

Richard S Smith

List of Publications by Year in descending order

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126
papers

2,826
citations

186265

28
h-index

189892

50
g-index

126
all docs

126
docs citations

126
times ranked

986
citing authors

#	ARTICLE	IF	CITATIONS
1	Automatic conversion of magnetic data to depth, dip, and susceptibility contrast using the SPI (TM) method. <i>Geophysics</i> , 1997, 62, 807-813.	2.6	391
2	Tilt-depth method: A simple depth estimation method using first-order magnetic derivatives. <i>The Leading Edge</i> , 2007, 26, 1502-1505.	0.7	263
3	Interpretation of magnetic data using tilt-angle derivatives. <i>Geophysics</i> , 2008, 73, L1-L10.	2.6	218
4	iSPI TM the improved source parameter imaging method. <i>Geophysical Prospecting</i> , 1998, 46, 141-151.	1.9	124
5	Conductivity-depth imaging of airborne electromagnetic step-response data. <i>Geophysics</i> , 1991, 56, 102-114.	2.6	104
6	A comparison of data from airborne, semi-airborne, and ground electromagnetic systems. <i>Geophysics</i> , 2001, 66, 1379-1385.	2.6	82
7	Interpretation of magnetic data using an enhanced local wavenumber (ELW) method. <i>Geophysics</i> , 2005, 70, L7-L12.	2.6	76
8	A multimodel method for depth estimation from magnetic data. <i>Geophysics</i> , 2002, 67, 555-561.	2.6	61
9	Electromagnetic Induction Methods in Mining Geophysics from 2008 to 2012. <i>Surveys in Geophysics</i> , 2014, 35, 123-156.	4.6	61
10	Estimating depth and model type using the continuous wavelet transform of magnetic data. <i>Geophysics</i> , 2004, 69, 191-199.	2.6	60
11	A special circumstance of airborne induced-polarization measurements. <i>Geophysics</i> , 1996, 61, 66-73.	2.6	57
12	Using an induction coil sensor to indirectly measure the B-field response in the bandwidth of the transient electromagnetic method. <i>Geophysics</i> , 2000, 65, 1489-1494.	2.6	55
13	Depth and structural index from normalized local wavenumber of 2D magnetic anomalies. <i>Geophysical Prospecting</i> , 2005, 53, 83-89.	1.9	55
14	Metalliferous mining geophysics - State of the art after a decade in the new millennium. <i>Geophysics</i> , 2011, 76, W31-W50.	2.6	52
15	Inductive interaction between polarizable conductors: An explanation of a negative coincident-loop transient electromagnetic response. <i>Geophysics</i> , 1988, 53, 677-690.	2.6	45
16	An automatic technique for presentation of coincident-loop, impulse-response, transient, electromagnetic data. <i>Geophysics</i> , 1994, 59, 1542-1550.	2.6	41
17	The use of B-field measurements in an airborne time-domain system: Part I. Benefits of B-field versus $\frac{dB}{dt}$ data. <i>Exploration Geophysics</i> , 1998, 29, 24-29.	1.1	41
18	Imaging depth, structure, and susceptibility from magnetic data: The advanced source-parameter imaging method. <i>Geophysics</i> , 2005, 70, L31-L38.	2.6	41

