

# How does carbon storage in Imnavait peatland, Arctic, AK shift with vegetational and climate change?

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Analysis of peat macrofossils, coupled with LOI is used to reconstruct the shift of carbon storage versus vegetation and climate change in an arctic peatland at Imnavait, AK. The estimated peat age at 1 m depth is between 9000 and 11,000 years. The peat contains *Betula nana* (dwarf birch), *Salix* (willow), *Andromeda* (bog rosemary), *Carex* and *Eriophorum* sedges), *Menyanthes* (buckbean), *Sphagnum*, insect remains, fungal remains. The results show three major changes in climate from dry to wet through the shift in vegetation, mainly represented by the presence and absence of mosses in the local environment. Macrofossil data indicate that there was *Sphagnum* and mosses in the lowermost samples, followed by 45 cm of their absence in the middle, and their return at 30 cm depth up to the surface. The significant presence of *Sphagnum* macrofossils at these levels in Imnavait indicates wetter conditions. Their decline, coupled with their replacement by *Carex* sp. (sedges), suggests a shift to a less favorable climate for their growth, thus, a drier environment. The LOI data correlate with the macrofossil data, emphasizing the evidence of more peat accumulation in the lower and uppermost part of the peatland.