

Sensing wind speed with kites

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Kites have a storied history in meteorological research -- think of Benjamin Franklin and his study of electricity -- including being used to carry aloft sensors that measure wind speed. Previously, however, these sensors, because they were exposed to direct sunlight, were prone to temperature errors that affected their accuracy. Now researchers at the University of Reading in the United Kingdom have developed a way to use a kite itself to measure wind speed.

The researchers, professor of [atmospheric physics](#) Giles Harrison and applied [meteorologist](#) Kieran Walesby, describe their device in the AIP's *Review of Scientific Instruments*. The instrument consists of a 2-meter-long and 1-meter-wide Rokkaku-type [kite](#) -- a simple-to-construct Japanese kite design with "good stability, reasonable load-carrying capacity, and a low sink rate when the [wind speed](#) drops," Harrison says -- attached to a ground-based strain gauge that monitors the tension in the kite's tether line. That line tension, Harrison and Walesby found, is linearly related to wind speed.

"The kite method is portable and cheap, and removes the need for a mast to support an anemometer," Harrison says. "A particular use is to provide measurements above those reached by masts" -- although, he adds, "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."

More information: The article, "A thermally stable tension meter for atmospheric soundings using kites" by K. T. Walesby and R. G.

Harrison was published online in the journal Review of Scientific Instruments on July 21, 2010. See: rsi.aip.org/rsinak/v81/i7/p076104_s1

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