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19	Support vector machine and artificial neural network modelling of orogenic gold prospectivity mapping in the Swayze greenstone belt, Ontario, Canada. <i>Ore Geology Reviews</i> , 2021, 130, 103968.	2.7	37
20	Resistiveâ€limit, timeâ€domain AEM apparent conductivity. <i>Geophysics</i> , 1996, 61, 93-99.	2.6	36
21	The usefulness of multicomponent, timeâ€domain airborne electromagnetic measurements. <i>Geophysics</i> , 1996, 61, 74-81.	2.6	36
22	On removing the primary field from fixed-wing time-domain airborne electromagnetic data: some consequences for quantitative modelling, estimating bird position and detecting perfect conductors. <i>Geophysical Prospecting</i> , 2001, 49, 405-416.	1.9	36
23	The moments of the impulse response: A new paradigm for the interpretation of transient electromagnetic data. <i>Geophysics</i> , 2002, 67, 1095-1103.	2.6	32
24	Application of Occam's inversion to airborne time-domain electromagnetics. <i>The Leading Edge</i> , 2009, 28, 284-287.	0.7	31
25	The Impulse-Response Moments of a Conductive Sphere in a Uniform Field, a Versatile and Efficient Electromagnetic Model. <i>Exploration Geophysics</i> , 2001, 32, 113-118.	1.1	30
26	Inversion of airborne timeâ€domain electromagnetic data to a 1D structure using lateral constraints. <i>Near Surface Geophysics</i> , 2009, 7, 63-71.	1.2	30
27	Field examples of negative coincidentâ€loop transient electromagnetic responses modeled with polarizable halfâ€planes. <i>Geophysics</i> , 1989, 54, 1491-1498.	2.6	28
28	Sferics noise reduction in time-domain electromagnetic systems: application to MegaTEM^{II} signal enhancement. <i>Exploration Geophysics</i> , 2010, 41, 225-239.	1.1	28
29	Application of a modified GEOTEMÂ® system to reconnaissance exploration for kimberlites in the Point Lake area, NWT, Canada. <i>Geophysics</i> , 1996, 61, 82-92.	2.6	25
30	Interpolation and gridding of aliased geophysical data using constrained anisotropic diffusion to enhance trends. <i>Geophysics</i> , 2005, 70, V121-V127.	2.6	25
31	Gridding aeromagnetic data using longitudinal and transverse horizontal gradients with the minimum curvature operator. <i>The Leading Edge</i> , 2005, 24, 142-145.	0.7	25
32	Tracking the Transmitting-Receiving Offset in Fixed-Wing Transient EM Systems: Methodology and Application. <i>Exploration Geophysics</i> , 2001, 32, 14-19.	1.1	22
33	Using airborne electromagnetics surveys to investigate the hydrogeology of an area near Nyborg, Denmark. <i>Near Surface Geophysics</i> , 2004, 2, 123-130.	1.2	21
34	On Archean craton growth and stabilisation: Insights from lithospheric resistivity structure of the Superior Province. <i>Earth and Planetary Science Letters</i> , 2021, 562, 116853.	4.4	21
35	The realizable resistive limit: A new concept for mapping geological features spanning a broad range of conductances. <i>Geophysics</i> , 2000, 65, 1124-1127.	2.6	20
36	Robust estimation of the bandâ€limited inductiveâ€limit response from impulseâ€response TEM measurements taken during the transmitter switchâ€off and the transmitter offâ€time: Theory and an example from Voiseyâ€s Bay, Labrador, Canada. <i>Geophysics</i> , 2000, 65, 476-481.	2.6	19

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37	An Explanation of Abnormal TEM Responses: Coincident-Loop Negatives, and the Loop Effect. <i>Exploration Geophysics</i> , 1988, 19, 435-446.	1.1	18
38	Case history of combined airborne time-domain electromagnetics and power-line field survey in Chibougamau, Canada. <i>Geophysics</i> , 2010, 75, B67-B72.	2.6	17
39	Supervised classification of down-hole physical properties measurements using neural network to predict the lithology. <i>Journal of Applied Geophysics</i> , 2016, 124, 17-26.	2.1	17
40	An enhanced method for source parameter imaging of magnetic data collected for mineral exploration. <i>Geophysical Prospecting</i> , 2005, 53, 655-665.	1.9	16
41	Case histories illustrating the characteristics of the HeliGEOTEM system. <i>Exploration Geophysics</i> , 2009, 40, 246-256.	1.1	16
42	Crustal-Scale Geology and Fault Geometry Along the Gold-Endowed Matheson Transect of the Abitibi Greenstone Belt. <i>Economic Geology</i> , 2021, 116, 1053-1072.	3.8	16
43	Sensitivity cross-sections in airborne electromagnetic methods using discrete conductors. <i>Exploration Geophysics</i> , 2012, 43, 95-103.	1.1	15
44	Geophysical Case Study of the Iso and New InSCO Deposits, Quebec, Canada, Part I: Data Comparison and Analysis. <i>Exploration and Mining Geology</i> , 2006, 15, 53-63.	0.5	14
45	A discrete conductor transformation of airborne electromagnetic data. <i>Near Surface Geophysics</i> , 2007, 5, 87-95.	1.2	13
46	Approximate apparent conductance (or conductivity) from the realizable moments of the impulse response. <i>Geophysics</i> , 2005, 70, G29-G32.	2.6	12
47	Magmatic, hydrothermal and ore element transfer processes of the southeastern Archean Superior Province implied from electrical resistivity structure. <i>Gondwana Research</i> , 2022, 105, 84-95.	6.0	12
48	Electromagnetic induction in an inhomogeneous conductive thin sheet. <i>Geophysics</i> , 1987, 52, 1677-1688.	2.6	11
49	Using the moments of a thick layer to map conductance and conductivity from airborne electromagnetic data. <i>Journal of Applied Geophysics</i> , 2002, 49, 173-183.	2.1	11
50	Geophysical Case Study of the Iso and New InSCO Deposits, Quebec, Canada, Part II: Modeling and Interpretation. <i>Exploration and Mining Geology</i> , 2006, 15, 65-74.	0.5	11
51	Using reversed polarity airborne transient electromagnetic data to map tailings around mine sites. <i>The Leading Edge</i> , 2008, 27, 1470-1478.	0.7	11
52	A comparison of airborne electromagnetic data with ground resistivity data over the Midwest deposit in the Athabasca basin. <i>Near Surface Geophysics</i> , 2011, 9, 319-330.	1.2	11
53	Structural complexity inferred from anisotropic resistivity: Example from airborne EM and compilation of historical resistivity/induced polarization data from the gold-rich Canadian Malartic district, Québec, Canada. <i>Geophysics</i> , 2019, 84, B153-B167.	2.6	11
54	Combining airborne electromagnetic data from alternating flight directions to form a virtual symmetric array. <i>Geophysics</i> , 2006, 71, G35-G41.	2.6	10

