Beast of (over)burden

Challenges, characteristics and possibilities

Petersen, Thomas Guldborg

Publication date:
2021

Document Version
Publisher's PDF, also known as Version of record

Beast of (over)burden: Challenges, characteristics and possibilities

Thomas Guldborg Petersen

The overburden is often underappreciated when compared to its rock star cousin the reservoir. The overburden however solves some crucial tasks when it comes to hydrocarbon exploitation, CO_2-storage and geothermal energy. The overburden is an integral part of the top sealing mechanism trapping either hydrocarbon or CO_2 even on geological time scales. Furthermore, a clay rich overburden such as the one found in the Danish North Sea can be utilized to form a cheap and permanent solution for plug and abandonment of aging oil fields, or to ensure effective sealing of redundant boreholes that would potentially compromise the integrity of the top seal of fields upcycled to CO_2 storage facilities. The deposition of overburden is also responsible for increasing the burial depth of sedimentary basins, creating the optimal thermal regime for maturation of source rocks and thermal blanketing of geothermal reservoirs. Understanding the shallower part of the overburden is crucial in the green transition, where offshore facilities such as energy islands and offshore wind farms will play a crucial role.