

CURRICULUM VITAE

1961 - 2016

1. Name: John F. Hermance (Jack)
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2. Home Address: 75 Ash Street
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3. Education:

BSc (Physics) SUNY, New Paltz, NY, 1961
MSc (Physics) Syracuse University, 1964
Ph.D. (Physics) University of Toronto, 1967

4. Professional Appointments:

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| Post-Doctoral Fellow | University of Toronto 1967 |
| Research Associate | M.I.T. 1967-1968 |
| Assistant Professor | Brown University 1968-1972 |
| Associate Professor | Brown University 1972-1981 |
| Visiting Faculty Fellow | Research Division Phillips Petroleum Co. 1974 (Fall) |
| Visiting Senior Research Associate | Lamont-Doherty Geological Observatory, Columbia University 1975-1977 |
| Senior Geophysicist | U.S. Hydrologic, Inc. 1994 - 1996 |
| Senior Geophysicist | Conrad Geoscience, Corp. 1998 - 2008 |
| Professor | Brown University 1982 - present |

5. Completed Research:

5A. Publications (peer-reviewed):

1. Hermance, J. F. and Wessel, G. 1965, Ruby as potential material for submillimeter maser: Proc. IEEE, 73, 400.
2. Hermance, J. F. and Garland, G. D., 1968, Deep electrical structure under Iceland: J. Geophys. Res., 73, 3797-3800.
3. Hermance, J. F., 1968, Model Studies of the coast effect on geomagnetic variations: Can. J. Earth Sci., 5, 515.
4. Hermance, J. F., and Garland, G. D., 1968, Magnetotelluric deep-sounding experiments in Iceland: Earth and Planet. Sci. Letters, 4, 469.
5. Hermance, J. F., 1969, Resolution of ocean-floor magnetotelluric data: J. Geophys. Res., 74, 5527.
6. Hermance, J. F. and Peltier, W. R., 1970, Magnetotelluric fields of a line current: J. Geophys. Res., 75, 3351.
7. Hermance, J. F. and Grillot, L. R., 1970, Correlation of magnetotelluric, seismic and temperature data from Southwest Iceland: J. Geophys. Res., 75, 6582.

8. Hermance, J. F., 1970, Application of electromagnetic surface waves to studying the dielectric properties of glacier ice in-situ: Proc. of Internat. Radioglaciological Conference, P. Gudmandson (ed.), Tech. Univ. of Denmark, Lyngby.
9. Hermance, J. F., 1971, Magnetotelluric and geomagnetic deep-sounding: IUGG Quadrennial Report, EOS, 52, 213-216.
10. Peltier, W. R. and Hermance, J. F., 1971, Magnetotelluric fields of a gaussian electrojet: Can. J. Earth Sci., 8, 338-346.
11. Hermance, J. F., A. Nur and S. Bjornsson, 1972, Electrical properties of basalt: Relation of laboratory to in-situ measurements, J. Geophys. Res., 77, 1424-1429.
12. Hermance, J. F., 1972, Discussion on "Geomagnetic effects of sloping and shelving discontinuities of earth conductivity" by F. Walter Jones and A. T. Price, Geophysics, 37, 540-541.
13. Hermance, J. F., 1973, An electrical model for the Sub-Icelandic crust, Geophysics, 38, 3-13.
14. Hermance, J. F., 1973, Processing of magnetotelluric data, Phys. Earth Planet. Interiors, 7, 349-364.
15. Hermance, J. F. and L. R. Grillo, 1974, Constraints on temperature beneath Iceland from magnetotelluric data, Phys. Earth Planet. Interiors, 8, 1-12.
16. Nopper, R. W. Jr. and J. F. Hermance, 1974, Phase relations between polar magnetic substorm fields at the surface of a finitely conducting earth, J. Geophys. Res., 79, 4799-4801.
17. Hermance, J. F. and R. E. Thayer, 1975, The telluric-magnetotelluric method, Geophysics, 40, 664-668.
18. Colp, J. L., R. W. Decker, J. F. Hermance, D. L. Peck, and P. L. Ward, Magma Workshop Assessments and Recommendations, Sandia Laboratories, Albuquerque, NM, 1975.
19. Colp, J. L., R. W. Decker, J. F. Hermance, D. L. Peck, and P. L. Ward, 1975, Magma Assessed, Geotimes, 20, #8, 27.
20. Hermance, J. F., R. E. Thayer, and A. Bjornsson, 1976, The telluric-magnetotelluric method in the regional assessment of geothermal potential, Proceed. Second U. N. Symposium on the Development and use of Geothermal Resources, 2, 1037-1048, Stock No. UG0-000-00005-1, Supt. Documents, U. S. Government Printing Office, Washington, DC 20402.
21. Hermance, J. F., 1976, Natural electromagnetic exploration methods, Report of the panel on exploration methods for hot dry rock, summary papers on a meeting held at Los Alamos Scientific Laboratories, June 22, 1976.
22. Hermance, J. F., D. W. Forsyth, and J. L. Colp, 1977, A Critical Assessment of Geophysical Sensing Experiments on Kilauea Iki Lava Lake, Report on cooperative geophysical experiment undertaken by Sandia, USGS, MIT, U. of Texas, Columbia U., Brown U.; Magma Energy Program, Sandia Laboratories, Albuquerque, NM.
23. Hermance, J. F., 1977, Induction of Natural Electromagnetic Fields in Three Dimensional Curved Structures: A Finite Difference Approach, Final Report on Sandia Laboratory Contract No. 02-7930 to Lamont-Doherty Geological Observatory, Columbia University, Palisades, NY.
24. Hermance, J. F., 1978, Electromagnetic induction by moving ionospheric current systems, Geophys. J., 55, 557.
25. Thayer, R. E. and J. F. Hermance, 1979, Cross-correlation estimates of telluric and magnetotelluric parameters, PAGEOPH, 117, 743-760.
26. Hermance, J. F., 1979, The electrical conductivity of materials containing partial melt: A simple model from Archie's Law, Geophys. Res. Letters, 6, 613-616.