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55	Source location using total-field homogeneity: Introducing the SLUTH method for depth estimation. <i>The Leading Edge</i> , 2007, 26, 1272-1277.	0.7	10
56	Using constrained inversion of gravity and magnetic field to produce a 3D lithoâ€ prediction model. <i>Geophysical Prospecting</i> , 2017, 65, 1662-1679.	1.9	10
57	A new method for interpolating linear features in aeromagnetic data. <i>Geophysics</i> , 2019, 84, JM15-JM24.	2.6	10
58	Geophysical inversion contributions to mineral exploration: lessons from the Footprints project. <i>Canadian Journal of Earth Sciences</i> , 2019, 56, 525-543.	1.3	10
59	On the effect of varying the pulse width to detect high conductance bodies. <i>Exploration Geophysics</i> , 1998, 29, 42-45.	1.1	9
60	A multiple transmitter and receiver electromagnetic system for improved target detection. <i>Geophysics</i> , 2015, 80, E247-E255.	2.6	9
61	Impulsive moments at work. <i>ASEG Extended Abstracts</i> , 2003, 2003, 1-7.	0.1	9
62	How to make better use of physical properties in mineral exploration: The exploration site measurement. <i>The Leading Edge</i> , 2012, 31, 330-337.	0.7	8
63	Using spatial derivatives of electromagnetic data to map lateral conductance variations in thin-sheet models: Applications over mine tailings ponds. <i>Geophysics</i> , 2013, 78, E225-E235.	2.6	8
64	Clustering of downhole physical property measurements at the Victoria property, Sudbury for the purpose of extracting lithological information. <i>Journal of Applied Geophysics</i> , 2015, 118, 145-154.	2.1	8
65	Approximate semianalytical solutions for the electromagnetic response of a dipping-sphere interacting with conductive overburden. <i>Geophysics</i> , 2016, 81, E265-E277.	2.6	8
66	Using a non-integer moment of the impulse response to estimate the half-space conductivity. <i>Geophysical Prospecting</i> , 2003, 51, 443-446.	1.9	7
67	Limitations of Two Approximate Methods for Determining the AEM Bird Position in a Conductive Environment. <i>Exploration Geophysics</i> , 2005, 36, 365-373.	1.1	7
68	Quantifying the Effects That Changes in Transmitter-Receiver Geometry Have on the Capability of an Airborne Electromagnetic Survey System to Detect Good Conductors. <i>Exploration and Mining Geology</i> , 2006, 15, 43-52.	0.5	7
69	Qualitative geophysical interpretation of the Sudbury Structure. <i>Interpretation</i> , 2013, 1, T25-T43.	1.1	7
70	Geophysical Case Study of the Gallen Deposit, Quebec, Canada. <i>Exploration and Mining Geology</i> , 2007, 16, 67-81.	0.5	6
71	Detection of alteration at the Millennium uranium deposit in the Athabasca Basin: a comparison of data from two airborne electromagnetic systems with ground resistivity data. <i>Geophysical Prospecting</i> , 2010, 58, 1147-1158.	1.9	6
72	Precision requirements for specifying transmitter waveforms used for modelling the off-time electromagnetic response. <i>Exploration Geophysics</i> , 2013, 44, 1-5.	1.1	6

