

Internship opportunity at Deltares – Clay ripening and greenhouse gas emissions

About the project

In the Netherlands many of the waterways are dredged annually. The dredged sediment is disposed in depots or on river banks. The Kleirijperij (Clay ripening) aims to make dredging more sustainable by developing methods to re-use the dredged sediment into dike clay. The first pilot is up and running in the “Eems Dollard harbor” and a second pilot is being build. The Ministry of Infrastructure and Water Management (MIWM) aims to have reduced greenhouse gas (GHG) emissions from wet sediment displacement activities by 50% in 2030. GHG emissions from the dredged sediment itself are currently not considered by MIWM, yet those emissions might be orders of magnitude higher than GHG emissions from all machinery involved in dredging activities. The process of clay ripening, dehydration, desalinization, reduction of organic matter content has been studied in the first pilot, but not yet in parallel with the GHG emissions. In this new pilot “The Kwelder” we aim to quantify and model the GHG emissions of dredging and clay ripening activities.

Internship description

The goal of this internship is to investigate the GHG emissions (CO_2 , CH_4) from dredging to clay ripening. To this end GHG emissions will be measured in the field (at the kleirijperij) and in the lab in mesocosms mimicking the clay ripening under controlled conditions. Furthermore, experiments involving batch incubations can be set up to investigate organic matter break down rates, sensitivity to for example salt and moisture and the CH_4 production and oxidation potentials.

The internship duration can be 6 to 9 months. Most of the practical work will be performed at the Castel Lab in Utrecht). The internship will be guided by Stefan Jansen (senior reseacher/consultant) & Martine Kox (jr. researcher/consultant). Are you the enthusiastic student, with a passion for research in climate change, sustainability and greenhouse gasses? Than we are looking for you! Please contact us via: martine.kox@deltares.nl

Starting date

The dredging company has finished filling the dredging depots at 01-03-2020, hence you could start as soon as possible. You'll work mostly at Deltares Utrecht Lab ([Castel lab](#)) and office, both of which are located at the Utrecht University Campus. Field work takes place near Delfzijl (Eems-Dollard) (you can see the sludge depots if you zoom in with satellite view on google maps!).

About Deltares

Deltares is an independent knowledge institute for applied science in water and the subsurface. This project runs within the group subsurface and groundwater systems. More about us can be found here: <https://www.deltares.nl/en/about-us/>

More information on the project Kleirijperij:

<https://eemsdollar2050.nl/pilot-kleirijperij/>
<https://www.ecoshape.org/en/projects/clay-ripening-pilot-project/>

