

CURRICULUM VITAE OF PROFESSOR DHANANJAY RAVAT

July 2013

See Section IX. at the end for refereed publications

I. PERSONAL

- A. Date and Place of Birth: 23 October 1958; Bombay, India
- B. Present Address: 988 Fiddler Creek Way, Lexington, KY 40515
- C. Present University Position: Chair and Professor of Geophysics in the Department of Earth & Environmental Sciences, University of Kentucky

II. EDUCATION

- Doctor of Philosophy (Geophysics), Purdue University, West Lafayette, Indiana, December 1989
- Master of Science (Geophysics), Purdue University, West Lafayette, Indiana, May 1985
- Bachelor of Science (Geology), M.S. University of Baroda, India, December 1981

III. PROFESSIONAL EXPERIENCE

- 2007 - Present: Professor of Geophysics, Department of Earth & Environmental Sciences, University of Kentucky
- 2009 – 2012: Chair, Department of Earth & Environmental Sciences, University of Kentucky
- 2009 (December): Senior Visiting Scientist, Istituto Nazionale di Geofisica e Vulcanologia, Roma, Italia
- 2008 (November/December) Senior Visiting Scientist, Geoscience Australia, Canberra, Australia
- 2003 - 2007: Professor of Geophysics at Southern Illinois University C'dale (SIUC)
- 2002 & 2005 (summers): Senior Visiting Scientist, GeoForschungsZentrum, Potsdam, Germany
- 2004 (part July/August): Visiting Scientist, Jet Propulsion Laboratory (JPL), CalTech, Pasadena
- 2004 (January): Senior Visiting Scientist, Istituto Nazionale di Geofisica e Vulcanologia, Roma, Italia
- 1997 - 2003: Associate Professor of Geophysics at Southern Illinois University C'dale
- 1997 -1998: Senior Visiting Research Scientist in Geomagnetism at GSFC/NASA

1991 - 1997: Assistant Professor of Geophysics at Southern Illinois University C'dale

1995 (July): Visiting Research Scientist in Geodynamics Branch at GSFC/NASA

1994 (summer): Visiting Research Scientist in Geodynamics Branch at GSFC/NASA

1992 (summer): Visiting Research Scientist in Geodynamics Branch at GSFC/NASA

1990: Post-Doctoral Research Associate in Geophysics at Purdue University (as a co-investigator of a NASA research grant)

1982 - 1989: Teaching & Research Assistant in Geophysics and Fellowships at Purdue University

IV. TEACHING EXPERIENCE

A. Teaching Interests and Specialties

Geopotential fields and their geological, tectonic, and environmental interpretation; Solid-Earth Geophysics; Tectonics; Environmental & Engineering Geophysics; Planetary Geology/Geophysics

My current direct teaching assignment is 3 courses a year. Most of the upper level courses are offered once every two years.

At University of Kentucky:

2007 – Present - Taught:	GLY 150	Earthquakes and Volcanoes
	GLY 395	Special Problems in Geology
	GLY 490	Earth Dynamics
	GLY 610/625	Advanced Topics: Quantitative Methods in Geosciences
	GLY 625	Geodynamics
	GLY 626	Introduction to Gravity and Magnetism
	AST 310	Explorations of the solar system
	/GLY 310	

At Southern Illinois University C'dale (SIUC):

1991 - 2007 - Taught:	GEOL 110	Earth and its Environment (University Core; non-majors, large classroom format)
	GEOL 330i	Planets (University Core; Interdisciplinary; writing intensive ~ 70 students in three sections)
	GEOL 434	Environmental and Engineering Geophysics (Dual Level)
	GEOL 435	Solid-Earth Geophysics (Dual Level)
	GEOL 440	Advanced Topics in Geology (Research in Gravity & Magnetism)
	GEOL 466	Tectonics (Dual Level)
	GEOL 535	Advanced Topics (Engineering & Environmental Geophysics; Planets)

government. Position: Scientist at Nuclear Materials Authority, Egypt.) To work on Tectonic Analysis of the South Eastern Desert of Egypt Using Potential Field Data Inversion.

Dr. Henglei Zhang (Fall 2012; Position: Researcher at China University of Geosciences, Institute of Geophysics and Geomatics, Wuhan University, China) To work on Advanced Potential Field Methods and Inversion.

Ph.D. Students

Past *e*-advisor for:

Salem, A., 2002, A study of automatic interpretation techniques of magnetic data for detection of ferro-metallic objects, Ph.D. Thesis, Kyushu University, Japan, 105p. (Dr. Salem spent one month in the Potential-fields Geophysics Laboratory at SIUC in 2000. Positions: Associate Professor at Nuclear Materials Authority, Egypt and Geophysicist at GETECH Group)

About, E., 2005, Developments in Magnetic Data Interpretation Techniques Using Euler Deconvolution and Analytic Signal Methods, Ph.D Thesis, Kyushu University, Japan. (Dr. About spent one month in the Potential-fields Geophysics Laboratory at SIUC in 2002.)

Mr. Albert Eyike a Ph.D. student and a lecturer in the Department of Physics in the faculty of Sciences of the University of Douala, Cameroun (Central Africa) on potential field and tectonic interpretation of Central African rift in Cameroon.

Present *e*-advisor for:

Mr. A. Olawuyi, 2010-2011, Fulbright scholar from Nigeria, For research toward his Ph.D. on gravity and magnetic fields of Nigeria.

Ms. S.N.P. Guimarães, 2012-2013, Ph.D. student at National Observatory, Department of Geophysics, Rio de Janeiro, Brazil on Magnetic depth determinations of aeromagnetic data and geothermal modeling in central Brazil.

