

Aeolian drift-sand dynamics, vegetation changes, and population pressure: spatial analysis of inland drift sands and Roman and Early-Medieval occupation patterns in the Netherlands

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Holocene drift-sand activity is commonly linked directly to population pressure and agricultural activity. The first occurrence of small-scale Holocene aeolian activity took place during the Neolithic, whereas large scale drift-sand activity started during the Middle Ages (especially after AD 1100) due to intensification of farming and demographic pressure. Although demographic pressure is widely accepted to be the main cause behind drift-sand activity, this is currently not supported by studies that link spatial and temporal patterns in landscape management and drift sand occurrence on a supra-regional scale. Population size gradually increased from the Neolithic period onwards but was interrupted during the late-Roman period and the beginning of the Early Middle Ages (roughly 4th - 5th century). This resulted in a regional reforestation phase, probably coinciding with decreased drift-sand dynamics.

In this contribution, we compare events of drift-sand activity with locations characterised by intensified demographic pressure on the landscape for three periods: the Roman period, the Early Middle Ages and the Late Middle Ages for characteristic Pleistocene sand regions in the Netherlands. For this, we compiled a new supra-regional overview of drift-sand activity dates (¹⁴C, OSL, archaeological and historical), that we compared with existing national soil maps, historical-route networks and vegetation reconstructions. Here we present the first results of this spatial comparison and assess the relative importance of environmental factors (e.g., landscape setting) and demographic pressure on the formation of drift sands for these periods.