27. Hermance, J. F., 1979, Toward assessing the geothermal potential of the Jemez Mountains Volcanic Complex: A telluric-magnetotelluric survey, 86p., LA-7656-MS, Los Alamos Scientific Laboratory, NM 87545.
28. Hermance, J. F. and J. Pedersen, 1980, The deep structure of the Rio Grande Rift: A magnetotelluric study, J. Geophys. Res., **85**, 3899-3912.
29. Pedersen, J. and J. F. Hermance, 1981, Deep electrical structure of the Colorado Plateau as determined from magnetotelluric measurements, J. Geophys. Res., **86**, 1849-1857.
30. Thayer, R. E., A. Bjornsson, L. J. Alvarez and J. F. Hermance, 1981, Magma genesis and crustal spreading in the northern neo-volcanic zone of Iceland: Telluric-magneto-telluric constraints, Geophys. J., **65**, 423-442.
31. Hermance, J. F., 1981, Crustal genesis in Iceland: Geophysical constraints on crustal thickening with age, Geophys. Res. Letters, **8**, 203-206.
32. Hermance, J. F., 1981, Gravity compensation beneath the neovolcanic zone of Iceland, Earth and Planet. Sci. Letters, **54**, 157-166.
33. Hermance, J. F., 1982, Regionalization of global electromagnetic induction data: A theoretical model, Phys. of the Earth and Planet. Interiors, **27**, 159-163.
34. Hermance, J. F., 1982, Magnetotelluric and geomagnetic deep sounding studies in rifts and adjacent area: Constraints on physical processes in the crust and upper mantle, Special Volume on Continental and Ocean Rifts, **8**, 169-192, International Commission on Geodynamics, AGU.
35. Hermance, J. F., 1982, Refined finite-difference simulations using local integral forms: Application to telluric fields in two-dimensions, Geophysics, **47**, 825-831.
36. Hermance, J. F. and J. L. Colp, 1982, Kilauea Iki Lava Lake: Geophysical constraints on present (1980) physical state, J. Volcanology and Geothermal Research, **13**, 31-61.
37. Hermance, J. F., 1982, The asymptotic response of basin offsets to magnetotelluric fields at long periods: The effects of current channeling, Geophysics, **47**, 1562-1573.
38. Hermance, J. F., 1982, Are there electromagnetic induction effects in MAGSAT data? Some model simulations, Geophys. Res. Letters, **9**, 373-376.
39. Hermance, J. F., 1983, DC Telluric fields in three-dimensions: A refined finite difference simulation using local integral forms, Geophysics, **48**, 331-340.
40. Ricard, Y., C. Froidevaux, and J.F. Hermance, 1983, Model heat flow and magnetotellurics for the San Andreas and oceanic transform faults, Annales Geophys., **1**, No. 1, 47-52.
41. Hermance, J.F., 1983, Electromagnetic Induction Studies, IUGG Quadrennial Report, Rev. Geophys. and Space Phys., **21**, 652-664.
42. Hermance, J.F., 1983, The Long Valley/Mono Basin volcanic complex in eastern California; Status of present knowledge and future research needs, Rev. Geophys. and Space Phys., **21**, 1545-1565.
43. Hermance, J.F., 1984, Electromagnetic induction by finite wavenumber source fields in 2-D lateral heterogeneities; the transverse electric mode, Geophys. J., **78**, 159-179.
44. Hermance, J.F., 1984, Understanding thermal energy and mass transport in major volcanic centers, EOS, **65**, 410-411.
45. Hermance, J.F., Chairman, Thermal Regimes Panel, 1984, A National Drilling Program to Study the Roots of Active Hydrothermal Systems Related to Young Magmatic Intrusions, National Academy Press, Washington, DC.

