

Searching for Shallow Gas: A Geohazards Workflow in Kingdom®

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ABSTRACT

Within the Norwegian Continental Shelf (NCS), there is a constant pressure on subsea operations, as oil and gas discoveries are attempted and achieved. A geohazards study is necessary prior to any subsea operations, especially the ones involving a platform onset or drilling operations. Shallow gas is a major problem in the NCS and therefore it remains the focus of a geohazards study within this area. IHS Kingdom® software provides several tools to analyse shallow gas from seismic 2D and 3D data. To characterize shallow gas we need a detailed study of amplitude anomalies. Kingdom® can extract amplitudes anomalies from a given interval within two steps with the volume attribute calculator. The combination of VuPAK and Rock Solid Attributes provides many possibilities to visualize amplitude anomalies, adding valuable information and insight to the interpretation. We propose a geohazards workflow with three objectives: (1) To scan a seismic dataset for high amplitude anomalies that may represent accumulations of shallow gas. (2) To visualize the amplitude anomalies in their spatial context, using VuPAK. (3) To understand their rock nature context, using Rock Solid Attributes, which will allow us to compare the gas amplitude response of an event with its geological structure. We believe that the confluence of these analyses will help to identify the geological meaning of the amplitude anomaly, i.e. structural origin, tuning effect, lithological contrast or actual gas.