Conceptual models of groundwater-related radionuclide transport in different development stages of mires

MIRE SUCCESSION WITH TIME

1. Coastal marches
- Mines are typical recipients of potential releases from geological radiative waste repositories in coastal regions
- Characteristic time frames of the releases are 10–300 years or longer – mine development needs to be taken into account
- In older mines, the connection of the surface to the groundwater is lost, but radionuclides may enter the biological circulation as gas, through preferential flows to bog pools, or as a consequence of drainage for peat harvest, agriculture, or forestry
- With drainage, considerable deposits of radionuclides accumulated in water in the bottom peat may become accessible or washed out
- Radionuclide source to the mine can also be from the upland areas

2. Middle-aged mire
- Typical transport paths of radionuclides
  - contact to water fluxes
  - reception in geological media
  - general transport and uptake

3. Old ombrotrophic peat bog

4. Drained for cultivation of crops

Plant-derived carbon pools and decomposition

Food web structure in bog pools

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