46. Hermance, J.F., W. Slocum, G.A. Neumann, 1984, The Long Valley/Mono Basin Volcanic complex; A preliminary magnetotelluric and magnetic variation interpretation, Jour. Geophys. Res., 89, 8325-8338.
47. Eysteinsson, H. and J.F. Hermance, 1985, Magnetotelluric measurements across the eastern neovolcanic zone in south Iceland, Jour. Geophys. Res., 90, 10,093-10,103.
48. Hermance, J.F., 1985, Characterizing Thermal Energy and Mass Transport in Volcanic Caldera Complexes; The Role of Scientific Drilling, Observation of the Continental Crust Through Drilling, (ed. by C.B. Raleigh) Springer-Verlag, 68-87.
49. Hermance, J.F., W. Slocum, and G.A. Neumann, 1985, The Long Valley/Mono Craters volcanic complex; A preliminary interpretation based on telluric field patterns, in Proceedings of Workshop XIX; Active tectonic and magmatic processes beneath Long Valley Caldera, eastern California; Volumes I and II, edited by D.P. Hill, R.A. Bailey, and A.S. Ryall, U.S. Geological Survey, Open-File Report 84-0939, 952 p.
50. Neumann, G.A. and J. F. Hermance, 1985, The geomagnetic coast effect in the Pacific Northwest of North America, Geophys. Res. Lett., 12, 502-505.
51. Hermance, J.F., 1986, Review of Rio Grande Rift: Northern New Mexico, by W.S. Baldrige, P.W. Dickerson, R.E. Riecker, and J. Zidek, EOS, 67, 158-159.
52. Hermance, J.F. and R. Karlsdottir, 1986, The major boundary faults in Eastern Long Valley Caldera; Magnetotelluric and gravity constraints, Geophys. Res. Lett., 13, 479-482.
53. Keshet, Y. and J.F. Hermance, 1986, A new regional electrical model for the southern section of the Rio Grande Rift and the adjacent Basin and Range and Great Plains, Jour. Geophys. Res., 91, 6359-6366.
54. Pedersen, J. and J. F. Hermance, 1986, Least squares inversion of one-dimensional magnetotelluric data: An assessment of procedures employed by Brown University, Surveys in Geophysics, 8, 187-231.
55. Rossen, M. L. and J.F. Hermance, 1987, Polynomial smoothing of quiet time magnetic field variations for an irregularly spaced array of sites, Pure and Appl. Geophysics, 125, 41-65.
56. Hermance, J.F. and G.A. Neumann, 1988, Evidence for multiple boundary faults beneath the northwest moat of Long Valley Caldera: Magnetotelluric results, Geophys. Res. Lett., 15, 1437-1440.
57. Hermance, J.F., G.A. Neumann, and W. Slocum, 1988, The regional subsurface structure of Long Valley (California) caldera fill from gravity and magnetotelluric data, Geol. Soc. Amer. Bull., 100, 1819-1823.
58. Hermance, J.F., S. Lusi, W. Slocum, G.A. Neumann, and A.W. Green, Jr., 1989, A high density remote reference magnetic variation profile in the Pacific Northwest of North America, Phys. Earth Planet. Int., 53, 305-319.
59. Hermance, J.F., 1989, The future of geomagnetics research and development in the military and civilian sectors: The impact of new technologies, EOS, Transactions of the American Geophysical Union, May 30, 1989, 626.
60. Hermance, J.F., 1989, The Magnetotelluric Method: Fundamental Considerations, Encyclopedia of Geophysics, David James (ed.), Van Nostrand Reinhold Co., New York, 746 - 770.
61. Hermance, J.F. and G.A. Neumann, 1990, Magnetic variations in the reconnaissance of sedimentary basins: Field procedure and generalized inversion of short period data from the Rio Grande Rift, Geophysics, 55, 1567-1576.

62. Hermance, J.F. and G.A. Neumann, 1990, The Rio Grande Rift: New electromagnetic constraints on the Socorro magma body, Physics of the Earth and Planetary Interiors, **66**, 101-117.
63. Hermance, J.F. (Task Group Chairman), 1990, The Dynamic Global Magnetic Environment: Challenges and opportunities for research, Report to the U. S. Geodynamics Committee from the Task Group for Mobilizing the National Geomagnetic Initiative.
64. Hermance, J.F. and W. Wang, 1992, "Mode-blind" estimates of deep earth resistivity, J. Geomag. Geoelectr., **44**, 373-389.
65. Hermance, J.F., 1993, Application of Geophysics to the Environmental Site Assessment of an Inactive Industrial Site, Site: 08/93C, Survey Report, Brown University, October 7.
66. Hermance, J.F., 1994, The National Geomagnetic Initiative, National Research Council of the National Academy of Sciences.
67. Hermance, J.F., 1994 (with John Conrad), Ground Penetrating Radar Study, Naval Weapons Industrial Reserve Plant, Calverton, Long Island, NY, Survey Report to NUS Halliburton, Brown University, June 22.
68. Hermance, J.F., 1994, Use of Ground Penetrating Radar (GPR) for a Preliminary Assessment of Subsurface Conditions at the Town of Beekman Highway Garage Property, Poughquag Hamlet, Dutchess County, NY, Survey Report to U.S. Hydrogeologic, Inc., Brown University, June 22.
69. Hermance, J.F., 1994, Application of Geophysics to the Environmental Assessment of Site: 02/94B; [U.S. Hydrogeologic: Millerton/Northeast], Survey Report to U.S. Hydrogeologic, Inc., Brown University, March 14.
70. Hermance, J.F., 1994, A Set of "Calibration" Measurements to Determine the Effectiveness of Geophysical/Electrical Methods for Delineating Contaminant Transport in the Poughquag Area, Survey Report to U.S. Hydrogeologic, Inc., Brown University, July.
71. Hermance, J.F., 1994, Electrical Conductivity Models of the Crust and Mantle, Handbook of Physical Constants, T. Ahrens (ed.), American Geophysical Union.
72. Hermance, J.F., 1996, Water Wars, Earth in the Classroom, #2, Summer, Byrd & Block Communicationns, Inc.
73. Hermance, J.F., 1999, A Mathematical Primer on Groundwater Flow, Prentice Hall, Inc., 240 pp.
74. Hermance, J. F., 2001, Ground Penetrating Radar: Post-Migration Stacking of N-Fold Common Mid Point Profile Data, Geophysics, **66**, 379-388.
75. Bohidar, Rabi N., Jeffrey P. Sullivan, and John F. Hermance, 2001, Delineating Depth to Bedrock beneath Shallow Unconfined Aquifers: A Gravity Transect across the Palmer River Basin, Ground Water, **39**, Number 5, September/October, 729-736.
76. Hermance, J. F. and R. N. Bohidar, 2002a, Introduction to the GPR Refraction Method, SAGEEP 2002 Proceedings.
77. Hermance, J. F. and R. N. Bohidar, 2002b, Better Time Picks = Better Traveltimes = Better Velocities; Progress in Developing Public Domain Software, Proceedings of the 9th Symposium on Ground penetrating Radar (GPR 2002), University of California, Santa Barbara (UCSB), Extended Abstract.
78. Bohidar, R. N., and J. F. Hermance, 2002, The GPR Refraction Method, Geophysics, Volume 67, Issue 5, September-October, pp. 1474-1485.
79. Hermance, J. F., R. N. Bohidar and R. W. Jacob, 2002, Facilitating the Interpretation of GPR Refraction Data for Stratigraphic Analysis (Extended Abstract), Society of Exploration

