Fundamental Controls on Fluid Flow in Carbonates: Current Workflows to Emerging Technologies
The Geological Society of London

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Fundamental Controls on Fluid Flow in Carbonates: Current Workflows to Emerging Technologies

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Preface

The idea for this volume came from a Hedberg Research Conference organized by the American Association of Petroleum Geologists (AAPG) in partnership with the Society of Petroleum Engineers (SPE) and the Society of Exploration Geophysicists (SEG). The conference was held 8–13 July 2012 in Saint Cyr-Sur-Mer, Provence, France, convened by Susan M. Agar, Sebastian Geiger, Juliette Lamarche and Philippe Leonide.

The aim of the conference was to stimulate new ideas and joint industry–academic ventures that could accelerate research advances related to flow prediction and recovery in carbonate reservoirs. Such advances are likely to be among some of the most significant developments for the oil and gas industry in the next decade. The conference generated new research opportunities, identified paradigm shifts and raised awareness of the cross-disciplinary skill sets needed to solve problems related to flow prediction in carbonate reservoirs. Participants combined forces to present an exciting vision to the global geoscience and engineering community of next generation research on the theme of ‘Fundamental Controls on Flow in Carbonates’.

The technical themes of the AAPG Hedberg Conference were: (1) Fundamentals: the fundamental physics and chemistry that control flow behaviours and recovery in carbonate reservoirs from pore to field scale; (2) In-situ Monitoring of Flow: novel applications of geophysical methods (including seismic, resistivity, gravity, magnetic and X-ray computer tomography) for real-time monitoring of flow in carbonates as well as subsurface experiments; (3) Prediction and Uncertainty: addressing our current knowledge of geological characteristics of carbonate reservoirs and ways to predict them, with a strong emphasis on the geological processes controlling the links among sedimentological, structural and diagenetic features in carbonates and the value of understanding these processes to predict flow paths among them; and (4) New Geologic and Flow Simulation Techniques: novel methods for geological modeling and flow simulation, with a strong emphasis on emerging methods that have yet to penetrate the industry arena.

The majority of papers in this volume came directly from presentations at the AAPG Hedberg Conference, and review existing workflows that are perceived as state-of-the-art and share novel scientific and technical approaches that offer new ways to approach ‘old’ problems in carbonate reservoirs.

Susan M. Agar
Sebastian Geiger
July 2014