

**Dr Terry Lee**  
**ASEG Gold Medal**  
**Perth February 2015**

**CITATION (PREVIEW):**

Dr Terry Lee has been awarded the ASEG Gold Medal for his theoretical and mathematical developments to exploration geophysics, specifically in the field of transient electromagnetics. The ASEG Gold Medal is awarded from time to time for exceptional and highly significant distinguished contributions to the science and practice of geophysics by a member, resulting in wide recognition within the geoscientific community. Terry has been a member of the ASEG since 1971.

Terry was awarded a Doctor of Science degree from the University of Tasmania in 1986 for published work which was recognised by scholars in the field of transient electromagnetics as a distinguished original contribution to scientific knowledge, so as to give the candidate authoritative standing in that field. Previously he was awarded a BSc. Melbourne; BSc. Hons. Tasmania; MSc. New England; PhD Macquarie; and BA Hons (Art History) Sydney.

From 1975 to 1983 he was employed as research geophysicist with geophysical consultants L.A. Richardson and Associates in Sydney, later incorporated into Geopeko Ltd, where he was responsible for all theoretical research into exploration geophysics, including gravity, magnetic, radiometric, electrical and in particular transient electromagnetic methods. During this time he was also a Visiting Fellow at the Cooperative Institute for Research in Environmental Sciences at the University of Colorado. In 1983 he joined Bureau of Mineral Resources in Canberra where his responsibilities included research into potential fields, heat flow, remote sensing and transient electromagnetics. He has consulted in theoretical geophysics to exploration companies and in 1991 he was invited to be a member of the editorial board of the Journal of Applied Geophysics.

Terry has been a pre-eminent contributor to the field of useful analytical solutions to problems in electromagnetic prospecting. This work provided checks for numerical solutions and has practical applications in their own right. Important contributions include formulations for the response of half spaces, layered earths, and spheres, in addition to fundamental contributions to the understanding of the effects of polarisable bodies and superparamagnetism in TEM. He has also made theoretical contributions in remote sensing, potential field theory and resistivity. Terry's work has influenced science outside exploration geophysics.

Some of these contributions were recognized by the ASEG with the Grahame Sands Award for Innovation in Applied Geophysics in 1991. Previously in 1976 the EAGE awarded him their Van Weelden Award for the best paper by a person under 30 years of age for two papers on transient electromagnetics. Terry has also received

the Primary Industry and Energy Achievement Award in 1993 for Outstanding Technical or Design Innovation for Coastal Geoscience using remote sensing.

Following his retirement from BMR Terry continued to be active in research, publishing 13 papers in scientific journals after 1991. Seven of these utilize the concept of the “moments of the impulse response” published with several co-authors, although the concept is acknowledged as solely Terry’s idea. The concept is used routinely in airborne EM processing resulting in software programs of significant use to exploration geophysicists by making 3D EM inversions practical on desktop computers.

Terry has been a quiet achiever often working in the background to the mainstream explorationist. Theoretical geophysics is not regular currency among the vast majority of exploration geophysicists and often taken for granted. So it is probably true that there is not a wide range of applied, exploration geophysicists that know about and could understand the intricacies of the body of work comprising 57 papers that Terry has written or co-authored. Many would be surprised to learn that this work covers time and frequency domain electromagnetics, in addition to resistivity, gravity, magnetics, radiometrics, remote sensing, heat flow, crustal deformation, geomorphology and mathematics. By any measure this body of work in itself is exceptional and significant.

Terry’s work has received accolades and support from a wide and diverse range of geophysicists in Australia and around the world, including industry geophysicists, consultants and contractors, and researchers. Such appreciation of this type of work is very rarely seen for an Australian geophysicist. Terry’s remarkable volume of contributions to Australian and world-wide geophysics, and the wide recognition this work has gained within the geoscientific community, readily constitute the Gold Medal criteria for exceptional and highly significant distinguished contributions to the science and practice of geophysics.

Terry’s other interests include gemmology and Art History; He has a diploma of gemmology from the Gemmological Association of Australia and a BA Hons degree in Art History from the University of Sydney. Terry likes to collect unusual gemstones such as Taffeite, Phosphophyllite and colour change garnets and spinels. He is also interested in the art of Colonial Australia and Oriental Art; he is interested in Islamic coins, jades and the early sculpture of South East Asia, amongst others.