M.S. Students

Crisler, M.M., 1995, Investigations of the magnetic properties of rusting drums and the limitations of the Euler method, M.S. thesis, Southern Illinois University at Carbondale, 153p. (funded using SIUC grants)

Lu, Z., 1996, Investigation of the crustal and upper mantle density structure of the Kenya Rift through velocity-density relationships, M.S. thesis, Southern Illinois University at Carbondale, 94p. (Resulted in a publication in Tectonophysics with Lu as a co-author.) (funded using external grants and SIUC assistantship & fellowships)

Kirkham, K., 2001, Investigations of a high-resolution aeromagnetic survey over the southeastern portion of the Illinois Basin, M.S thesis, Southern Illinois University Carbondale, 82p. (Resulted in a publication in The Leading Edge with Kirkham as a co-author.) (funded using mostly external grants and SIUC assistantship)

Miller, J., 2002, Investigation of magnetic anomalies over the southern highlands of Mars from the Mars Global Surveyor Spacecraft, M.S. thesis, Southern Illinois

- University Carbondale, 120p. (Paper in preparation with Miller as a co-author.)
(funded using mostly external grants and SIUC assistantship)
- Biswas, S., 2005, Non-uniqueness of the modeled magnetization vectors used in determining paleopoles on Mars, M.S. thesis, Southern Illinois University Carbondale, 52p. (Papers published and in preparation with Biswas as a co-author.)
(funded using mostly external grants and SIUC assistantship)

M.A. Students:

- J. Saffel, 2004, National Geospatial Agency.

Number of other Master's and Ph.D. Committees: M.S.: 16 Ph.D.: 4

Undergraduate Research Students

- Robert Wham (Magnetic investigations of faults & dikes in Arclar coal mine) (funded using external grants)
- Diana Hallenbeck (Geophysics of sutures) (funded using external grants)
- Douglas Henecker (Investigations in environmental magnetics) (funded using external grants)
- Kenneth Miller (Verification of high-resolution aeromagnetic lineaments and their association with earthquake faults near Ridgely, TN, in the New Madrid Seismic Zone) (funded using external grants)
- David Beals (Gravity measurements in the area of the intersection of Commerce Geophysical Lineament and Wabash Valley Seismic Zone; and Geophysics of Sutures) (funded using external grants)
- Jeffrey Miller (1999; Geophysics of Sutures; resulted in a conference presentation by the student) (funded using external grants)
- Joseph Genslinger (1999-2000; Gradients of satellite magnetic fields; Web page development) (funded using external grants)
- Eric Wildermuth (1999-2000; Gradients in the interpretation of satellite magnetic anomaly data; resulted in a conference presentation by the student and a reviewed paper in *J. of Geodynamics*) (funded using external grants)
- Richard Smith (2003-2006; Analysis of Project Magnet & ship-borne magnetic data for the World Digital Magnetic Anomaly Map. During 2005-2006, the student was on the SIUC undergraduate research assistantship. In other years, funded using external grants. Resulted in CD/DVD media of these processed data, requested and used by several scientists around the world. Conference presentation anticipated.)
- Joseph Sobieralski (2006-2007; Statistics major; World Magnetic Anomaly Map analysis and processing; SIUC undergraduate research assistantship)
- Adam Shaw (2006-2007; revision of U.S. Magnetic Anomaly Map; SIUC undergraduate research assistantship)
- Joseph Batir (2006-2007); revision of U.S. Magnetic Anomaly Map) (ineligible for paid work due to other SIUC duties)
- Matthew McIndoo (2006-2007); revision of U.S. Magnetic Anomaly Map) (funded using external grants)
- Christopher DeBoer (2006-2007); World Magnetic Anomaly Map analysis and geodynamic parameters from the U.S. magnetic anomaly map) (funded using external grants)
- Mao Oyama (2009-2010); Processing of aeromagnetic anomaly data from a NURE quadrangle: data processing, analysis and paper writing.
- Melissa Ditty (2009-2010); Archeological geophysical surveys at Maysville, KY: data collection, processing, analysis, interpretation and paper writing.

Short-term Research Visitors

Dr. Peter Milligan, a geomagnetist with Geoscience Australia (Australian national geological survey) visited for three weeks in September/October 2006 using support from his organization to develop research interactions with me in order to conduct a new aeromagnetic survey of Australia and employ methodologies developed by me to process and interpret these data.

Mr. Ahmed Salem visited for one month during 2000 while he was a Ph.D. student at Kyushu University, Japan, using his own funding and conducted research and interacted with students in the laboratory.

Mr. Essam Aboud visited for one month during 2002 while he was a Ph.D. student at Kyushu University, Japan, using his own funding and conducted research and interacted with students in the laboratory.

Ms. S.N.P. Guimarães, Spring 2013, Ph.D. student at National Observatory, Department of Geophysics, Rio de Janeiro, Brazil on Magnetic depth determinations of aeromagnetic data and geothermal modeling in central Brazil.

V. UNIVERSITY SERVICE

At University of Kentucky:

A. Department Committees

Research and Graduate Studies Committee (2007- 2008)
 Personnel and Budget Committee (2007-2008)
 Chair (2009-2012)

B. College of Arts & Sciences Committees

Chemistry Department Review (2008-2009)

C. University Committees

At SIUC:

D. 1 Department Committees

Graduate Program Coordinator for Geology Department (1999-2000)
 Graduate Admissions (1991-1997, 1999-2005) (Chaired: 1992-1993)
 Library Committee (1999-2002)
 Computer Committee (1991-present)
 Speakers Committee (1992-present) (Chaired: 1993-1995, Fall 2003, Fall 2004)
 Undergraduate Advisor (1992-1997, 1999, 2002, 2003, 2005, 2006)
 Graduate Brochure (1993-1997)

D. 2 Environmental, Resource & Policy Ph.D. Program Committees

Dissertation Direct Status Recommendation Committee (2004-2007)

E. College of Science Committee

Substituted Prof. Crelling on Personnel Committee (2004-2005)

F. University Committees

Undergraduate Teaching and Curriculum Committee (2004-2007)

Traffic & Parking Committee (1994 - 1997)

Substituted Prof. Michael Kruge for all of the Graduate Council during the summer of 1999.

Substituted Prof. Michael Kruge for all of the Faculty Association meetings during the summer of 1999.

