

# **Second European Airborne Electromagnetics Conference 2017**

Held at Near Surface Geoscience Conference & Exhibition 2017

Malmo, Sweden  
3 – 7 September 2017

ISBN: 978-1-5108-5080-4

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2017) by the European Association of Geoscientists & Engineers (EAGE)  
All rights reserved.

Printed by Curran Associates, Inc. (2017)

For permission requests, please contact by the European Association of Geoscientists & Engineers (EAGE)  
at the address below.

European Association of Geoscientists & Engineers (EAGE)  
PO Box 59  
3990 DB Houten  
The Netherlands

Phone: +31 88 995 5055  
Fax: +31 30 634 3524

[eage@eage.org](mailto:eage@eage.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

<b>EFFICIENT 2D HYBRID INVERSION OF AIRBORNE FREQUENCY DOMAIN DATA</b> .....	1
<i>E. Auken, T. Boesen, A. Christiansen, G. Fiandaca, A. Pfaffhuber, M. Voge</i>	
<b>PROBABILISTIC INVERSION OF AEM DATA WITH AN EXPLICIT CHOICE OF PRIOR INFORMATION</b> .....	6
<i>T. Hansen, B. Minsley</i>	
<b>COMPARISON OF NEAR-SURFACE SENSITIVITY FUNCTIONS OF AIRBORNE AND GROUND-BASED EM SYSTEMS</b> .....	11
<i>L. Madsen, K. Lassen, E. Auken, A. Christiansen</i>	
<b>3D INVERSION OF THE SEMI-AIRBORNE ELECTROMAGNETIC DATA FROM SCHLEIZ, GERMANY</b> .....	16
<i>M. Cherevatova, C. Nittinger, M. Becken, T. Guenther</i>	
<b>TWO-DIMENSIONAL INDUCED POLARIZATION EFFECTS ON AIRBORNE TIME DOMAIN ELECTROMAGNETIC DATA</b> .....	21
<i>C. Lin, E. Auken, G. Fiandaca, A. Christiansen</i>	
<b>THREE-DIMENSIONAL PSEUDO-LITHOLOGY DERIVED FROM INTERPRETATION OF AIRBORNE GEOPHYSICAL DATA</b> .....	26
<i>A. Viezzoli, V. Kaminski, H. Paasche, G. Manca</i>	
<b>A NOVEL SEMI-AIRBORNE EM SYSTEM FOR MINERAL EXPLORATION - FIRST RESULTS FROM COMBINED FLUXGATE AND INDUCTION COIL DATA</b> .....	31
<i>C. Nittinger, M. Cherevatova, M. Becken, T. Martin, H. Petersen, A. Steuer, U. Meyer, B. Siemon, U. Matzander, B. Friedrichs, W. Morbe, P. Yogeshwar, B. Tezkan, R. Rochlitz, T. Gunther</i>	
<b>SKYTEM HIGH POWER SYSTEMS – A NEW GENERATION OF AIRBORNE TEM TRANSMITTERS</b> .....	36
<i>P. Gisselo, N. Nyboe</i>	
<b>AN IMPROVED HELICOPTER TIME-DOMAIN EM SYSTEM FOR NEAR SURFACE APPLICATIONS</b> .....	41
<i>T. Eadie, J. Legault, G. Plastow, A. Prikhodko, P. Tishin</i>	
<b>RECENT ADVANCES IN SKYTEM RECEIVER SYSTEM TECHNOLOGIES</b> .....	46
<i>N. Nyboe, S. Mai</i>	
<b>STRETCHING AEM NEAR-SURFACE RESOLUTION LIMITS RELATED TO LOW- AND VERY HIGH RESISTIVITY CONTRASTS</b> .....	51
<i>G. Skurdal, A. Pfaffhuber, A. Davis, S. Bazin, H. Anschutz, N. Nyboe, N. Foged, T. Thomassen, T. Wiig</i>	
<b>DEVELOPING A COMMUNICATIONS MANAGEMENT SOLUTION FOR AIRBORNE SURVEYS IN PERI-URBAN ENVIRONMENTS</b> .....	56
<i>J. Hodgson, E. Scanlon, M. Ture, S. O'Brien</i>	
<b>STRUCTURAL GEOLOGY INTERPRETED FROM AEM DATA - FOLDED TERRAIN AT THE FOOTHILLS OF ROCKY MOUNTAINS, BRITISH COLUMBIA</b> .....	61
<i>F. Jorgensen, A. Menghini, G. Vignoli, A. Viezzoli, C. Salas, M. Best, S. Pedersen</i>	
<b>THE RESOLVE FREQUENCY DOMAIN EM SYSTEM APPLIED TO A GEOTECHNICAL PROJECT</b> .....	66
<i>A. Smiarowski</i>	
<b>CHARACTERIZATION OF THE SPIRITWOOD VALLEY AQUIFER, NORTH DAKOTA, USING A HELICOPTER TIME-DOMAIN EM SYSTEM</b> .....	71
<i>J. Legault, T. Eadie, G. Plastow, A. Prikhodko, D. Hisz, J. Patch</i>	
<b>APPLICATION OF HELICOPTER TIME-DOMAIN EM FOR MINE OPERATIONS</b> .....	76
<i>F. Effersoe, B. Brown</i>	
<b>MAPPING OF 3D HYDROGEOLOGICAL FRAMEWORK OF THE DECCAN BASALT GROUNDWATER SYSTEMS USING AEM</b> .....	81
<i>S. Chandra, S. Sonkamble, E. Auken, S. Ahmed, S. Verma</i>	
<b>HTEM DATA IMPROVE 3D MODELLING OF AQUIFERS IN PARIS BASIN, FRANCE</b> .....	86
<i>G. Martelet, P. Reninger, J. Perrin, B. Tourliere</i>	
<b>HELIBORNE EM AND MAGNETISM FOR HYDROGEOLOGICAL CHARACTERIZATION IN AN OBDUCTION CONTEXT - A NEW- CALEDONIAN EXAMPLE</b> .....	91
<i>P. Reninger, J. Perrin, S. Lesimple, J. Jeanpert, N. Foged, E. Auken</i>	
<b>COMPARISON BETWEEN ATEM, RMT, ERT AND CPTR DATA AT A QUICK CLAY SITE IN SWEDEN</b> .....	96
<i>M. Bastani, L. Persson, H. Lofroth, C. Smith</i>	

