



SEDIMENT BIOGEOCHEMISTRY AND HYPOXIA

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Jack Middelburg

University of Utrecht

Marine sediments receive particulate fluxes from the overlying and provide a habitat for benthic microbes and animals. The biogenic materials delivered to sediments are highly reactive and transformed and consumed by organism. This results in dissolution of biogenic silica and carbonates and in particular in the degradation of organic matter. Remineralisation of organic matter causes consumption of oxidants (oxygen, nitrate, sulphate, metal oxides) and release of reduced metabolites and carbon dioxide. A very small fraction of the organic matter delivered is eventually buried. Sediment biogeochemical processes, rates and pathways depend on the bottom-water conditions in terms of oxygen and nitrate concentrations. Low dissolved oxygen in bottom waters has consequences for organic matter transformation and burial and diagenetic pathways.

Contents:

- (1) organic matter delivery, transformation and burial
- (2) organic matter degradation, nutrient recycling, re-oxidation processes
- (3) transport processes in sediments, including bioturbation and bio-irrigation
- (4) quantification of biogeochemical processes in sediments
- (5) sediment biogeochemistry and hypoxia

Structure:

- lectures
- discussion of papers from literature (pdf will be provided)
- session on modeling sediment biogeochemistry