

Uranium in Recent and Fossil Wetlands

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Under anoxic conditions uranium can be accumulated in a swamp's sediment. The uranium input may be from a creek where small amounts have been leached from the soils. In lagoons it may be from the uranium in seawater. Even if the uranium concentrations in the water are very small, on the order of ppb, an accumulation over thousands of years can lead to considerable uranium concentrations in the sediments.

In Switzerland we have found these accumulations, up to some 100 ppm, not only in recent moors but also in fossil ones. Of particular interest are bonebeds probably formed at lagoons in the Tertiary at the interface between the Lower Freshwater Molasse (LFM) and the Upper Marine Molasse (UMM).

Erosion mainly by the glaciers has brought these uranium accumulations back close to the surface where they get leached by oxygen rich shallow groundwater.

This leads to increased uranium concentrations in groundwaters close to the LFM/UMM interface. The highest concentrations measured so far are on the order of 25 ppb (about 0.3 Bq/liter ²³⁸U).

Some of these groundwaters emerging at springs are flowing towards recent moors, feeding the sediments again with uranium and so the circle is complete.

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