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# Pervasive faulting revealed by acoustic blanking: a potential explanation for large thermal anomalies in the Anglo-Paris Basin?

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Based on new seismic interpretations, this work explores different scenarios to explain major temperature variations in the Anglo-Paris Basin. The work considers both the horizontal and vertical dimensions of these thermal heterogeneities by coupling measurements from geothermal wells with temperature profiles. In addition to detailed geological structures (anticline and faults), reprocessing and interpretation of seismic data have revealed the presence of vertically extending zones with characteristic low-energy seismic facies affecting a large part of the sedimentary pile. Such observations are known in other sedimentary contexts and are interpreted as fractured lithology. We consider their potential role regarding fluid flows in continental domain geothermal modelling for an intracratonic sedimentary basin.
Different fault and fracture scenarios clearly show their contribution to the heterogeneity observed in the basin's temperature field, which cannot be explained either by conductive phenomena with heterogeneous radiogenic production nor by flows without vertical leakage via the faults or fractured zones affecting the sedimentary pile. An important consequence of this work would then be to research these zones to localize them systematically and understand their origin, and to then confirm their hydrodynamic properties.