Core–Log Integration
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Preface

Core and log measurements provide crucial information about subsurface formations. Their usage, either for integration or calibration, is complicated by the different measurement methods employed, different volumes of formation analysed, and in turn, the heterogeneity of the formations. While the problems of comparing core and log data are only too well known, the way in which these data can be most efficiently combined is not at all clear in most cases. In recent years there has been increased interest in this problem both in industry and academia, due in part to developments in technology which offer access to new types of information, and in the case of industry, pressure for improved reservoir models and hydrocarbon recovery. The application of new numerical methods for analysing and modelling core and log data, the availability of core scanning facilities, and novel core measurements in both two and three dimensions, currently provide a framework for the development of new and exciting approaches to core-log integration.

This Special Publication addresses some of the problems of core–log integration encountered by scientists and engineers from both industry and academia. The diverse nature of the contributions in this volume are an expression of the value and need to understand core and log measurements, and the way in which they can be combined to maximum effect. Contributions range geologically from hydrocarbon-bearing sediments in the North Sea to the volcanic rocks that form the upper part of the oceanic crust. In order to constrain this diversity for presentation the volume has been divided into five sections and starts with ‘Measurement, scaling and calibration’, 6 papers concerned purely with aspects of core and, or log measurements themselves including cross-correlation, upscaling, measurement uncertainty and accuracy. Subsequent sections include (2) ‘Physical and chemical properties’ – 5 papers, (3) ‘Petrophysical relationships’ – 8 papers, (4) ‘Integration of core and borehole images’ – 5 papers and (5) ‘Applications and case studies’ – 7 papers. All papers were submitted in response to an open call for contributions so, within the constraints of work loads and other factors, may be considered to represent a fair snapshot of recent developments in Core–Log Integration.

The volume arises from a meeting of the Borehole Research Group of the Geological Society and the London Petrophysical Society (London Chapter of the Society of Professional Well Log Analysts) held in London in September 1996. The editors are particularly grateful to Gail Williamson both for the organization of the meeting and for persistence in coaxing authors, reviewers, and editors; also to Jo Cooke at the Geological Society Publishing House for her continuous support in the production of this volume. We also wish to thank all those who undertook the often arduous job of reviewing the manuscripts, and without whose help this volume would have been that much poorer.

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