VI. PROFESSIONAL SERVICE

A. Membership in Professional Associations

Fellow of the Society, Geological Society of India (Life Member)

American Geophysical Union (Life Member)

Society of Exploration Geophysicists (Life Member)

International Association for Mathematical Geology (Life Member)

Environmental and Engineering Geophysical Society

American Association for the Advancement of Science

B. Professional Committees

SEG's Travel Grant Committee (2009)

SEG's Gravity and Magnetism Committee (1998-Present)

Investigator for the Ørsted magnetic field satellite of the Danish Space Research Institute (1998-2005)

Investigator for the German CHAMP gravity and magnetic field satellite (2001-2005)

The U.S. High Altitude Magnetic Survey committee (U.S. Geological Survey in collaboration with NSF and NASA) (2002-2006)

The North American Gravity Database upgrade committee (U.S. Geological Survey in collaboration with NSF) (2002-present)

Member of V-MOD Geomagnetic Field Modeling working group of the International Association of Geomagnetism and Aeronomy (IAGA) (formerly 'Magnetic Anomalies' working group (WG V-9)) (1999-Present)

Executive committee member and the editor of World Digital Magnetic Anomaly Map project of IAGA (V-MOD) and the Commission for the Geologic Map of the World

(CGMW), the co-editor of the map and the anticipated journal volume (This map will benefit many geoscientists around the world as magnetic anomaly data is a proven proxy for near surface geologic variations.) (2003-present)
 (At the International Union of Geodesy and Geophysics (IUGG) meeting in Boulder in 1995, the general assembly adopted the following resolution:
 IAGA RESOLUTION 4: considering the rapid progress currently being made in retrieving and compiling existing low-level airborne and marine magnetic anomaly data over large continental and oceanic areas, and noting the importance of magnetic anomaly data for geological and tectonic mapping of the Earth's crust, urges the compilation and publication of a digital magnetic anomaly map and database of the entire world (land and sea)).

C. Consultantships

Weston Geophysical Corporation - Earthquake risk assessment of a nuclear power plant (1987-1988).

Mountain Explorers, Inc. (Indianapolis) - Geophysical investigations to detect cavities containing lost Spanish gold in San Juan Mountains of SW Colorado (1989-1990).

Universities Space Research Association on Task 94-921-02 (1995).

Derived long-wavelength correction surface for the North American Magnetic Anomaly Map produced by the U.S. Geological Survey, Geological Survey of Canada, and the Geological Survey for Mexico (<http://pubs.usgs.gov/of/2002/ofr-02-414/>)

D. Editorships/Reviewerships (1991-Present)

Associate Editor of “Near Surface Geophysics” (for Gravity and Magnetics) (2008-present)

Co-Review-Organizer – “World Digital Magnetic Anomaly Map” (2003-2007)

Associate Editor of “Geophysics” (for Gravity) (2001-2005)

Co-Editor – “Seismological Research Letters” Special Issue Illinois basin: Seismicity, Quaternary faulting, and seismic hazard, R.L. Wheeler and D. Ravat (eds.) v. 73, no. 5, Sept.-Oct. 2002.

Co-Editor – “The Leading Edge (Society of Exploration Geophysicists’ monthly)” Special Issue Geophysics from Space, D. Ravat and P.S. Millegan (eds.) August 2003.

NASA – Solid Earth Natural Hazards Instrument Incubator Review Panel (2001)

Reviewer for over 100 papers in JGR-SE & JGR-Planets (14), Tectonophysics (7), Geophysics (55), Geophysical Journal International (4), GSA Bulletin, Physics of the Earth and Planetary Interiors (3), Seismological Research Letters (16), The Leading Edge (10), Geophysical Research Letters (4), Earth and Planetary Science Letters (2), Marine Geology, Journal of Atmospheric & Terrestrial Physics, Annali Geofisica (2), Pure and Applied Geophysics (2), Gondwana Research, Earth Planets Space, Tectonics (2), Geophysical Prospecting (4), and SEG meeting programs (5), EGM

special workshop (6) Turkish Journal of Earth Sciences (1) Marine Geophysical Researches (1) (updated@2010).

Reviewer for Proposals for NASA, NSF, and the U.S. Geological Survey (>16)

Reviewer for a book proposal for American Geophysical Union (AGU)

Acknowledged for substantial reviewing contributions by authors of two books in the area of potential fields.

E. Papers and Presentations at Professional Meetings (Limited Review Expanded Abstracts are listed under IX.D) (total 84)

- Braile, L.W., W.J. Hinze, D.N. Ravat, and F.C. Verner, 1986, Earthquakes and Crustal Inhomogeneities in the Midcontinent United States, Earthquake Notes, 57, p.6.
- Ravat, D.N., W.J. Hinze, L.W. Braile, and R.R.B. von Frese, 1986, Improvements in Large Scale Inversion of the MAGSAT Data, EOS Trans. AGU, 67, p.263.
- Ravat, D.N., W.J. Hinze, L.W. Braile, and R.R.B. von Frese, 1988, Improving the Scalar MAGSAT Magnetic Anomaly Map of Africa, EOS Trans. AGU, 69, p.335.
- von Frese, R.R.B., W.J. Hinze, and D.N. Ravat, 1989, Statistical Analysis of the Relative Magnetic Properties of Major Geotectonic Features, EOS Trans. AGU, 70, p.315.
- Ravat, D.N., W.J. Hinze, and R.R.B. von Frese, 1989, Regional Magnetic Sources and the History of the Mesozoic Afro-South American Breakup, Abstracts of the XI Scientific Assembly of the IAGA, 53, p.170.
- Hinze, W.J., D.N. Ravat, R.R.B. von Frese, 1990, Long-Wavelength Magnetic Anomalies for Lithospheric Studies: Opportunities and Challenges, Invited Paper *in* Long Wavelength Magnetic Anomalies, P.T. Taylor and R.R.B. von Frese (convenors), EOS Trans. AGU, 71, p.485.
- Hinze, W.J., D.N. Ravat, and P.T. Taylor, 1990, The Search for Crustal Resources: MAGSAT and Beyond, **Invited Paper**, *in* Resource Mapping and Geophysical Surveys Using Space and Technology, R.P. Singh (Organizer), XXVIII COSPAR, The Hague, The Netherlands.
- Ravat, D.N., and W.J. Hinze, 1990, Variations in Equatorial Ionospheric Effects: Their Impact on Mapping Long-wavelength Lithospheric Magnetic Anomalies, *in* Long Wavelength Magnetic Anomalies, P.T. Taylor and R.R.B. von Frese (convenors), EOS Trans. AGU, 71, p.485.
- Taylor, P.T., Ravat, D.N., and Hinze, W.J., 1991, "European deep-crustal structure as revealed by satellite-altitude magnetic anomaly data" at the XXth General Assembly of IUGG, Vienna, Austria, 11-24 August 1991, IAGA Program and Abstracts, p.642.
- Ravat, D.N. and W.J. Hinze, 1991, Application of "Gauss' Theorem of the Arithmetic Mean" to Specify Satellite-derived Geopotential field Anomalies used in Geologic Analysis, EOS Trans. AGU, 72, p.100.
- Ravat, D., R. Langel, M. Purucker, T. Sabaka, J. Arkani-Hamed, D. Alsdorf, 1992, A New Approach for Isolation of Lithospheric Magnetic Anomalies from Magsat, **Invited Paper**, EOS Trans. AGU, 73, p.140.
- Taylor, P.T., D. Ravat, and J.J. Frawley, 1993, Long-wavelength magnetic anomaly associated with the Tornquist-Teisseyre Zone, Central Europe, EOS Trans. AGU, 74, p.111.
- Taylor, P.T., D. Ravat, and J.J. Frawley, 1993, Long-wavelength magnetic anomaly associated with the Tornquist-Teisseyre Zone (TTZ), Abstracts of the XII Scientific Assembly of the IAGA, Buenos Aires, IAGA Bull., 55, p.428.

