Title
Analysing 18th century hydrographic data: a campaign in the Bay of Biscay, 1750-1751

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Abstract
This paper features part of the work carried out for my Master's thesis in Epistemology, History of Science and Technology. The project was completed during a six-month internship with the *Région Nouvelle-Aquitaine* as part of the *Nouvelle-Aquitaine et Outre-Mers* programme.

In 2020, the French *Service Hydrographique et Océanographique de la Marine* (Shom) celebrated its 300th anniversary. The Shom is the French public authority for maritime and coastal geographical reference information. Such information is obtained through specific measurement techniques that have evolved throughout history.

The Shom's predecessor, the *Dépôt des Cartes et Plans de la Marine*, was created in 1720 in order to collect, analyse and compile the documents produced by the maritime community to construct nautical maps. It was in the interest of the royal power of the time to collect mariners' logbooks to monopolise the information contained inside them. They did this via the *Grande Ordonnance de la Marine*, established in 1681 and written by Colbert, secretary of the navy under the reign of Louis XIV, which required pilots of vessels to submit all logbooks to the *Greffe de l'Amirauté*. Then, in 1773 the *Dépôt* became the sole institution in charge of the production and publication of nautical charts in France. As well as simply collecting logbooks, the *Dépôt* began producing and enforcing rules and standards on how to log the information inside them. This information would then be regrouped by location and type, and used for the production or correction of nautical charts by *Dépôt* engineers. Upon discovering inaccuracies on nautical charts during voyages, mariners would often annotate the charts, which would later be subject to discussion and revision by the *Dépôt* upon their return.

When significant errors or deficiencies were identified on published nautical charts, the *Dépôt*, along with the logistical assistance of the *Ministre de la Marine*, organised for hydrographic campaigns to be carried out to verify and improve existing nautical charts. In 1750 and 1751, a hydrographic campaign was conducted in the Bay of Biscay by a captain of the French Navy, chosen thanks to his practical navigation experience. The aim was to correct two charts of the region and to carry out landing soundings that could be added to new charts. During the mission, over 350 soundings were carried out in the Bay using a leadline to measure the depth of the water and to record samples of the seabed at different points. For every sounding point, some or all of the following information were recorded in manuscripts written on board the ship: the date, the time, the depth of the water, the nature of the seabed and the geographic position, either with bearings, with geographic coordinates or by dead reckoning.

This study presents a methodology for the processing and analysis of the hydrographic data recorded during this campaign. The processing workflow involves numerous steps: the datafication of the information contained in the ship's documents; the definition of the digitised data via the analysis of the accompanying historical archives of the campaign and the addition of metadata; the standardisation of the digitised data to comply with curent norms; the classification of the digitised data according to modern reference data. The newly interoperable historical data can then be compared and analysed alongside equivalent data collected at different moments in history that have undergone the same data processing. In this project, the historical data from the campaign, once processed, are compared to current data, collected and diffused by the Shom, allowing an analysis of the evolution and the continuities in the bathymetry and sedimentology in the Bay of Biscay. The methodology developed makes use of digital humanities tools, particularly digital cartography tools for visualising the mapping of the processed historical data.