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73	Using combinations of spatial gradients to improve the detectability of buried conductors below or within conductive material. <i>Geophysics</i> , 2013, 78, E19-E31.	2.6	6
74	The ratio of B-field and $\frac{dB}{dt}$ time constants from time-domain electromagnetic data: a new tool for estimating size and conductivity of mineral deposits. <i>Exploration Geophysics</i> , 2013, 44, 238-244.	1.1	6
75	Decomposing the electromagnetic response of magnetic dipoles to determine the geometric parameters of a dipole conductor. <i>Exploration Geophysics</i> , 2016, 47, 13-23.	1.1	6
76	The impact of magnetic viscosity on time-domain electromagnetic data from iron oxide minerals embedded in rocks at Opemiska, Québec, Canada. <i>Geophysics</i> , 2017, 82, B165-B176.	2.6	6
77	A grid implementation of the SLUTH algorithm for visualising the depth and structural index of magnetic sources. <i>Computers and Geosciences</i> , 2012, 44, 100-108.	4.2	5
78	Survey design to maximize the volume of exploration of the InfiniTEM system when looking for discrete targets. <i>Journal of Applied Geophysics</i> , 2015, 115, 11-23.	2.1	5
79	Examining the controls on gold deposit distribution in the Swayze greenstone belt, Ontario, Canada, using multi-scale methods of spatial data analysis. <i>Ore Geology Reviews</i> , 2020, 125, 103671.	2.7	5
80	Evidence of magmatism and rifting in the southern superior craton from the Temagami geophysical anomaly. <i>Precambrian Research</i> , 2021, 362, 106310.	2.7	5
81	A New Regional Exploration Method for Detecting Hydrocarbon Alteration Plumes: the Altrex? Method. <i>Exploration Geophysics</i> , 1997, 28, 286-291.	1.1	4
82	Asymptotic Expansions for the Calculation of the Transient Electromagnetic Fields Induced by a Vertical Magnetic Dipole Source Above a Conductive Halfspace. <i>Pure and Applied Geophysics</i> , 2004, 161, 385-397.	1.9	4
83	Airborne EM measurements over the Shea Creek uranium prospect, Saskatchewan, Canada. , 2006, , .		4
84	HTEM noise frequency characteristics simulation and influencing analysis. , 2015, , .		4
85	The Total Component (or vector magnitude) and the Energy Envelope as tools to interpret airborne electromagnetic data: A comparative study. <i>Journal of Applied Geophysics</i> , 2015, 121, 116-127.	2.1	4
86	To "The moments of the impulse response: A new paradigm for the interpretation of transient electromagnetic data" (Richard S. Smith and Terry J. Lee, <i>GÉOPHYSICS</i> , 67, 1095-1103).. <i>Geophysics</i> , 2003, 68, 409-409.	2.6	4
87	Transformation of magnetic data to the pole and vertical dip and a related apparent susceptibility transform: Exact and approximate approaches. <i>Geophysics</i> , 2022, 87, G1-G14.	2.6	4
88	Combining spatial components and Hilbert transforms to interpret ground-time-domain electromagnetic data. <i>Geophysics</i> , 2015, 80, E237-E246.	2.6	3
89	Benefits of using multi-component transmitter "receiver systems for determining geometrical parameters of a dipole conductor from single-line anomalies. <i>Exploration Geophysics</i> , 2016, 47, 1-12.	1.1	3
90	An airborne electromagnetic system with a three-component transmitter and three-component receiver capable of detecting extremely conductive bodies. <i>Geophysics</i> , 2018, 83, E347-E356.	2.6	3

