



# Thin laser beam wandering and intensity fluctuations method for evapotranspiration measurement

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Auteur	Poisson, Antonin [1], Fernandez, Angel [2], Perez, Dario G [3], Barille, Régis [4], Dupont, Jean-Charles [5]
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Mots-clés	Atmospheric turbulence [6], Beam wandering [7], Evapotranspiration [8], Laser scintillation [9]
Résumé en anglais	<p>We compare in this study two simple optical setups to measure the atmospheric turbulence characterized by the refractive index structure parameter [View the MathML source] <math>C_n^2</math>. The corresponding heat flux values sensed by the laser beam propagation are calculated leading to the plant evapotranspiration. The results are discussed and compared to measurements obtained with a well-known and calibrated eddy-covariant instrument. A fine analysis gives a good insight of the accuracy of the optical devices proposed here to measure the crop evapotranspiration. Additional evapotranspiration values calculated with meteorological sensor data and the use of different models are also compared in parallel.</p>
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Titre abrégé	Opt. Laser Technol.

## Liens

[1] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=26435>

[2] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=26436>

- [3] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=26437>
- [4] <http://okina.univ-angers.fr/regis.barille/publications>
- [5] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=26438>
- [6] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=22516>
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- [10] <http://okina.univ-angers.fr/publications/ua15712>
- [11] <http://dx.doi.org/10.1016/j.optlastec.2015.12.017>
- [12] <http://www.sciencedirect.com/science/article/pii/S0030399215303881>

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