Siderite Sulfidation in a Wadden Sea Salt Marsh Master thesis in the Soil Chemistry Group

Coastal wetlands such as intertidal flats and salt marshes are fundamentally important locations for the cycles of nutrients and trace metals and are known as the 'blue carbon sink' due to their ability to store carbon.

The iron(II) carbonate mineral siderite is common in these environments and is of natural importance as it is redox sensitive and its oxidation is intrinsically linked to the cycles of nutrients and trace elements. However, little is currently known about the stability of siderite in salt marsh sediments, particularly in the presence of sulfide.

During this project we will investigate the sulfidation of siderite at our field site in Friedrichskoog, Germany paired with lab experiments.

Objectives

With our help you will:

- Synthesise siderite and setup mineral experiments in the field.
- Extract and characterise pore water sampled in the field.
- Use a variety of mineral characterisation techniques to understand the stability of siderite in sulfidic environments.

Timing: Fall 2022. Field work in August and/or September 2022.

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