Title (en)

ACTIVE NOISE INJECTION COMPUTATIONS FOR IMPROVED PREDICTABILITY IN OIL AND GAS RESERVOIR DISCOVERY AND CHARACTERIZATION

Title (de)

AKTIVE RAUSCHINJEKTIONSBERECHNUNGEN FÜR VERBESSERTE VORHERSAGBARKEIT BEI DER ENTDECKUNG UND CHARAKTERISIERUNG VON ÖL- UND GASRESERVOIRS

Title (fr)

CALCULS D'INJECTION DE BRUIT ACTIVE POUR AMÉLIORER LA PRÉDICTIBILITÉ DE DÉCOUVERTE ET CARACTÉRISATION DE RÉSERVOIRS PÉTROLIERS ET GAZIERS

Publication

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Application

EP 11751523 A 20110307

Priority

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- US 2011027456 W 20110307

Abstract (en)

[origin: WO2011109839A2] Application of nonlinear resonance interferometry is introduced as a new geophysical approach to improve predictability in characterization of subsurface porosity, rock and fluid properties. In contrast to reflection methods that remove random information noise, nonlinear resonance interferometry exploits the full seismic acquisition spectrum to assess how low frequency and high-frequency noise is differentially and directly modulated by varying levels of porosity and hydrocarbon content in the lithologies of interest. In some examples, systems and techniques implement novel computational interactions between acquired seismic wavefield attributes and a nonlinear system in software to amplify distortions in seismic noise and exploits injection of synthetic noise, in software format, to detect hydrocarbon traps and lithology changes at spatial scales below seismic resolution, thereby increasing the information value of low-resolution data. The techniques are broadly applicable to de-risking conventional clastic and carbonate reservoirs and non-conventional shale gas resource prospects.

IPC 8 full level

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