- Geophysicists Annual Meeting Technical Program Abstracts with Biographies. 72; 1424-1427.
80. Jacob, Robert W., and John F. Hermance, 2003, Precision GPR Velocities: Ultimate Expectations Under Ideal Conditions (Extended Abstract), SAGEEP 2003 Conference Proceedings, Environ. & Engin. Geoph. Soc.
 81. Jacob, Robert W. and John F. Hermance, 2004, Precision GPR Measurements: Assessing and Compensating for Instrument Drift (Extended Abstract), GPR2004, 10th International Conference on GPR, Delft, Netherlands.
 82. Jacob, R.W. and Hermance, J.F., 2004, Assessing the precision of GPR velocity and vertical two-way travel time estimates, Journal of Environmental and Engineering Geophysics, 9 (3): 143-153.
 83. Jacob, R.W. and Hermance, J.F., 2005, Random and non-random uncertainties in precision GPR measurements: Identifying and compensating for instrument drift. Subsurface Sensing Technologies and Applications Journal 6 (1): 59-71.
 84. Bradley, Bethany, Robert Jacob, John F. Hermance and John Mustard, 2007, A curve fitting procedure to derive inter-annual phenologies from time series of noisy satellite NDVI data; Remote Sensing of Environment, Vol. 106, Issue 2, pp. 137-145.
 85. Hermance, John F., 2007, Stabilizing High-Order, Non-Classical Harmonic Analysis of NDVI Data for Average Annual Models by Damping Model Roughness, International Journal of Remote Sensing, Vol. 28, No. 12, pp. 2801-281.
 86. Hermance, John F., Robert W. Jacob, Bethany A. Bradley and John F. Mustard, 2007, Extracting Phenological Signals from Multi-Year AVHRR NDVI Time Series: Framework for Applying High-Order Annual Splines with Roughness Damping; IEEE Transactions of Geoscience and Remote Sensing, , Vol. 45, No. 10, pp. 3264-3276.
 87. Hermance, J. F., 2009, Among the Few and Proud: The Palmer River, too, has a New Stream Gage. The Rehoboth Reporter, p.29, April.
 88. Hermance, John F., 2009, Global change, science and media. Can we do a better job communicating? Byrd & Block Comm., Inc. Electronic publication, Aug 13. 2009.
@ url: <http://www.earthsky.com>.
 89. Jacob, Robert W., John F. Hermance, and Jan van der Kruk, 2010, GPR Reflection and Dispersion Analysis Methods for Water Content: Multi-year study of GPR estimates and soil core measurements of water content (Extended Abstract), PR_197, GPR2010, 16th International Conference on GPR.
 90. Hermance, John F., Robert W. Jacob and Rabi N. Bohidar, 2010, Composite Moveout Correction to a Shallow Mixed Reflection/Refraction GPR Phase, Soc Explor Geophys Special Volume; Chapt. 26, Rick Miller (Editor).
 91. Hermance, John F., 2011, Magnetotelluric Interpretation (Invited article), Encyclopedia of Solid Earth Geophysics, Harsh Gupta (Editor), Vol. 2, p 1822-1829, Encyclopedia of Earth Science Series, Springer.
 92. Hermance, J. F., and H. M. Sulieman. 2013. Comparing Satellite RFE Data with Surface Gauges for 2012 Extreme Storms in African East Sahel. Remote Sensing Letters 4 (7): 696–705.
 93. Hermance, J. F. 2014. Historical Variability of Rainfall in the African East Sahel of Sudan. Springer Briefs in Earth Sciences. London: Springer. doi:10.1007/978-3-319-00575-1_2.

94. Hermance, John F. and Hussein M. Sulieman, 2014, Assessing daily and seasonal satellite rainfall estimates using local gauges for the anomalous 2012 monsoon season in the African East Sahel, International Journal of Remote Sensing, 35:1, 253-288, DOI: 0.1080/01431161.2013.866294
95. Hermance, John F., David J. Augustine, and Justin D. Derner. 2015. Quantifying characteristic growth dynamics in a semi-arid grassland ecosystem by predicting short-term NDVI phenology from daily rainfall: a simple four parameter coupled-reservoir model. International Journal of Remote Sensing 36 (22):5637-63. DOI: 10.1080/01431161.2015.1103916.
96. Hermance, John F., 2016. "Time to protect the water wells of Rehoboth?" The Rehoboth Reporter (June) 28 (6): 6.
97. Hermance, John F., Hussein M. Sulieman, and Abdel G. Mustafa. 2016. "Predicting intra-seasonal fluctuations of NDVI phenology from daily rainfall in the East Sahel: a simple linear reservoir model." International Journal of Remote Sensing 37 (14):3293-3321. doi: 10.1080/01431161.2016.1196841.

