

## **ISODRAPES: Spatial Variability in the Provenance, Vintage and Quality of Organic Carbon accumulating on the Ocean Floor**

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The cycling and burial of organic matter (OM) on continental margins is relevant to a broad range of topics including benthic-pelagic coupling, seafloor biodiversity, sedimentological processes, paleoclimate reconstruction, marine bio- (fisheries) and geo- (mining) resources, and carbon stocktaking. Carbon cycling over continental margins is highly dynamic and spatially heterogeneous, resulting in complex patterns in the content and composition of OM as well as the mineralogical and granulometric characteristics of underlying sediments. Improved assessment of the factors leading to the role and sensitivity of organic carbon (OC) burial requires comprehensive understanding of OC sources as well the processes that influence its fate. To address this issue, we are synthesizing available geochemical and sedimentological data, and combining this information with new measurements in a nascent margin-centric surface sediment database, MOSAIC. In particular, we focus on <sup>14</sup>C measurements as a means to constrain OC supply and dispersal over continental margins. We will highlight the strong hydrodynamic and mineralogical controls on the distribution and composition of sedimentary organic matter, and the pervasive influence of lateral transport processes on continental margins. Ultimately, we seek to derive a more spatially-nuanced view of the amount, nature and age of organic matter accumulating in continental margin sediments and its role in the global carbon cycle.