

# The Storm Surge of 1134 Disaster of None?

“On the 1st of October, there was a big quake in the sea during the night [...], which made it flood its borders [...] and wreaked havoc in settlements, castles and churches”

Anselmus of Gembloux, 1134 AD



## Introduction

The storm surge Anselmus described is traditionally seen as the breakthrough of the Zwin's tidal channel in the direction of Bruges. The inlet provided a better navigable connection to the sea and extended the economic growth of the emerging city. Soon a new network of dikes, canals, sluices and ports thrived at the borders of the Zwin, shaping the area into linear suburban extension of the city center and leading Bruges into its medieval heyday.

However, the transformation and adaptation of this disaster landscape did not turn out to be durable. The process of natural sedimentation was reinforced by the progressive embankment of the adjoining tidal wetlands and resulted in an increasingly narrowed, and finally silted, waterway. Discussions over the development of the medieval port system has resulted in a controversy we refer to as the *Zwin Debate*.

## Problem

This state-of-the-art of the Zwin Debate has been developed by interweaving written sources and pedological data. However, the pedological data and the geomorphological processes of the coastal area were revised in the 1990's, leaving the historical sources on an unsound basis. A profound study of this debate has put some aspects and assumption of this state-of-the-art into question:

- Was it only one storm surge that formed this large tidal inlet?
- What is the actual evidence pointing at 1134?
- Were dikes protecting the land? Or were they built afterwards?
- To what extent we can label this flood as a disaster?

## Was it in 1134?

- Besides the record of Anselmus, another contemporary source in Ghent mentions a large coastal flood around this date.
- 1110 : the chapels of Westkapelle, Lapscheure, Moerkerke and Wulpen belong to the parish of Oostkerke. Verhulst argues this division would have been different if there was already a large tidal inlet running in between them.
- 1127 to 1163: Coastal settlements like Lapscheure, Moerkerke, Kadzand and Wulpen are temporarily not mentioned in written sources.
- 1180: Damme received its city rights from the Count of Flanders after the Zwin was dammed. The tidal sediments at its landward side are about 50 cm deep, which would correlate with 50 years of deposition before the blockage.

## ... Or not?

- There are similar records of devastating storm surges in 1014 en 1163.
- The Annales of the abbey of Ghent only vaguely described the flood, whereas they had a lot of land in the region.
- Wulpen was at that time already an island. Water was inherent in the early medieval Flemish landscape and was not necessarily a border.
- The *argumentum ex silentio* is doubtful. If these settlements were severely hit by the flood, they might have well been mentioned even more.
- Correlating 1cm of deposit with 1year of tidal activity is geomorphologically incorrect.
- The regular landscape pattern that is cut by the Zwin inlet could be much older than previously thought. A series of ditches near Bonem were filled with marine clay that was cal. <sup>14</sup>C-dated between the 7th and 9th century AD.

## Was it a storm surge?

- The date mentioned by Anselmus coincides with an upcoming spring tide a few days before full moon.
- Historical Maps and the Digital Elevation Model show a landscape that is cut through by the Zwin inlet.

## ... Or not?

- The incision of the inlet might seem abrupt, it does not have to mean that one decisive flood created the inlet.
- 1089: attestation of “*in parrochia Ostkerca apud Budanflit*”. Some historians correlate this Budanflit with a possible predecessor of the Zwin inlet.

## Was it a disaster?

- Contemporary texts clearly state heavy losses for both human beings and livestock. Buildings were heavily damaged, arable land became tidal environment (again), or was at least salinified for decades.
- The historical geography of both the Zwin region as adjoining Zeeland proof how destructive medieval storm surges could be.

## ... Or not?

- The navigable connection between Bruges and the North Sea became crucial for the economic expansion of Medieval Bruges.
- The conditions for a disastrous flood were set by human interventions in the landscape. Peat extraction lowered the surface and the reclamation of wetland restricted the accommodation space of the tidal area.

## Conclusions

The literature study on the Zwin Debate shows that the historical geography of the region needs reconsideration, since the written sources on which it supports have an unsound basis. New landscape archaeological research has the potential of tackling these and other questions and will reactivate the Zwin-debate. In order to do so, a multi-disciplinary methodology was constructed.

First, the existing historical-geographical, archaeological and remotely sensed data were integrated in a retrogressive GIS-environment. This resulted in the selection of several test-sites for which new high resolution data are processed using geophysical prospection, DGPS-mapped fieldwalking, UAV-mounted 3D-photogrammetry and underwater archaeology. This combination of traditional and new non-invasive prospection techniques promises to deliver a broader and more detailed archaeological dataset that will be used to define specific places of interest for small-scaled excavations. After all, a better understanding of the historic and landscape evolution of the Zwin area is only possible by examining exactly those places where anthropogenic and natural landscapes intersect.

## Selected Bibliography

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