5B. Selected presentations at scientific meetings (1967 - present):

1. Hermance, J. F. and Garland, G. D., 1967, Auroral zone geomagnetic variations in Iceland (Abstract): Trans. Amer. Geophys. U., 48, #1.
2. Hermance, J. F. and Garland, G. D., 1968, Deep electrical structure under Iceland (Abstract): Trans. Amer. Geophys. U., 49, p. 330.
3. Hermance, J. F. and Grillot, L. R., 1970, Geophysical implications of magnetotelluric measurements on Iceland (Abstract): Trans. Amer. Geophys. U., 51, p. 426.
4. Hermance, J. F., 1972, An electrical model for the Sub-Icelandic crust, Proceed. of Symposium on Electrical Properties of Rocks, Paper presented at the University of Utah.
5. Hermance, J. F., 1972, The analysis of magnetotelluric data, Invited paper presented at the Workshop on Electromagnetic Induction, University Edinburgh, Scotland.
6. Hermance, J. F. and L. R. Grillot, 1972, The Sub-Icelandic geotherm (Abstract), EOS, Trans. AGU, 53, p. 734.
7. Thayer, R. E. and J. F. Hermance, 1972, Magnetic and telluric field observations on San Miguel, Azores (Abstract), EOS, Trans. AGU, 53, p. 362.
8. Hermance, J. F., 1973, Regional aspects of the geothermal resource base in N. W. Mexico and the S. W. United States: Contributed paper presented at Annual Meeting of SEG, Mexico City, October, 1973.
9. Thayer, R. F., A. Bjornsson, and J. F. Hermance, 1974, A regional telluric-magnetotelluric traverse in northern Iceland, EOS, Trans. AGU, 55, p. 227.
10. Hermance, J. F. and R. E. Thayer, 1974, Strategy for procuring magnetotelluric deep-sounding data. Paper presented at IAGA Second Workshop on Electromagnetic Induction in the Earth, Ottawa, Canada.
11. Hermance, J. F., R. E. Thayer, and A. Bjornsson, 1974, Toward estimating a regional geothermal resource base for Iceland: A status report. Contributed paper presented at Annual Meeting of SEG, Dallas, Texas, November 1974.
12. Hermance, J. F., R. E. Thayer and A. Bjornsson, 1975, The telluric-magnetotelluric method in the regional assessment of geothermal potential, U. N. Symposium on Geothermal Energy, San Francisco, May 1975.

13. Hermance, J. F., 1975, The Telluric-Magnetotelluric Method: Separating near surface inhomogeneities from deep-seated geothermal anomalies (Abstract), Annual Meeting, Society of Exploration Geophysicists, Denver, Colorado, October 1975.
14. Hermance, J. F. and J. Pedersen, 1976, Three-dimensional model simulation for natural electromagnetic data (Abstract), EOS, Trans. AGU, 57, p. 1013.
15. Pedersen, J. and J. F. Hermance, 1976, Towards resolving the absence or presence of an active magma chamber under the southern Rio Grande Rift Zone (Abstract), EOS, Trans. AGU, 57, p. 1014.
16. Hermance, J. F., 1977, Status of cooperative geophysical sensing experiment on Kilauea Iki Lava Lake, invited presentation to Executive Panel Meeting, ERDA Division of Geothermal Energy, Feb. 15-16, 1977; China Lake, California.
17. Hermance, J. F., 1977, The need for refined laboratory measurements on the electrical properties of representative geologic materials, invited presentation, Petrophysical properties of geological materials in the geothermal environment, Oct. 24-26, 1977; USGS, Denver, CO.
18. Hermance, J. F., 1978, Electromagnetic induction in the earth by moving ionospheric current systems: EOS, 59, 266.
19. Pedersen, J. and J. F. Hermance, 1978, Evidence for molten material at shallow to intermediate crustal levels beneath the Rio Grande Rift at Sante Fe: EOS, 59, 390.
20. Hermance, J. F., 1979, Seismic-Q, electrical conductivity and global models of the asthenosphere (Abstract): EOS, 60, 242.
21. Hermance, J. F., D. W. Forsyth, and J. C. Colp, 1979, Summary of geophysical sensing experiments on Kilauea Iki Lava Lake (Abstract): Hawaii Symposium on Intraplate Volcanism and Submarine Volcanism, Hilo, Hawaii.
22. Hermance, J. F., Magnetotelluric measurements in rifts and adjacent areas (Abstract): 1979, Hawaii Symposium on Intraplate Volcanism and Submarine Volcanism, Hilo, Hawaii.
23. Hermance, J. F., 1979, Regionalization of global electromagnetic induction data, IUGG General Assembly, Canberra, Australia.
24. Alvarez, L. J. and J. F. Hermance, 1980, Magnetotelluric sounding and magnetic profiling in the Imperial Valley in southern California (Abstract), EOS, 61, 225.
25. Hermance, J. F., 1980, The neovolcanic zone in Iceland: An in-situ model for the genesis of an ophiolite series (Abstract), EOS, 61, 406.
26. Hermance, J. F., 1981, Deep electromagnetic studies on land: Problems and prospects (abstract of invited paper), EOS, 62, 265.
27. Hermance, J. F., 1981, Finite source fields coupled to lateral conductivity heterogeneities: Effect on magnetotelluric and magnetic gradiometric sounding experiments (Abstract), Programme and Abstracts, Fourth IAGA Scientific Assembly, edited by N. Fukushima, p. 566, IUGG Publ. Office, Paris, France.
28. Hermance, J. F., 1982, Theoretical models and field studies of current channeling effects on magnetotelluric data (Abstract), Sixth Workshop on Electromagnetic Induction in the Earth and Moon, Working Group I-3, IAGA, University of Victoria, Victoria, British Columbia, Canada.
29. Hermance, J.F., 1982, Where is all the magma beneath the major silicic centers? (Abstract), EOS, 63, No. 45, 1133.

