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Paleothermal Effects of Igneous Intrusions in Sedimentary Basins and Their Influence on Petroleum Systems

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ABSTRACT

The paleo-thermal effects of intrusions in sedimentary basins are normally thought of only in terms of the purely conductive contact heating typically affecting a thickness of surrounding rock similar to the width of the intrusion. But our experience in a number of basins around the world applying thermal history reconstruction based on AFTA and VR has revealed a much more complex variety of different processes by which intrusions can influence the thermal history of sedimentary sequences, and thereby exert significant influence on petroleum systems. These events occur on all scales from local contact effects to basin-scale. This presentation illustrates this variety with a range of examples and we explain the principles involved in such studies.