

INTRODUCTION

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This special issue of the Canadian Society of Exploration Journal of Exploration Geophysics is a collection of selected papers presented at the CSEG FORUM on High Resolution Aeromagnetism for Hydrocarbon Exploration held in November 1997, in Calgary, Alberta. Dr. Rob Stewart, while president of the CSEG, initiated a series of special workshops or forums to examine topics of current interest to hydrocarbon exploration geophysicists. One topic of some considerable recent interest was high resolution aeromagnetism used in hydrocarbon exploration. We emphasize that the contents of this volume, although it has value to other resource applications, are directed to the study of the hydrocarbon exploration problem. For example, the concept of high resolution aeromagnetism as used in hydrocarbon exploration would not have the same definition for mineral exploration.

The 1990s were a decade when aeromagnetic surveying for hydrocarbon exploration saw a significant surge in interest. This interest was created by the new resolution offered by modern magnetic survey data and this resolution has provided added value to the evaluation of hydrocarbon prospects. Significant improvements have been made in the acquisition, processing and interpretation of aeromagnetic data. The papers in this special issue examine all aspects of this improved aeromagnetic technology.

The CSEG Forum on High Resolution Aeromagnetism for Hydrocarbon Exploration had a total of 33 oral papers and 11 posters. The organizers purposely selected papers to cover the entire range of the aeromagnetic method. That is, the papers cover topics such as acquisition, quality control, data reduction, processing and interpretation. The significance of having high resolution data for improved prospecting was examined in a number of papers. A volume of expanded abstracts of the Forum papers was compiled and copies are available from the CSEG.

The organizers and the CSEG executive believed that

many of the papers presented at the FORUM would, if expanded to full paper length and compiled in a special issue, fill a void in available information on the aeromagnetic method, and in particular, high resolution aeromagnetic data as applied to hydrocarbon exploration. There were few practical examples in the literature that described the use of this technology and no textbook develops the aeromagnetic techniques to a degree needed by the modern petroleum exploration geophysicist. The papers are ordered in the volume as they were in the Forum, from acquisition through interpretation. There may have been more than one paper on a topic presented at the Forum and only one included in this volume. The companion papers may be found in the expanded abstract volume.

This special issue of the Canadian Journal of Exploration Geophysics, although intended as a reference volume for the skilled exploration geophysicist, is designed to be a good source of material to develop an understanding of the aeromagnetic method. Hence, authors of papers in this volume commonly define terms or explain concepts that ordinarily would not be in papers directed to the smaller, specialist audience. Interpretation of data includes discussions of techniques and elements of case histories. The case history examples include interpretation methods ranging from traditional approaches to those that utilize the emerging interactive filtering and display technologies offered by workstation and PC based software.

The Forum was considered very successful and the success is a tribute to the hard work of the committee, the sponsors and the presenters, all of whom are acknowledged elsewhere. We also want to thank all the employers of the presenters and the organizing committee for allowing us to make public some proprietary data and giving us the time to create a very successful CSEG Forum on High Resolution Aeromagnetic Data for Hydrocarbon Exploration.