



Luminescence dating of Holocene dune complexes along the shore of northern France (Picardy)

Tobias Lauer (1), Manfred Frechen (1), Murielle Meurisse-Fort (2), Guillaume Gosselin (3), and Brigitte Van Vliet-Lanoë (4)

(1) Leibniz Institute for Applied Geophysics (LIAG), Stilleweg 2, D-30655 Hannover (@: Tobias.lauer@liag-hannover.de), (2) Conseil Général du Pas-de-Calais, Centre départemental d'Archéologie, Dainville (France), (3) Université des Sciences et Technologies de Lille (France), (4) Institut Universitaire Européen de la Mer, Plouzané (France)

The Holocene dune and peat complexes along the shore of northern France (Picardy) had already been studied in detail by Meurisse et al. (2005) and Meurisse-Fort (2009). Information about the palaeodevelopment of those dune fields is hence given due to existing ¹⁴C data as well as by sedimentological and morphological analyses. Due to the results from radiocarbon dating, different types of aeolian bodies could be correlated along the Picardy coastline and a regional stratigraphic sequence could be established (Meurisse-Fort, 2009).

The aim of the ongoing study is to get a higher chronological resolution for the different phases of dune activity in Picardy by luminescence dating what is a powerful tool to determine the time of last sunlight exposure of grains before burial (this information yields important information about dune movement).

Samples for OSL dating were taken from dune bodies located in Tardinghen, Hardelot, Saint-Frieux and Saint-Gabriel. For dating, a single aliquot regenerative dose (SAR) protocol (Murray & Wintle 2003) is applied to coarse grained quartz.

First tests concerning the signal intensity, the purity of the quartz OSL signal and the bleaching properties showed that quartz OSL dating works well for the dunes of the northern France coastline.

The new luminescence ages will help to better unravel the phases of sand dune activity and stabilisation mainly controlled by climate changes and human impact.

References:

Meurisse, M., Van Vliet-Lanoë, B., Talon, B. & Recourt, P. (2005): Complexes dunaires et tourbeux holocènes du littoral du Nord de la France. – *Geoscience*, 337 : 675–684.

Meurisse-Fort, M. (2009): Enregistrement haute résolution des massifs dunaires ; Manche, mer du Nord et Atlantique - Le rôle des tempêtes. Thèse de Doctorat soutenue en juin 2007, Université de Lille1. Coll. Recherches - Sciences (Sciences de la Terre). EPU-Publibook (ed.), Paris, 310 pp.

Murray, A.S. & Wintle, A.G. (2003): The single aliquot regenerative dose protocol: potential for improvements in reliability. – *Radiat. Meas.*, 37: 377-381.