- Purucker, M., D. Ravat, R. Langel, and D. Alsdorf, 1993, The isolation of lithospheric magnetic anomalies from Magsat vector data: A new approach, Abstracts of the XII Scientific Assembly of the IAGA, Buenos Aires, IAGA Bull., 55, p.427.
- Kim, J.W., R.R.B. von Frese, P.T. Taylor, and D.N. Ravat, 1994, Lithospheric Modeling of Regional Magnetic and Gravity Anomalies of the Arabian Plate, EOS Trans. AGU, vol. 75, no. 16, p.131-132.
- Ravat, D., 1995, Magnetic properties of unruined steel drums from laboratory and field-magnetic measurements, Eos Trans. AGU, 76(17), Spring Meet. Suppl., S100.
- Taylor, P.T., J.J. Frawley, and D. Ravat, 1995, Applying Euler's Depth Method to Magsat Data, XXI General Assembly of IUGG, Boulder, CO, 2-14 July, 1995, IUGG Abstracts Week B, p.B79.
- Ravat, D., and J. Foley, 1995, Limiting Constraints in the use of 'Euler's Theorem on Homogeneous Functions' for the Rapid Location Interpretation of Environmental Magnetic Sources, XXI General Assembly of IUGG, Boulder, CO, 2-14 July, 1995, IUGG Abstracts Week B, p.B201.
- Ravat, D., and P.T. Taylor, 1996, Source Depths of Kentucky, Kiruna, and Kursk Magsat Magnetic Anomalies Derived from the Anomaly Attenuation Rate Method, Eos Trans. AGU, 77(17), Spring Meet. Suppl., S85.
- Ravat, D., M. Pilkington, K. Whaler, and W. Roest, 1997, Reliable Wavelengths in Magsat Data Determined from Comparisons with the High-Altitude Aeromagnetic Data over Canada, EOS Trans. AGU, 78(17), Spring Meet. Suppl. S113.
- Lu, Z. and D. Ravat, 1997, Investigative Crustal and Upper Mantle Density Structure of the Kenya Rift through Velocity-Density Relationships, EOS Trans. AGU, 78(17), Spring Meet. Suppl., S119.
- Ravat, D., and M. Purucker, 1998, Geologic "Stripping" in the Interpretation of Satellite Magnetic Data: Examples From the Continental U.S. and its Gulf Coast and Atlantic Margins, Eos Trans. AGU, 79(17), Spring Meet. Suppl., S62.
- Ravat, D., T.G. Hildenbrand, and R.L. Reynolds, 1998, Tectonic and Economic Implications of a High Resolution Aeromagnetic Survey in the Illinois Basin, Eos Trans. AGU, 79(17), Spring Meet. Suppl., S64.
- Hildenbrand, T.G., J. McBride, D. Ravat, and R.L. Wheeler, 1999, Crustal studies and central U.S. hazard mapping: characterization of the source of the Commerce geophysical lineament in 3-d, Geological Society of America Abstracts with Program, 31(5), .
- Ravat, D., P.T. Taylor, and J.J. Frawley, 1999. Direct magnetic source detection from satellite-altitude: The spherical Euler deconvolution, Eos Trans. AGU, 80(17), Spring Meet. Suppl., S90.
- Whaler, K.A., and D. Ravat, 1999. Use of magnetic satellite data in large scale aeromagnetic and marine compilations, XXII General Assembly of IUGG, Birmingham, U.K., 19-30 July, 1999, IUGG Abstracts Week A, p.A392.
- Ravat, D., M. Purucker, K. Whaler, and M. Pilkington, 1999. Toward the world magnetic anomaly map: Methods and examples of merging regional-scale near surface and satellite-altitude magnetic anomaly data, XXII General Assembly of IUGG, Birmingham, U.K., 19-30 July, 1999, IUGG Abstracts Week A, p.A392.
- Kletetscka, G., P. Taylor, M. Purucker, P. Wasilewski, and D. Ravat, 1999. Origin of magnetic anomalies of lower crustal rocks (*Talk*), XXII General Assembly of IUGG, Birmingham, U.K., 19-30 July, 1999, IUGG Abstracts Week A, p.A388.
- Kletetscka, G., P. Taylor, M. Purucker, P. Wasilewski, and D. Ravat, 1999. Origin of magnetic anomalies of lower crustal rocks (*Poster*), XXII General Assembly of IUGG, Birmingham, U.K., 19-30 July, 1999, IUGG Abstracts Week A, p.A390.
- Taylor, P.T., D. Ravat, and J.J. Frawley, 1999. Crustal magnetic fields, *Invited paper*, XXII General Assembly of IUGG, Birmingham, U.K., 19-30 July, 1999, IUGG Abstracts Week B, p.B104.
- Purucker, M., D. Ravat, H. Frey, C. Voorhies, and T. Sabaka, 2000, Inverse problems: Magsat to Mars, Eos Trans. AGU, 81(19), Spring Meet. Suppl., S171.