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91	Estimating overburden thickness in resistive areas from two-component airborne EM data. , 2018, , .		3
92	Imaging the depth, structure and susceptibility from magnetic data: the advanced source parameter imaging method. , 2004, , .		2
93	Automation of the SLUTH method: a novel approach to airborne magnetic data interpretation. Near Surface Geophysics, 2010, 8, 519-528.	1.2	2
94	Tools used in mineral exploration for measuring the conductivity and the resistivity in drillholes and on drill core: observations on their range of sensitivity. Exploration Geophysics, 2016, 47, 315-322.	1.1	2
95	On the time decay constant of AEM systems: a semi-heuristic algorithm to validate calculations.. Exploration Geophysics, 2020, 51, 94-107.	1.1	2
96	Multiple-order moments of the transient electromagnetic response of a one-dimensional earth with finite conductance " theory. Exploration Geophysics, 2021, 52, 1-15.	1.1	2
97	Multiple-order moments of the transient electromagnetic response of a one-dimensional earth with finite conductance " the Gaussian variation applied to a field example. Exploration Geophysics, 0, , 1-13.	1.1	2
98	Clustering of down-hole physical properties measurement to characterize rock units at the Victoria Cu-Ni property. , 2014, , .		2
99	Generalized magnetic tilt-Euler deconvolution. , 2007, , .		1
100	Mapping lateral changes in conductance of a thin sheet using time-domain inductive electromagnetic data. Geophysics, 2014, 79, E1-E10.	2.6	1
101	A new method for aeromagnetic data interpolation with a focus on linear features. , 2016, , .		1
102	Induced-polarization effects in airborne electromagnetic data: Estimating chargeability from shape reversals. , 2016, , .		1
103	Ground resistivity method and DCIP2D forward and inversion modelling to identify alteration at the Midwest uranium deposit, northern Saskatchewan, Canada. Exploration Geophysics, 2017, 48, 383-393.	1.1	1
104	Using spatial gradients of electromagnetic data to map lateral variations in mine tailings. , 2012, , .		1
105	A multiple transmitter and receiver electromagnetic system for improved target detection. , 2014, , .		1
106	Using realizable moments of the impulse response to estimate the approximate apparent conductance or apparent conductivity of the ground. , 2004, , .		1
107	Combining airborne electromagnetic data from alternate flight directions to improve data interpretability: the virtual symmetric array. , 2004, , .		1
108	An analysis of geophysical and geological data from the Gallen test site, Quebec, Canada. , 2006, , .		1

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109	Automation of the SLUTH method for deriving depth and location of magnetic sources. , 2009, , .		1
110	Active and Passive Seismic Imaging of the Central Abitibi Greenstone Belt, Larder Lake, Ontario. Journal of Geophysical Research: Solid Earth, 2022, 127, .	3.4	1
111	An experiment to compare airborne, semi-airborne and ground electromagnetic systems. , 2000, , .		0
112	The moments of the impulse response, a new paradigm for the interpretation of transient electromagnetic data. , 2002, , .		0
113	A discrete conductor transformation of airborne electromagnetic data. , 2006, , .		0
114	Mapping tailings around mine sites with reverse polarity airborne transient EM data. , 2008, , .		0
115	Conductance estimates from spatial and temporal derivatives of borehole electromagnetic data. , 2014, , .		0
116	Robust conductance estimates from spatial and temporal derivatives of borehole electromagnetic data. Geophysics, 2014, 79, E115-E123.	2.6	0
117	Inductive electromagnetic data interpretation using a 3D distribution of 3D magnetic or electric dipoles. Geophysics, 2017, 82, E187-E195.	2.6	0
118	Applications of machine learning to the spatial interpolation of aeromagnetic data. , 2019, , .		0
119	Modelling the airborne electromagnetic response of a sphere beneath conductive overburden. , 2019, , .		0
120	Estimating the parameters of simple models from two-component on-time airborne electromagnetic data. Geophysics, 2022, 87, JM15-JM27.	2.6	0
121	Using airborne EM surveys to investigate the hydrogeology of an area near Nyborg, Denmark. , 2004, , .		0
122	An analysis of geophysical and geological data from the Iso/New InSCO test site, Quebec, Canada. , 2006, , .		0
123	Qualitative geophysical interpretation of the Sudbury structure. , 2012, , .		0
124	Multiple-order moments of the transient electromagnetic response of a one-dimensional earth with finite conductance – An example. , 2020, , .		0
125	Forward modeling and 3D inversion of electromagnetic data collected over the McArthur River uranium deposit in the Athabasca Basin, Canada. Geophysics, 2022, 87, B129-B143.	2.6	0
126	Open-source software for two-dimensional Fourier processing of gridded magnetic data. The Leading Edge, 2022, 41, 454-461.	0.7	0