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A geoarchaeological interpretation of the dust increase over North Africa at the termination of the African Humid Period

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According to several investigations, the termination of the African Humid Period is marked in North Africa by increased dust fluxes to the Atlantic Ocean. The rapid rise of dust supply to the sea recorded in offshore cores around 5 ka BP is generally interpreted as the consequence of a rapid switch off of the monsoon system and immediate aridification. But new zoogeomorphological features discovered in dryland landscapes of Northern Africa reflect early human-animal agency acting since prehistory on surface processes. Studying the geoarchaeological record of ancient domestication of cattle, sheep, and goats, we recognize that activities related to animal husbandry (transhumance, pastoralism, and herding) were disturbances that affected surface processes like erosion and dust mobilization, as well as reduced vegetation and ecosystems productivity. We argue that the spread of human activities and intensive husbandry of cattle and caprines in this region significantly influenced the geomorphic stability, ecosystem and landscape sustainability in a comparable manner of overuse observed in present-day arid and marginal environments, where pastoral overgrazing pressure increases erosion processes and enhances dust mobilization. We thus reinterpret the increased dust emission from North Africa at the end of the African Humid Period as due to human/animal induced soil erosion and dust mobilization in the context of a drying environment. We finally suggest that human/animal activities have amplified dust generation from the North African continental interior since $\sim$7 ka BP. This evidence of prehistoric human impacts on surface processes in North Africa supports arguments for an early beginning of the Anthropocene.