- Miller, J., K. Kirkham, D. Ravat, and V. Shapiro, 2000, Geophysical comparison of sutured terranes in the Appalachian and Ural mountains, Eos Trans. AGU, 81(19), Spring Meet. Suppl., S174.
- Wang, B., E. Wildermuth, D. Ravat, P.T. Taylor, and J. J. Frawley, 2000, Gradient techniques in the interpretation of satellite altitude magnetic data, Eos Trans. AGU, 81(19), Spring Meet. Suppl., S175.
- Wang, B. D. Ravat, T. Sabaka, and T. Hildenbrand, 2000, Long-wavelength Magnetic Field for the Conterminous U.S. from Project Magnet and Magsat Data, Eos Trans. AGU, 81(48), Fall Meet. Suppl., F355.
- Hildenbrand, T.G., J.H. McBride, and D. Ravat, 2001, The Commerce Geophysical Lineament and its possible relation to Proterozoic igneous complexes and large earthquakes in the central Illinois basin, Geological Society of America Abstracts with Program, 33 (4), A-10.
- Miller, J., D. Ravat, P.T. Taylor, H. Frey, S. Zatman, J.J. Frawley, 2001, Interpretation of the Martian Southern Highland Magnetic Anomalies using the Euler and Analytic Signal Methods, Eos Trans. AGU, 82(20), Spring Meet. Suppl., S123.
- Taylor, P.T., J.J. Frawley, D. Ravat, S. Zatman, H. Frey, 2001, Satellite magnetic anomalies from MGS over the South Tharsis region of Mars, Eos Trans. AGU, 82(20), Spring Meet. Suppl., S123-S124.
- Zatman, S., D. Stegman, D. Ravat, P.T. Taylor, J.J. Frawley, 2001, Geodynamic constraints on the age of Martian magnetic anomaly construction, Eos Trans. AGU, 82(20), Spring Meet. Suppl., S127.
- Ravat, D., J. Miller, P.T. Taylor, H. Frey, S. Zatman, and J.J. Frawley, 2001, Satellite-derived magnetic anomalies: A window for deciphering planetary processes and tectonism, Abstracts of the First Joint Scientific Assembly of the IAGA and IASPEI, Hanoi, p.244.
- Ravat, D., T.G. Hildenbrand, J.H. McBride, 2001, Insights on the Commerce Geophysical Lineament (CGL), the South Central Magnetic Lineament (SCML), and Proterozoic Igneous Complexes in the Eastern Granite Rhyolite Province, Geological Society of America Abstracts with Program, 33 (6), A-92.
- Purucker, M., N. Olsen, D. Ravat, P. Schwintzer, and B. Langlais, 2002, Improving global crustal temperature, geologic variation, and lithospheric magnetic field derived from CHAMP, First CHAMP Science Meeting, GFZ Potsdam, Abstracts Magnetism, p.15-16.
- Ravat, D., 2002, Unraveling the Magnetic Mystery of the Earth's Lithosphere: The Background and the Role of the CHAMP Mission, Invited Keynote Talk, First CHAMP Science Meeting, GFZ Potsdam, Abstracts Magnetism, p.13-14.
- Ravat, D., P.T. Taylor, and J.J. Frawley, 2002, The Large Meteorite Impact Origin of the Satellite Altitude Bangui Magnetic Anomaly: Additional Evidence, Eos Trans. AGU, 83(xx), Spring Meet. Suppl., Sn/a (electronic).
- Ravat, D. 2002, New uses of continuous coverage satellite magnetic field data in studying the Earth's lithosphere, Invited Talk, Proceedings of 4th Oersted International Science Team (OIST-4) Conference, Copenhagen, 23-27 Sept, p.4.
- McBride, J. H., Duchek, A. B., Leetaru, H. E., Nelson, W. J., and Ravat, D., 2003, Integrated geological, seismic reflection, potential field, and seismicity study of a classic intra-plate strike-slip zone: Cottage Grove fault system, Illinois basin, South-Central and Southeastern Joint Annual Geological Society of America Conference, Abstracts with Programs, CD-ROM.
- Salem, A. and D. Ravat, 2003, AN-EUL: Theoretical unification of the analytic signal and the Euler methods, Geophys. Res. Abstracts, European Geophysical Society, vol. 5, Abstract EAE-03-A-00919.
- Ravat, D., 2003, Can we infer tectonics correctly from satellite altitude magnetic anomalies? Examples from Earth and Mars, Geophys. Res. Abstracts, European Geophysical Society, vol. 5, Abstract EAE-03-A-04089.

- Ravat, D., and T.G. Hildenbrand, 2003, Utility of Comprehensive Magnetic Field Model in Studying the Earth's Lithosphere, XXIII General Assembly of IUGG, Sapporo, Japan, 30 June - 11 July, 2003, IUGG Abstracts Week B, GAV.06/10A/A11-011, p. B60.
- Ravat, D., M. Ghidella, J. Korhonen, S. Maus, S. McLean, and C. Reeves, 2003, Towards the World Digital Magnetic Anomaly Map (WDMAM), Eos Trans. AGU, 84 (46), Fall Meet. Suppl., Abstract GP21D-01.
- Hildenbrand, T.G., G.R. Keller, L. Pellerin, J. Phillips, D. Ravat, T. Sabaka, 2003, High-Altitude Magnetic Survey over the United States, Eos Trans. AGU, 84 (46), Fall Meet. Suppl., Abstract GP21D-03.
- Korhonen J.V., C. Reeves, M. Ghidella, S. Maus, S. McLean, D. Ravat, 2004. World Digital Magnetic Anomaly Map, a status report. Abstracts of The 26th Nordic Geological Winter Meeting, January 6-9, 2004 Uppsala, Sweden (electronic).
- Korhonen, J.V., C. Reeves, M. Ghidella, S. Maus, S. McLean, D. Ravat, 2004. World digital magnetic anomaly map, a progress report. Geophys. Res. Abstracts, European Geophysical Society, Nice, France, 25 - 30 April 2004, Abstract EGU04-J-06251.
- Korhonen J., C. Reeves, M. Ghidella, S. Maus, S. McLean, D. Ravat, 2004. World Digital Magnetic Anomaly Map. Abstracts of the 32 IGC, Florence, Italy. 20-28 August 2004, Part 1, 779.
- Korhonen J., M. Ghidella, S. Maus, S. McLean, D. Ravat, C. Reeves, E. Thebault, 2004. El Mapa Digital de Anomalias Magneticas del Mundo. Libro de Resumenes, XXII Reunion Cientifica de la Asociacion Argentina de Geofisicos y Geodestas, 6 al 10 de septiembre de 2004. pp 211-213.
- Korhonen J.V., Reeves C., Ghidella M., Maus S., McLean S., Ravat D. 2004. World Digital Magnetic Anomaly Map - presenting lithospheric contribution to the Earth's total magnetic field. pp 45-46 in Ehlers, C., Eklund, O., Korja, A., Kruuna, A., Lahtinen, R. and Pesonen L. J. (Eds). Lithosphere 2004; Third symposium on the structure, composition and evolution of the lithosphere in Finland. Programme and extended abstracts, Turku, Finland, November 10-11, 2004. Institute of Seismology, University of Helsinki, Report S-45. 131 Pages.
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- Ravat, D., Salem, A., Elawadi, E., Abdelnaby, A., 2010, Direct-use Geothermal Potential With An Example From Egypt, Asia Oceania Geosciences Society conference, Hyderabad, 5-9 July, electronic, SE18-17-15-A039.
- Ravat, D., 2011, Reconciling rock properties with bulk continental lithospheric magnetization derived from satellite anomalies, ***Invited Paper***, XXV General Assembly of the IUGG, Melbourne, June 28 – July 7, 2011, A042 Abstract#3156.
- Ravat, D., 2011, Interpretation of lithospheric magnetic signal - recent results, ***Invited Paper in the reporter review session***, XXV General Assembly of the IUGG, Melbourne, June 28 – July 7, 2011, A153 Abstract#2098.
- Ravat, D., 2011, Constraints on Lithospheric Dynamics From Curie Depth/Magnetic Bottom Depth Determinations (***Invited***), Abstract GP33B-01 presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.
- Ravat, D., 2011, The Magnetic Mystery of Mars, ***Invited talk*** at IGU in the Gravity/Magnetic Session, December, 21.
- Ravat, D., 2012, North American Magnetic Bottom/Curie Depth estimates and their significance for lithospheric temperature and magnetization, (***Invited***), Abstract GP13C presented at 2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec.
- Ravat, D., A. Salem, A. Lowry, D. Schutt, 2013, Geotherms from the Curie Depth Constrained Solutions of the One Dimensional Steady-state Heat Flow Equation, 2013 EarthScope National Meeting, Raleigh, North Carolina, 13-15 May.