30. Neumann, G.A., W. Slocum, H. Eysteinnsson, and J.F. Hermance, 1982, The possibility of magmatic intrusion beneath the southwestern moat of Long Valley caldera: A preliminary magnetotelluric survey (Abstract), *EOS*, 63, No. 45, 1133.
31. Hermance, J.F., 1983, The Long Valley/Mono Basin volcanic complex; A rationale for a program of intermediate depth scientific drilling (Abstract), GSA, Salt Lake City.
32. Hermance, J.F. and M. Rossen, 1983, Global induction Studies using MAGSAT data (Abstract), IUGG General Assembly, Hamburg, Germany.
33. Eysteinnsson, H., J.F. Hermance, 1983, Magnetotelluric measurements across the eastern neovolcanic zone in south Iceland (Abstract), IUGG General Assembly, Hamburg, Germany.
34. Hermance, J.F., W. Slocum, G.A. Neumann, 1983, The Long Valley/Mono Basin volcanic complex: Status of present magnetotelluric investigations (Abstract), *EOS*, 64, 890.
35. Keish, Y., J.F. Hermance, 1983, A new regional electrical model for the Rio Grande Rift, Colorado Plateau and High Plains (Abstract), *EOS*, 64, 752.
36. Hermance, J.F., 1984, Electromagnetic induction effects on magnetic surveys from transient external sources, Keynote Presentation, Workshop on Geomagnetic Properties of Continental Margins, Sponsored by Office of Naval Research, April.
37. Hermance, J.F., 1984, Magnetotelluric studies in Long Valley Caldera, USGS Redbook Conference on Potential Volcanic Hazards in Long Valley Caldera, Napa Valley, January.
38. Hermance, J.F., 1984, Characterizing structural features in Long Valley Caldera through electromagnetic, gravity, and reflection seismic measurements, LBL Workshop on Geophysical Methods to study Long Valley Caldera.
39. Hermance, J.F., 1984, Characterizing thermal energy and mass transport in volcanic caldera complexes; The role of scientific drilling, International Symposium on Deep Observation and Sampling of the Continental Crust through Drilling, Tarrytown, NY, May.
40. Neumann, G.A. and J.F. Hermance, 1985, Control of magnetic induction parameters by the tectonic fabric of the Long Valley/Eastern Sierra Front, *EOS*, 66, 392.
41. Hermance, J.F., G.A. Neumann, W. Slocum, S. Lusi, W. Peaton and A. Ochadlick, 1985, External source and induced field effects on airborne magnetic surveys, *EOS*, 66, November 12.
42. Hermance, J.F., 1986, Status of Efficient 3-D modeling algorithms developed by Brown University (Abstract), VIII Workshop on Electromagnetic Induction, Neuchatel, Switzerland.
43. Neumann, G.A., and J.F. Hermance, 1987, Smooth two-dimensional maximum likelihood inversion of magnetic variation data (Abstract), AGU Spring Meeting, Baltimore, Maryland.
44. Hermance, J.F., S.R. Lusi, W.M. Slocum, and G.A. Neumann, A.W. Green, Jr., W.D. Stanley, A.G. Jones, J. Filloux, L. Law, D. Auld, J.R. Booker, 1987, A comparison of 2-D generalized inversion techniques using magnetotelluric and magnetic variation data for an east-west transect across the Oregon coast range and High Cascades (Abstract), IUGG, Vancouver, BC, August.
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60. Jacob, R.W., Bradley, B., Hermance, J.F., and Mustard, J.F., 2004, A Robust, Bayesian Approach to the Analysis of Vegetative Phenology Using Satellite Vegetative Indices in the Presence of Outliers, Noisy Data and Data Gaps. Eos Trans. AGU, 85(47), Fall Meet. Suppl., Abstract B41A-0093.
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63. Jacob, R.W., and Hermance, J.F., 2005, Rapid re-partitioning of water in the vadose zone during precipitation monitored by GPR. Northeastern Branch American Society of Agronomy and Soil Science Society of America Meeting.
64. Hermance, John F., Bethany Bradley, Robert Jacob and John Mustard, 2005, A User's Version View of a Robustified, Bayesian Weighted Least-Squares Recursive Algorithm for Interpolating AVHRR-NDVI Data: Applications to an Animated Visualization of the Phenology of a Semi-Arid Study Area. Eos Trans. American Geophysical Union,
65. Bradley, Bethany, John Mustard, Robert Jacob, John Hermance, 2005, Using a curve-fitting methodology on remotely sensed time series to detect subtle patterns of land surface phenology, Eos Trans. American Geophysical Union, Fall Meeting, San Francisco.
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67. Hermance, J. F., Jacob, R. W., Bradley, B. A. and Mustard, J. F., 2006, Dynamically Characterizing a Variety of Phenological Responses of Semi-Arid Areas to Hydrological Inputs using Multi-Year AVHRR NDVI Time Series and HYDRO1k-Type Terrain Parameters, Eos Trans. AGU, 87(52), Fall Meet. Suppl., Abstract B31A-1080, San Francisco.
68. Jacob, Robert, Bethany Bradley, John Hermance and John Mustard, 2006, Phenology-based Land Cover Classification and Assessment of Land Cover Trends: A Case Study in the Western U.S., Eos Trans. AGU, 87(52), Fall Meet. Suppl., Abstract B33F-05, San Francisco.
69. Hermance, John F., Robert W. Jacob and Rabi N. Bohidar, 2007, Predicting Short-Term Stormflow Runoff Based on Vadose Zone Antecedent Soil Moisture Using GPR, National Meeting of the Geological Society of America, Denver, Session: 41. Innovations and New Technologies for Measuring and Characterizing Groundwater/Surface Water Interaction, GSA Abstracts with Programs.
70. Hermance, John F., 2008 (Invited), Concepts and Tools for Outdoor Classrooms to Characterize Soil Water in the Vadose Zone: Applications of Hydrology and Hydrological Geophysics, National Meeting of the Geological Society of America, Houston, Session T172, Outdoor Classrooms for Water Resources Education, GSA Abstracts with Programs, Abstract # 148179.
71. Urban, T, K. Ryzewski and J.F. Hermance, April, 2010 "Cumberlandite: Using residual gravity to delineate an historically important ore body." Society for American Archaeology, St. Louis, MO.
72. Jacob, Robert W., John F. Hermance and Jan van der Kruk, 2010, Comparison of GPR Analysis Methods for Water Content, GPR2010 (PR197), Italy.

