku-type kite to a ground station. The kite itself is two meters long and one meter wide, and has "good stability, reasonable load-carrying capacity, and a low sink rate when the wind speed drops," Harrison explains, quoted by AlphaGalileo.