ABSTRACT
In disaster analysis it is typical to consider a spatially bounded event and evaluate its impact on production, value added, and employment in affected sectors. Identifying the sectors exposed to a spatially defined stressor requires a multi-region input-output table with regional resolution and/or, as we explore here, a spatially explicit satellite account of production and employment. Motivated by the research question, “What is the scale and character of GDP in Norway generated within 10 meters of current sea level or in a potential riverine flood zone?”, this paper discusses approaches for generating a satellite account for value added and employment with high spatial resolution. We discuss potential data sources, challenges, and the value of data sharing with colleagues doing CO2 emissions accounting.

In this presentation we will present results from work in progress to create a high-resolution satellite account for a Norwegian MRIO.

The Brønnøysund Registry is the official public registry of all businesses in Norway. The dataset provides a street address, NACE code, and number of employees, for all businesses registered in Norway.

By geolocating the businesses (i.e. transforming the street addresses into geographic coordinates) and pro-rating county-level GDP data from the Statistics Sentral Bureau among regional businesses using employment and sector, this can be transformed into a point cloud dataset of how GDP is generated in Norway.

From this dataset we present two use cases. First, we consider disaster scenarios. We overlay this GDP map against topographic maps to see what is the amount and composition of GDP within 1, 2, and 3 meters of current sea level. We also overlay the map against a map of flood risk generated by the national geological survey. This exercise provides insight into the level and composition of GDP exposed to hydrological physical climate risk.

Secondly, we overlay this map against existing spatially resolved inventories of GHG emissions in Norway. We discuss how activity data based on this GDP map can be used to help inform spatially resolved GHG emissions inventories; with the ultimate aim being to estimate GHG emissions at the city block or even building level.

This contribution to IIOA will take the form of a presentation and discussion. The work is expected to be developed into a paper during the course of the year.