6. Research in Progress

Major research interests currently focus on remote sensing, near surface (environmental) geophysics and hydrology, particularly those activities related to groundwater and regional catchment-scale studies, ranging from humid regions (such as the Northeast US) to semi-arid regions (such as the Western US and eastern Africa – Sudan). Over the past three or more decades, numerous geophysical field projects have been directed in Iceland, the Azores, the Yukon, Canada, major volcanic centers in the western United States, and the Northeast U.S. In

the last few years we have become increasingly involved with archaeo-geophysical field investigations, some of which are identified below.

Current geophysical/hydrological field investigations include developing collaborations with academic, industry, and private and public sector partners to address the following research issues:

- Development of adaptive signal processing techniques to extract temporal and spatial vegetation signatures from multi-spectral satellite remote sensing data, and integrating these with in-house algorithms for GIS analysis of regional hydrology. Focus areas are the High Plains and Great Basin of North America, and the African Sahel in Eastern Africa, primarily in the State of Gedaref, Sudan. (See the section below on *Current projects and collaborations*.)
- Development of new geophysical procedures applied to groundwater investigations, archaeology, and subsurface infrastructure including pipelines, underground storage tanks, foundations, etc. Several miniprojects have been recently funded for geophysical archaeological investigations in Iceland, Portugal, Martinique (W. Indies), the Arctic, Petra and the Northeast US in collaboration with the Joukowsky Institute, the Haffenreffer Museum, and the Department of Anthropology.
- Watershed characterization, groundwater studies, aquifer characterization, & subsurface flow modeling; recent work has been on monitoring and modeling time dependent flow and water content of the vadose zone (specifically, the near surface unsaturated zone).
- Developing hydrological/climate databases on a variety of scales depending on the community to be served. On one hand, we are working with local water managers to address issues of water management; on the other we are dealing with a major international NGO and academic professionals in Sudan on technologies for sustainable water management.
- Developing instructional materials in hydrology and geophysics (texts, teaching modules and lab manuals, independently and in collaboration, for example, with the Ecological Society of America, the National Center for Ecological Analysis & Synthesis (NCEAS), and the Society of Exploration Geophysicists (SEG)) for a range of student and professional populations.

7. Service

7A. University Service

Past service on the FPG, ACUP, FEC and Committee on Nominations.

Chair, Department Computer Committee: 2000 - 2002.

Graduate Council: 1997 - 2000.

Faculty Advisory Committee on Computing (FACC): 1998 - 2000.

(Chair of FACC: 1999 - 2000.)

Department Chairman's Advisory Committee (2002-2003)

Outside Speaker's Committee (Fall 2003)

Department Computer Committee (2004-10)

Committee on Faculty Retirement (2013-2014)

7B. Professional Service (1974 - present):

Consultant, Sandia Laboratories, Magma Energy Project, Albuquerque, NM (Direct geothermal exploitation of magma reservoirs), 1974-1981.

Senior Research Associate at Columbia University (Visiting Appointment at Lamont-Doherty Geological Observatory), 1975-1977.

Team Leader, Workshop on Electrical and Electromagnetic Methods for Geothermal Exploration, sponsored by ERDA, USGS and University of Utah, November, 1976.

Coordinator, Geophysical Sensing Experiment on Kilauea Iki Lava Lake: A cooperative experiment of Sandia Laboratories, U. S. Geological Survey, University of Texas at Austin, Massachusetts Institute of Technology, Brown University and Columbia University, 1976-1981.

Consultant, Geophysical Instrumentation Group, Westinghouse Electric, Boulder, CO, 1977-1978.

Member, Organization Committee for USGS Workshop on Improved Magnetotelluric Techniques, 1979-1980.

Nominated for the Office of President of the Geomagnetism/Paleomagnetism section of the American Geophysical Union.

Associate Editor, *Environmental Geology*, 1980-82.

Member, National Academy of Science (CSDP) Advisory Panel on Thermal Regimes, 1980-1985.

Chairman of Program Committee for Geomagnetism and Paleomagnetism Section of the American Geophysical Union Meeting; May, 1981.

Member, National Academy of Science (CSDP) Advisory Panel on Thermal Regimes, Continental Scientific Drilling Committee (1983-85).

