

Hydrography in Hamburg: like a fish to water

An article by CÉLINE VAN MIGERODE

Céline Van Migerode is a Belgian student who just graduated the Master Geography and Geomatics at Ghent University. In her final Master year, she participated in an exchange programme and studied for one semester at the HafenCity University in Hamburg. Currently, she is a PhD candidate in Social Geography at KU Leuven doing research about uncertainty related with urbanisation. In this article, she reports on her Erasmus experience in Hamburg.

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Céline Van Migerode est une étudiante belge qui vient d'obtenir le master Géographie et Géomatique de l'Université de Gand. Lors de sa dernière année de master, elle a participé à un programme d'échange et a étudié pendant un semestre à l'université HafenCity de Hambourg. Actuellement, elle est candidate au doctorat en géographie sociale à la KU Leuven et mène des recherches sur l'incertitude liée à l'urbanisation. Dans cet article, elle parle de son expérience Erasmus à Hambourg.

Céline Van Migerode ist eine belgische Studentin, die gerade ihr Masterstudium in Geografie und Geomatik an der Universität Gent abgeschlossen hat. In ihrem letzten Masterjahr machte sie ein Auslandssemester an der HafenCity Universität in Hamburg. Derzeit ist sie Doktorandin in Sozialgeografie an der KU Leuven und forscht über Unsicherheit im Zusammenhang mit der Urbanisierung. In diesem Artikel berichtet sie über ihre Erasmus-Erfahrung in Hamburg.

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No better place to immerse in the fascinating world of hydrography than Hamburg, the city on the banks of the Elbe river, home to the most important port in Germany (Fig. 1). From August 2021 to March 2022, I moved to Hamburg to get a taste of the German life, study hydrography and gather practical experience on board of a survey vessel.

During my first month in Hamburg, I got the opportunity to follow an internship in the Federal Maritime and Hydrographic Agency in Hamburg (Bundesamt für Seeschifffahrt und Hydrographie, BSH). Guided by the expertise of Birgit Klein and Ingrid Angel, I contributed to the EURO-ARGO RISE project by performing simulations with Virtual floats in boundary currents in the Nordic Seas. I learned about the Argo project – an international programme with the aim of monitoring and studying the oceans dynamics and the processes –, gained insight in oceanographic models and experimented with optimisation algorithms.

After the interesting period at the BSH, I started as an exchange student in the Master Geodesy and Geoinformatics at the HafenCity University Hamburg. The majority of my courses were taught within the specialisation Hydrography. I followed

some basic courses to strengthen my elementary foundation in hydrographic science: I gained knowledge in common hydrographic terminology, in the principles of underwater acoustics, and got insight into the working in principles of popular underwater sonar systems such as the multibeam echo sounder and the side-scan sonar. In more advanced classes, I was taught how to adequately prepare and realise the complex multisensory procedure that is a hydrographic survey, and during practical fieldwork, I put the theoretical knowledge into practice and gained experience on board of a survey vessel.

The most specialised and intrusive course in my curriculum was an advanced training that guided me through every step of a hydrographic survey: from a ship alignment survey and cruise planning to data acquisition and processing. Under supervision of Mona Lütjens and Friederike Köpke, I conducted a survey on board of the *Ludwig Prandtl* in which we acquired data with advanced hydrographic instruments such as an Acoustic Doppler Current Profiler, a side-scan sonar and a sub-bottom profiler. With the acquired data, I solved a self-chosen research question; I investigated the relation between the flow velocity and the



Fig. 1: Céline Van Migerode in the port of Hamburg

micro-bathymetry. During the field training, I really gained theoretical and practical expertise as a hydrographer.

Apart from the in-depth hydrographic courses, I also followed German-taught courses from the specialisation »Geodätische Messtechnik« (Geodetic Measurement Technology) within the Master in Geodesy and Geoinformatics. The courses not only allowed me to expand my knowledge in other subdisciplines of geomatics, but also to improve my German speaking and writing skills. In one of the courses, 3D-visualisation, I learned how to build a game in Unreal Engine. I developed a game in Virtual Reality with as key feature one of the most stunning buildings in Hamburg: the Planetarium (Fig. 2).

In addition to the high-quality educational experience in Hamburg, I also experienced a lot of unforgettable moments with my friends and roommates. Accommodated in the Gustav-Radbruch-Haus, home to a large international community of students from all over the world, I learned from different cultures and met a lot of interesting people. The semester abroad as a whole was thus an important and valuable experience both on a personal and education level.

The exchange semester was an immersive experience in hydrography by the combination of both the internship at the BSH and the specialised courses at HCU. And even though at the moment I am not working in the hydrographic sector, the semester in Hamburg was a valuable experience and taught me a lot of relevant insights in performing fieldwork, analysing data and modelling principles in general. I would certainly recommend a semester abroad in Hamburg at the HafenCity University, especially for students interested in hydrography. //

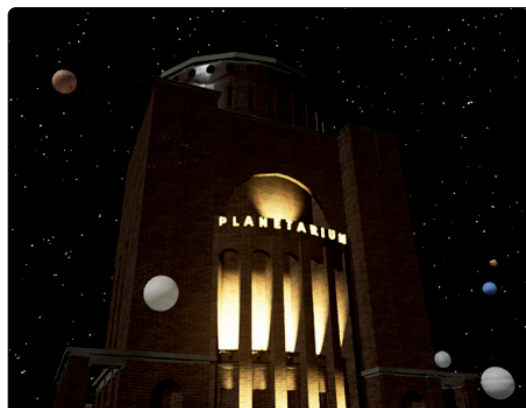


Fig. 2: The Planetarium in a Virtual Reality game