

Preface

This Special Issue of *Earth, Planets and Space* is devoted to a selection of the contributed papers presented at the 14th Workshop on Electromagnetic Induction in the Earth (or at the immediately preceding MT-DIW4—the 4th Magnetotelluric Data Interpretation Workshop) held in Sinaia, Romania, August 16–22, 1998. While these biennial workshops, organised by Working Group I–2 of the International Association of Geomagnetism and Aeronomy, always attract a large international participation, the 14th Workshop was exceptionally well attended with over 250 registrants (including 21 students) representing over 30 countries from all continents. The location of the Workshop in Romania enabled a larger number of participants than usual to attend from Eastern Europe.

The sessions in Sinaia focused on many of the challenging problems in the application of electromagnetic methods to investigations of the properties of Earth, as indicated by the following titles of the ten sessions in the scientific programme:

1. Environmental and engineering application of EM techniques
2. Combination of EM and DC measurements for upper crustal studies
3. Electric and magnetic approaches to seismic and volcanic activity studies
4. Continental lower crustal studies
5. Mantle and global studies including laboratory and satellite results
6. Distortion and dispersion effects
7. Lithosphere/asthenosphere interactions beneath continents and oceans and their margins
8. Progress in 3D modelling and inversion
9. Local and regional electromagnetic studies
10. Other contributions.

Two of the sessions were named symposia: Session 1, “The Sabba Stefanescu Symposium” was dedicated to the memory of the distinguished Romanian professor Sabba Stefanescu, well-known for his mathematical contributions to studies of the electromagnetic field. Session 6, “The Mark Berdichevsky Symposium” honoured Professor Mark Berdichevsky of Moscow, whose seminal papers and books in the field of geo-electromagnetic induction remain standard reference works for many geophysicists. Professor Berdichevsky attended the Workshop in person and opened the symposium himself with a well-received review paper.

Altogether 297 contributed abstracts were received for presentation in the sessions listed above. They were supplemented by six invited review papers which are published elsewhere. A reasonable balance of oral and poster presentations was maintained except in Sessions 9 and 10 which, because of the nature of their topics and the number of papers submitted, were restricted to lengthy poster sessions.

Each session concluded with comments from a panel of selected participants on their impressions of the scientific highlights in the papers that had been presented, followed by a general discussion open to all members of the audience. The scientific value of the Workshop was undoubtedly confirmed by these stimulating discussions which at times became wide-ranging debates on various problems related to geo-electromagnetic induction. The blend of senior experts, younger researchers and graduate students present in the audience, combined with the uninhibited atmosphere which encouraged the ensuing lively and frank discussions, contributed enormously to the success of the meeting.

This Special Issue of *Earth, Planets and Space* contains 16 of the contributed papers that were subsequently submitted and accepted for publication. All of them have been subjected to the normal review process for this journal, which requires a minimum of two referees for each paper. Most of the ten sessions listed above as well as the MT-Data Interpretation Workshop held prior to the main meeting are covered by the sample of papers appearing here. For publication they have been grouped by the sessions in which they were presented, as follows: Session 8 (3 papers), Session 9 (3 papers), Session 5 (2 papers), Session 7 (2 papers), Session 1 (1 paper), Session 3 (1 paper), Session 6 (1 paper), Session 10 (1 paper), MTDIW4 (2 papers). Several areas of topical interest to the electromagnetic induction community and geophysicists in general are treated in these papers, particularly the electrical conductivity distribution in the lithosphere, the study of the electrical conductivity mechanisms in Earth’s interior, modern modelling and inversion techniques, and the role of electromagnetic methods in environmental and natural hazard applications.

Finally, we would like to thank the authors, the reviewers of the submitted papers, and the editors and publishers of *Earth, Planets and Space* for making the publication of this Special Issue possible. It is hoped it will become a useful reference source for researchers in electromagnetic geophysics.

Special issue guest editors:	Dumitru Stanica	John Weaver
	Bucharest	Victoria, BC
	Romania	Canada