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## How does agropastoral management affect wind erosion in Sahelian croplands?

C. Pierre<sup>1,2</sup>, L. Kergoat<sup>3</sup>, P. Hiernaux<sup>4</sup>, C. Baron<sup>5</sup>, G. Bergametti<sup>2</sup>,  
JL. Rajot<sup>1,2,6</sup>, A. Abdourhamane Toure<sup>7</sup>, G. S. Okin<sup>8</sup>, B. Marticorena<sup>2</sup>

<sup>1</sup> Institut d'Ecologie et des Sciences de l'Environnement, Paris, France

<sup>2</sup> Laboratoire Interuniversitaire des Systèmes Atmosphériques, Créteil, France

<sup>3</sup> Géosciences Environnement Toulouse, Toulouse, France

<sup>4</sup> Pastoralisme Conseil, Caylus, France

<sup>5</sup> Centre de coopération Internationale en Recherche Agronomique pour le Développement, Montpellier, France

<sup>6</sup> Institut des Régions Arides, Médenine, Tunisia

<sup>7</sup> Université Abdou Moumouni, Niamey, Niger

<sup>8</sup> University of California Los Angeles, Los Angeles, California, USA

**Key words:** wind erosion, agropastoral practices, simulations, land use

Climate change and demographic growth raise major concerns about the ability of Sahelian crop yields to support the local population. It is known that agropastoral practices affect wind erosion (e.g., through crop residue management and tillage), which itself can substantially affect soil fertility and thus crop production. Thus, we need to estimate the potential impact on wind erosion of the main Sahelian cropping practices like sowing, manuring, and crop residue management. We used a modeling approach adapted to an experimental site located in southwestern Niger over a 7-year period (2006–2012). We defined scenarios that describe a set of agropastoral practices to simulate and compare the impacts of these practices on wind erosion.

As a result, horizontal fluxes differ by a factor of 10 among scenarios, with annual horizontal fluxes ranging from 121 to 1,317 kg m<sup>-1</sup>. The simulated wind erosion is most sensitive to the mass of crop residues in the late dry season, but different practices dealing either with crop growth or with crop residue management may result in fluxes of the similar magnitude. It is also noted that the collection of the crop residues after grain harvest increases wind erosion. Grazing might have mixed effects, probably further mediated by the mobility of livestock as a response to forage availability. The seasonal dynamics of the monthly cumulated horizontal fluxes vary depending on practice, but the annual cumulated horizontal fluxes are closely correlated with meteorological conditions such as wind speed and rainfall in the previous year.

**Reference:** Pierre, C., Kergoat, L., Hiernaux, P., Baron, C., Bergametti, G., Rajot, J. L., Abdourhamane Toure, A., Okin, G. S. & Marticorena, B. (2017). Impact of Agropastoral Management on Wind Erosion in Sahelian Croplands. *Land Degradation & Development*. DOI: 10.1002/ldr.2783