F. Seminars/Lectures/Keynotes (total 34)

- A seminar on "Improvements in Large Scale Inversion of the MAGSAT Data" at Indian Institute of Geomagnetism, Bombay, India (September 1986).
- A seminar on "A Step Toward Interpretation of Satellite Magnetic Anomalies" at the Indian Institute of Geomagnetism, Bombay, India (January 1994).
- An ***INVITED TALK*** on "Interpretation of Satellite Magnetic Anomalies" at the Indo-US Workshop on Geomagnetism in Studies of the Earth's Interior, Pune, India (Funded by NSF, NASA, DST) (August 1994).
- A seminar at University of Illinois at Chicago on "Magnetics in the Detection of Environmental Hazards" (March 1996).
- A seminar on "Magnetic source location through the Euler Method: Utility and Limitations" at the Indian Institute of Geomagnetism, Bombay, India (December 1996).
- A seminar at Purdue University on "Utility and pitfalls of the Euler Method for locating potential-field anomaly sources: Examples from Environmental and Satellite Magnetic Anomalies" (April 1997).
- A seminar on "Geomagnetism from Space" Undergraduate Level, at Physics department, DePauw University (April 1999).
- A seminar on "Geomagnetism from Space" at Physics department, SIUC (April 2000).
- A seminar on "New Developments in the Analysis and Interpretation of Continent-scale Magnetic Field Anomalies" at Indian Institute of Geomagnetism, Mumbai, India (February 2001)

- A seminar on "Recent advances in the geologic utility of satellite-altitude magnetic anomalies" at Indian Institute of Technology, Mumbai, India (February 2001)
- A seminar on "Bridging the magnetic anomaly gap" at Danish Space Research Institute, Copenhagen, Denmark (February 2001)
- A seminar on "The Magnetic Mystery of the Fourth Rock – Undergraduate Level" at DePauw University (May 2001)
- A seminar on "The Magnetic Mystery of the Fourth Rock – Graduate Level" at University of Minnesota (June 2001)
- A **KEYNOTE LECTURE** on "Unraveling the Magnetic Mystery of the Earth's Lithosphere: The Background and the Role of the CHAMP Mission" at the first CHAMP satellite science conference in Potsdam, Germany (January 2002)
- A seminar on "The Magnetic Mystery of Mars" at GeoForschungsZentrum, Potsdam, Germany (July 2002)
- An **INVITED TALK** on "New uses of continuous coverage satellite magnetic field data in studying the Earth's lithosphere" at the fourth Ørsted satellite science conference in Copenhagen, Denmark (September 2002)
- A seminar on "The Role of Satellite-altitude Magnetic Measurements in Unraveling the Mystery of the Earth's Lithosphere" at U.S. Geological Survey, Menlo Park, CA (May 2003)
- A seminar on "The Role of Satellite-altitude Magnetic Measurements in Understanding the Evolution of the Earth's Lithosphere" at Istituto Nazionale di Geofisica e Vulcanologia, Roma, Italia (January 2004)
- A seminar on "The Magnetic Mystery of Mars" Undergraduate Level, Presidency College, Kolkata, India (February 2004)
- A seminar on "The Role of Satellite-Altitude Gravity and Magnetic Measurements in Understanding the Evolution of the Earth's Lithosphere" at Institute of Geophysics China Earthquake Administration, Beijing, China (July 2004)
- A seminar on "The Role of Satellite-Altitude Gravity and Magnetic Measurements in Understanding the Evolution of the Earth's Lithosphere" at Institute of Geology and Geophysics National Academy of Science, Beijing, China (July 2004)
- A seminar on "Interpreting Mars Southern Highland Magnetic Field" at Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA (August, 2004)
- A seminar on "The Magnetic Mystery of Mars" Updated, Research Level, Indian Institute of Geomagnetism, Mumbai, India (December 2004)
- A seminar on "Mapping the full spectrum of the Earth's magnetic anomaly field and its importance for geologic interpretation" at GeoForschungsZentrum Potsdam (June 2005)
- A seminar on "Geologic Applications of the Earth's Anomalous Magnetic Field" at University of Indonesia, Depok/Jakarta (July 2006)
- A seminar on "An Intriguing Mid-Proterozoic Boundary in the Mid-continent and Other Geophysical Stories" at University of Kentucky, Lexington (January 2007)
- A seminar on "The Magnetic Mystery of Mars", updated, Joint Physics and EES colloquium, University of Kentucky (April 2008)
- An **INVITED TALK** on "Magnetic Databases of the Conterminous U.S. and the Surrounding Areas", Electrical Power Research Institute, Seismic Source Characterization Workshop for the Central and Eastern U.S. (July 2008)
- A talk on "Creating the World Magnetic Anomaly Map" at Intrepid Workshop at New South Wales Geological Survey, NSW, Australia (November 2008)
- A talk on "Use of Magnetic Data in Geothermal Studies" at Intrepid Workshop at New South Wales Geological Survey, NSW, Australia (November 2008)
- A seminar on "Towards Full-spectrum Continent-scale Magnetic Anomaly Mapping" at Geoscience Australia, Canberra, Australia (December 2008)
- A talk on "The Magnetic Mystery of Mars" at Instituto de Geomagnetismo "Daniel Valencio," Departamento de Ciencias Geológicas, FCEyN, Universidad de Buenos Aires (May 2009)