<b>DERIVING INTERPRETATION ATTRIBUTES FROM AEM SURVEYS USING THE CONTINUOUS WAVELET TRANSFORM .....</b>	<b>101</b>
<i>N. Christensen</i>	
<b>3D RESISTIVITY INTERPRETATION OF HELICOPTER-BORNE FREQUENCY-DOMAIN EM (HEM) DATA FROM RAMSA BASIN AND AROUND IN ANDOYA.....</b>	<b>106</b>
<i>V. Baranwal, E. Dalsegg, H. Elvebakk, J. Ronning, M. Bronner</i>	
<b>GROUNDWATER EXPLORATION USING AEM IN STRUCTURALLY COMPLEX, INVERTED SEDIMENTARY BASINS AND PALEOVALLEYS, KIMBERLEY REGIO.....</b>	<b>111</b>
<i>K. Lawrie, N. Symington, N. Christensen, E. Haber, D. Marchant, T. Murray, L. Halas, K. Tan, R. Brodie, C. Harris-Pascal, L. Gow, N. Neumann</i>	
<b>TEST GREATEM SURVEY FOR MINERAL EXPLORATION IN KOREA.....</b>	<b>116</b>
<i>M. Yi, S. Jeong, J. Kim, N. Sung, M. Han, R. Supper, K. Motschka, Y. Sasaki, A. Johmori</i>	
<b>A ROBUST FRAMEWORK FOR CANCELLATION OF MSK INTERFERENCE IN TEM DATA .....</b>	<b>121</b>
<i>S. Rasmussen, N. Nyboe, S. Mai, J. Larsen</i>	
<b>BAYESIAN INVERSION OF TRANSIENT AIRBORNE EM DATA FROM THE MCMURDO DRY VALLEYS, ANTARCTICA .....</b>	<b>126</b>
<i>D. Blatter, K. Key, A. Ray</i>	
<b>HTEM REGIONAL SURVEYS APPLIED TO MINERAL EXPLORATION IN BRAZIL - TWO CASE STUDIES AND FUTURE PERSPECTIVES .....</b>	<b>131</b>
<i>M. Couto, R. Ferreira, O. Baltazar, R. Wosniak, J. Araujo, J. Porsani</i>	
<b>LATERAL CONDUCTIVITY VARIATIONS WITHIN AUSTRIA AND ITS SURROUNDINGS BY EXTRAPOLATING AIRBORNE ELECTROMAGNETIC DATA .....</b>	<b>136</b>
<i>I. Schattauer, A. Romer, R. Bailey, R. Leonhardt, K. Motschka, R. Supper, A. Schiller</i>	
<b>ERMELO RING ROAD RISK ASSESSMENT FOR COAL UNDERMINING USING AIRBORNE TDEM AND GROUND GEOPHYSICS .....</b>	<b>141</b>
<i>J. Legault, K. Kwan, G. Plastow, Z. Han, R. Wilson, P. Roux, C. Fourie</i>	
<b>FREQUENCY-DOMAIN HELICOPTER-BORNE EM SURVEY FOR DELINEATION OF THE 3D CHLORIDE DISTRIBUTION IN ZEELAND, THE NETHERLANDS .....</b>	<b>146</b>
<i>B. Siemon, E. Baaren, W. Dabekaussen, J. Delsman, M. Karaoulis, P. Louw, P. Pauw, T. Vermaas, H. Bootsma, A. Steuer, J. Gunnink, G. Essink, U. Meyer</i>	
<b>AN INVERSION TOOLBOX FOR FREQUENCY- AND TIME-DOMAIN AIRBORNE ELECTROMAGNETIC DATA FROM SURVEYS IN IRELAND .....</b>	<b>151</b>
<i>D. Kiyani, V. Rath, R. Delhaye</i>	
<b>Author Index</b>	