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The sulfate-methane transition zone (SMTZ) in passive and active gas hydrate bearing sediments at Nyegga on the Mid-Norwegian margin: a multidisciplinary geological, geobiological and geochemical study

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The widespread methane seepage pockmark area mapped at Nyegga (700-800 m) on the Mid-Norwegian slope is located also close to the edge of the northern flank of the Storegga Slide. This area has a wide range of both relict and active seafloor seeping structures with gas hydrate identified at the seafloor within the most active ones. These pockmarks are commonly ca. 200 m in diameter and are all located within a temperature regime of ca. -0.7oC. The sulfate-methane transition zone (SMTZ) has been identified in shallow cores within the Nyegga pockmarks and in a longer cores in a area outside these pockmarks. The cores selected for analytical studies are a one 30 cm long core retrieved with aid of ROV from a gas-hydrate bearing sediments within pockmark G11 and a 3 m long core retrieved from an undisturbed area close to these pockmarks. We will present results describing the host sediments, physical and geochemical properties both below and above the SMTZ as well as the biogeochemical processes and the associated biological and microbiological community related to a stable temperature regime around the SMTZ boundary in these selected cores.