- A seminar on “The Magnetic Mystery of Mars” at Purdue University (April 2010) (updated).
- A seminar on “Magnetic Depth Determination in Constraining Geotherm and Lithospheric Temperatures” at Indian Institute of Geomagnetism, Mumbai (July 2010).
- A seminar on my professional career, at the Outstanding Alumnus award ceremonies, Purdue University (September 2011).
- A seminar on “The Magnetic Mystery of Mars” at University of South Florida (March 2012)
- A seminar on “The Magnetic Mysteries of Earth and Mars” at University of Toronto (March 2012)
- A seminar on “The Earth-based techniques in solving magnetic mysteries of Mars” at Geosoft, Inc. (March 2012)
- A seminar on “From Full Spectrum Continent-scale Magnetic Mapping to Curie Depth Determinations” Fugro, Inc. (April 2012)
- A seminar on “Insights into the Earth’s Crust through the lens of Long-wavelength Magnetics” at Shell, Houston (November 2012)
- A seminar on “Full Spectrum Continent-scale Magnetic Anomaly Mapping” at Shell, Houston (November 2012)
- A seminar on “Spectral Magnetic Depth Determinations” at Shell, Houston (November 2012)

G. Reports

- Report on "Improving the geological interpretation of Magnetic and Gravity Satellite anomalies" in fulfillment of National Aeronautics & Space Administration contract no. NAGW-736 (with W.J. Hinze, L.W. Braile, and R.R.B. von Frese) (1989).
- Report on "Stratigraphic and Structural Models of the Midcontinent Rift System" in fulfillment of Argonne National Laboratory Contract no. 90312401 (with William J. Hinze, Lawrence W. Braile, and John Mariano) (1990).
- Report on "Towards Developing an Analytical Procedure of Defining the Equatorial Electrojet for Correcting Satellite Magnetic Anomaly Data" in partial fulfillment of National Aeronautics & Space Administration contract no. NAGW-1819 (with William J. Hinze) (1991).
- Report on "Improved determination of vector lithospheric magnetic anomalies from Magsat" in fulfillment of National Aeronautics and Space Administration contract no. NAG5-1972 (1993).
- "Technical Activity Report Related to Task 94-921-02" to Universities Space Research Association (August 1995).
- Report on "Investigation of Source Location Determination From Magsat Magnetic Anomalies: The Euler Method Approach" in fulfillment of National Aeronautics and Space Administration contract no. NCC 5-70 (August 1996).
- Report on "Geophysical Characterization of Sutures" in fulfillment of National Aeronautics and Space Administration contract no. NAG5-3120 (October 1999).
- Report on "Comprehensive Models of the Near-Earth Magnetic Field" in fulfillment of National Aeronautics and Space Administration contract no. NAG5-7662 (September 2002).
- Report on “Geological Interpretation of Satellite Altitude Crustal Magnetic Anomaly Data” in fulfillment of National Aeronautics and Space Administration contract no. NAG5-7771 (March 2003).

Report on “Interpretation of Mars Crustal Magnetic Anomalies” in fulfillment of National Aeronautics and Space Administration contract no. NAG5-9832 (January 2005).

H. Convener of Conference/Workshop Sessions (since 2001)

Ravat, D., J. Dyment, and J. Quinn (2001) Crustal Magnetic Fields Derived from Satellite Data, IAGA-IASPEI 2001 Joint Scientific Assembly, Hanoi, 19-31 August, Session G5.05.

Ravat, D., Organized workshop on "Extraction of the lithospheric signal" at the fourth Ørsted satellite science conference in Copenhagen, Denmark (September 2002)

Ravat, D., Organized workshop on "The utility and the availability of the Comprehensive Magnetic Field Model (CM): The CM user group" at the fourth Ørsted satellite science conference in Copenhagen, Denmark (September 2002)

Ravat, D., and D.K. Butler (2005) New Magnetic and Gravity Interpretation Methodologies and Their Innovative Application for Environmental, Exploration, and Planetary-Scale Potential-Field Data (three sessions), Joint Assembly of AGU, New Orleans, Sessions GP13-A, GP23A, GP24A.

Korhonen, J.V., D. Ravat, and C. Reeves (2005) World Magnetic Anomaly Map: anomaly definition and calculation, 10th Scientific Assembly of the IAGA, Toulouse, 18-29 July, Session GAV04.

Garcia-Abdeslem, J., V. C. F. Barbosa, and D. Ravat (2007) New Discoveries in Magnetic and Gravity Anomaly Interpretation Methodologies and Their Innovative Application for Geologic, Environmental, Exploration and Planetary Scale Potential-field Data, Joint Assembly of AGU, Acapulco, Session GP06.

Ravat, D., E. Thebault, and J. Korhonen (2007) World Digital Magnetic Anomaly Map, XXIV Scientific Assembly of the IUGG, Perugia, 2-13 July, Session ASV038.

Barbosa, V., D. Ravat, and F.C. Tontini (2008) Concepts and Applications in Magnetic, Gravity, and EM Methods, Joint Assembly of AGU, Session GP03.

Korhonen, J.V., C. Reeves, and D. Ravat (2008) Geological sources of global magnetic anomalies as interpreted from World Digital Magnetic Anomaly Map (WDMAM), The 33rd International Geological Congress, Oslo, 6-14 August, Session EIG-02.

Hemant, K., I. Blanco Montenegro, D. Ravat (2009) Tectonic interpretation of satellite, air-borne, ground and marine geomagnetic data, 11th Scientific Assembly of the IAGA, Sopron, Hungary, 23-30 August, Session V.06.

