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DEVELOPMENT OF A WIND OBSERVATION SYSTEM USING PHOTOGRAMMETRY

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Abstract. Quantitative understanding of wind flow near the ground surface in all three dimensions onsite is extremely important for wind research. The objective of this research is to develop a system to quantitatively measure wind flow near the ground surface in both the horizontal and vertical directions (in other words, wind flow in three dimensions) using inertial photographic surveying or phototheodolite. In this method, a balloon (a no-lift balloon) with the same relative weight as air and soap bubbles were released as tracers. Their movements were captured using stereo-photography and single photographs, and then the path of particles was analyzed in three dimensions. For this document, wind flow near tall buildings, conical vortices flow on the rooftops of buildings and wind flow crossing over an embankment were measured. The results of the testing proved that the measurement methods were effective.

[Conference Paper](#) (PDF, 1978 KB)

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