Dynamic and static elastic moduli of North Sea and deep sea chalk

We have established an empirical relationship between the dynamic and the static mechanical properties of North Sea and deep sea chalk for a large porosity interval with respect to porosity, effective stress history and textural composition. The chalk investigated is from the Tor and Hod Formations of the Valhall and Hod fields with reference to calcareous ooze and chalk of the Ontong Java Plateau, ODP Site 807. The acoustic properties of carbonate rock depend primarily on porosity. The main additional parameters are maximum paleo effective stress and inhomogeneity in texture. By correlating the acoustic data of the studied North Sea area with the Ontong Java Plateau data, the paleo effective stress of the studied North Sea area is estimated, and from oedometer modulus and porosity a compaction trend is established.

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