British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

the Lyell centre

HERIOT WATT UNIVERSITY

Rivers and coastal regions as global ‘hotspots’ of carbon and nutrient cycling

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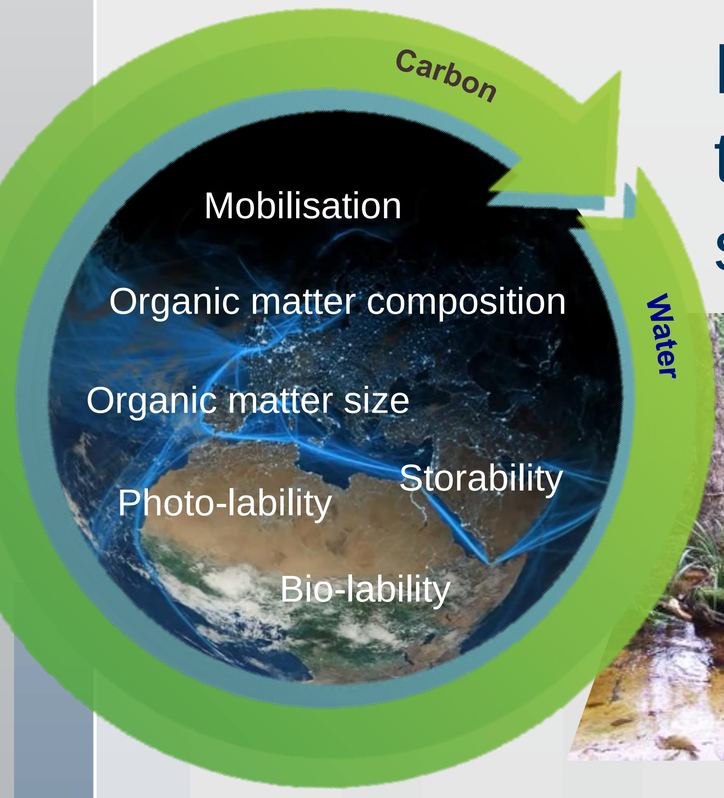
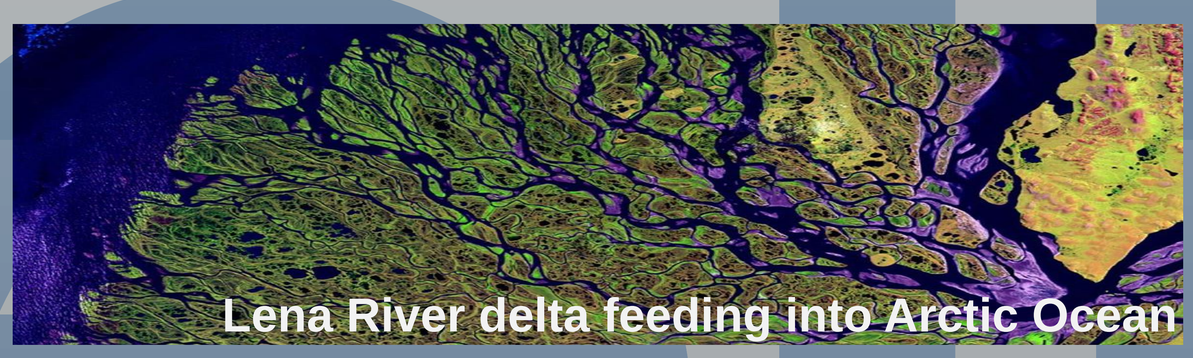


Each year across the globe rivers receive 3 billion tonnes of organic carbon from soils and vegetation in small streams and rivers.

As organic matter moves through the river a variety of poorly understood processes change and store carbon resulting in only 30% reaching the ocean, impacting coastal seas in multiple ways.

Current research themes:

- New technologies to investigate organic matter (including carbon, nitrogen, phosphorus, potassium and other elements) in water, soils and rock.
- Dissolved organic matter quantification and characterisation in Amazonian tropical rainforest headwaters.
- Riverine organic carbon transport to the South China Sea and Arctic Ocean.
- Surfactants and dissolved organic matter as inhibitors of climate active gas exchange at the air-water interface.
- Identification and understanding a new carbon classification of optically ‘invisible’ carbon (iDOM) that contributes to atmospheric carbon dioxide.


Lena River delta feeding into Arctic Ocean


Ocean research on the RRS *James Clark Ross*


Strong Amazonian research networks


iDOM as a source of riverine carbon dioxide


Novel gas-exchange tank to assess surfactants