Convenor (with Chin Fu Tsang), Workshop on Borehole Diagnostics for Union Baca Site, Valles Caldera; Lawrence Berkeley Laboratory, December 2, 1983.

Member, Organizing Committee for International Symposium on Deep Observation and Sampling of the Continental Crust (DOSECC) Through Drilling, 1983-84.

Convenor, Workshop on Array Magnetometers, Brown University, June, 1984

Chairman, National Academy of Science (CSDP) Advisory Panel on Thermal Regimes, Continental Scientific Drilling Committee (1985-86).

Associate Editor, *Tectonophysics*, 1987-1991.

Member, Board of Directors for Executive Committee for Deep Observation and Sampling of the Earth's Continental Crust (DOSECC), 1984-1989.

Member, National Academy of Sciences Geodynamics Committee Task Group to Study the Status and Future of Geomagnetic Studies in the United States, 1989-1990.

Chairman, U. S. Geodynamics Committee Task Group for Mobilizing the National Geomagnetic Initiative, National Research Council/National Academy of Sciences, 1990-91. (Reporter to the U.S. Geodynamics Committee on this activity; 1991-1994.)

Chairman, Workshop on the National Geomagnetic Initiative, National Research Council/National Academy of Sciences, March 16-20, 1992.

Convenor, Workshop on Environmental Geophysics: Applications to Environmental Site Investigations, Assessment & Restoration; New York State Department of Environmental Conservation, Albany, NY, October, 1994.

Consultant, Kenyon Environmental, Incorporated 1995 - 2004.

Consultant, North Smithfield Citizens to Protect our Resources (NSCPR). Reviewing the potential impact of a proposed electric power plant on environmental quality. 2000-01.

Member, Standing Committee on Hydrologic Measurement Systems, Consortium of Universities for the Advancement of Hydrologic Sciences, Inc. (CUASHI), 2001-2004.

Consultant, Conrad Geoscience Corporation; 1996 - 2012.
Technical Advisor (informal), Seekonk Water District on well head protection procedures, aquifer characterization, landfill closing, hydrological/climate concerns (1998 - 2012).
Consultant, Town of Rehoboth Water Commission. 2008-present. Currently considering the environmental impact – and the impact on Town residents – of the inter-state, out-of-basin transfer of 2.8 million gallons of water per day from Massachusetts to Rhode Island. Also assisting with developing a water protection plan.
Member, Groundwater Modeling Advisory Panel, National Groundwater Association , 2016-present.

7C. Membership in Professional Societies

American Geophysical Union
Society of Exploration Geophysicists
National Ground Water Association;
Association of Ground Water Scientists & Engineers
Environmental and Engineering Geophysical Society
Geological Society of America
American Association for the Advancement of Science

8. Academic Honors, Awards & Grants

8A. Honors: Best Presentation Award, Society of Exploration Geophysicists Annual Meeting, 1974.
NASA's Group Achievement Award for MAGSAT Scientific Investigator's Team, June, 1984.

8B. Research Funding: Past funding from NSF, DOE, ONR, NASA, USDA, USGS and the private sector. Current research supported by private sector partners, and indirectly through collaborators.

Recent & current projects and collaborations:

- a) With Haffenreffer Museum investigating early Norse sites in the North Atlantic.
- b) With Oxford University Department of Archaeology on near surface applications of geophysical techniques for archaeological studies of a site on the Oxford campus.
- c) With other academics and the Ecological Society of America, through the National Center for Ecological Analysis & Synthesis (NCEAS), for developing teaching modules employing large-scale ecological datasets in education. (Travel and educational materials.)
- d) With the Department of Anthropology, the Joukowsky Institute for Old World Studies, and off campus entities for geophysical work in the Arctic, the West Indies, Israel and Petra, Jordan.
- e) With campus and off-campus personnel on issues of water and crop sustainability in the African Sahel in response to hydro-climate forcing terms. This is an interdisciplinary study involving personnel from the University of Gadarif, Gadarif, Sudan, and Brown University's School of Engineering, the Center for Environmental Studies, the Watson Institute Fellow of International Studies, and the Taubman Center on Public Policy..

9. Teaching

9A. Selected Courses Taught

GE 004 Natural Catastrophes

GE 058 Foundations of Physical Hydrology.

GE 160 Environmental Geophysics.

GE 158 Quantitative Elements of Physical Hydrology.

GE 159 Quantitative Modeling of Hydrological Processes.

GE 196 Ground Penetrating Radar (GPR).

GE 291 Electromagnetic Theory: Applications to Environmental Geophysics.

9B. Examples of Graduate Student Research Supervised

Rabi Bohidar, 1996 through 2001 (MSc; PhD in Environmental Geophysics).

Rob Jacob, 2001 through 2006 (MSc; PhD in Environmental Geophysics).

Bethany Bradley, 2003-07 (Committee Advisor for PhD in Remote Sensing). Developed new data processing algorithms for mapping vegetation from space.

Thomas Urban, Graduate Fellow at the University of Oxford, England; jointly supervising his research – in collaboration with the Joukowsky Institute, and the Department of Anthropology – regarding on-going archaeological geophysical field work in Iceland, the Arctic, several undeveloped field sites in Great Britain, the West Indies, Israel and Petra.

Abdel Gabar Mustafa, Engineering PhD Special Studies student; 2008 – 2013. This project involves strategies for developing sustainable water resources in Eastern Sudan. Mr. Mustafa, a native of Sudan, has recently (Dec. 29, 2011) passed his PhD preliminary exam.

10. Date of this document: June 28, 2016.