Ravat, D. (2011) Seismological and Tectonic interpretation of geomagnetic data combined with other geophysical results, XXV Scientific Assembly of the IUGG, Melbourne, 28 June – 7 July, Session A14.2.

Reeves, C., D. Ravat, P. Milligan, J. Korhonen, C. Foss, (2012) Compilation and interpretation of large magnetic anomaly data sets (Workshop), 34th International Geological Congress, Brisbane, Australia, 5-10 August, Workshop 16.

Prezzi, C., D. Ravat, V. Barbosa (2013) Magnetic Methods, The Meeting of Americas (AGU), May 14 to 17, 2013 in Cancun, Mexico, Session GP03.

Dyment, J., D. Ravat, J. Korhonen (2013) Modelling and interpretation of lithospheric magnetic anomalies, 13th Scientific Assembly of the IAGA, Merida, Mexico, 23-30 August, Session 5.6.

VII. COMMUNITY SERVICE

Geophysical Investigation of underground cavities in the Dongola school playground, Dongola, IL (1993)

Helped move flood victims to and from a temporary shelter (1993)

Judging SIUC Science Fair (1991, 1992, 1993, 1996)

Helped an area mine (Arclar Mine in Harrisburg) identify locations of geological faults and dikes which interfere with some of their mining operations. The *a priori* knowledge of the faults and dikes makes it possible to take appropriate precautions and avoid accidents. (1993 - 1995)

Helped the above mine identify dikes using high-resolution ground magnetic data (1999)

Television news interview (WSIL TV- Channel 3) regarding Earthquake Hazard in the Southern Illinois region (1999)

Arranged multiple public viewings of NASA's Moon rocks and Meteorites samples for SIUC and Carbondale Community, the local chapter of Astronomy club, and nearby high school students (about 170 people attended) (March 2002)

NPR news (local) interview regarding the Moon rocks (March 2002)

Daily Egyptian interview and article regarding the Moon rocks (March 2002)

NASA's Moon rocks and Meteorites samples public viewing for SIUC and Carbondale Community (~30 people attended) (March 2005)

Impact Craters on Earth and Mars laboratory: Junior Science and Humanities Symposium participants lab visit (12 students, teachers, and parents) (April 2005)

NASA's Moon rocks and Meteorites samples laboratory: Junior Science and Humanities Symposium participants lab visit (10 students and teachers) (April 2006)

VIII. RESEARCH

A. Research Interests and Specialties

- Geopotential fields and their Geologic, Tectonic, and Environmental applications
- Processes of continental rifts (New Madrid seismic zone, Wabash Valley seismic zone, Midcontinent Rift, USA; East African Rift, Kenya; Red Sea Rift, Egypt)

- Analysis and interpretation of global satellite and near surface magnetic and gravity anomalies in understanding continental structure and assemblies and the thermal and rheological state of the continental lithosphere
- Environmental gravity and magnetic methods and applications
- Planetary geophysics

B. Current Research Projects

- Combined analysis of U.S. EarthScope seismic and gravity and magnetic data in the central U.S.
- Investigation of the Indian Geoid Low using global and local models of density and seismic velocity structures
- Spectral analysis of aeromagnetic data and interpretation addressing lithospheric magnetization
- Interpretation of Mars magnetic anomalies
- World Digital Magnetic Anomaly Map (Interpretation of the first edition and compilation of the second edition)

C. Research Grants Applied For (total 40; 36 external)

- "Improving the geological interpretation of Magnetic and Gravity Satellite anomalies" to NASA (with W.J. Hinze, L.W. Braile, and R.R.B. von Frese) (1986).
- "Towards developing an analytical procedure of defining the equatorial electrojet for correcting satellite magnetic anomalies" to NASA (with W.J. Hinze) (1988).
- "Implementation of a new, theoretical approach of mapping satellite-derived geopotential-field anomalies used in geologic analysis" to NASA (1991).
- "Geophysical strategies for indirect monitoring of buried steel drums containing hazardous chemical wastes: The initial phase" to ORAU (1991).
- "Improving the geologic utility of line-of-sight gravity observations from Pioneer Venus mission" to NASA (through Northern Arizona University with Paul Morgan) (1991).
- "Improved determination of vector lithospheric magnetic anomalies from Magsat data" to NASA (1992).
- "New geophysical strategies for indirect monitoring of deterioration of buried steel drums containing hazardous wastes: The pilot study" to ORDA (2 years) (1992) and extension (1994).
- "Thermal processes, mantle density structure and Venusian tectonics: Analysis of gravity data from western Niobe Planitia" to NASA (1992).
- "A proposal for high resolution reflection and potential-field surveys in the Wabash Valley fault zone" to U.S.G.S. (1993).
- "Investigation of Source Location Determination From Magsat Magnetic Anomalies: The Euler Method Approach" to Space Science Directorate, NASA (1994) and extension (1995).
- "Geophysical Characterization of Some Terranes and the Geophysical Modeling of Candidate Suture Zones" to NASA Headquarters (with R.A. Langel and P. Wasilewski of GSFC/NASA and Scott King of Purdue University in cooperation with the Indian Institute of Geomagnetism, Bombay) (1994).
- "Investigation of A Non-obtrusive Magnetic Risk Assessment Technique to Detect Deterioration of Buried Steel Drums" to OSWR (1994).
- "Investigation of a New Geo-Physical Technique for Detection and Monitoring of Subsurface Contaminant Leakage" to UPIIP, SIUC (with Naushad Ali) (January 1995 and October 1995).
- A Proposal for "LAMMA Satellite" to NASA (with Carol Raymond, Joan Feynman, Bruce Goldstein, Alexander Ruzmaikin, Edward Smith, Ronald Salazar of JPL/NASA,

- Arthur Richmond of NCAR, and Eigil Friis-Christensen of Danish Meteorological Institute) (July/August 1996).
- "From POGO to Ørsted: Ionospheric changes for improved isolation of lithospheric field" to NASA (with Michael Purucker of Hughes STX Corporation) (September 1996).
- "IPA Appointment for Research in Geomagnetism" to GSFC/NASA (July 1997 and 1998).
- "Comprehensive Models of the Near-Earth Magnetic Field: Interpretation of the Lithospheric Components" to NASA (October 1997).
- "Geological Interpretation of Satellite Altitude Crustal Magnetic Anomaly Data" to NASA (November 1997).
- "Magnetic hotspots in the crust of the Earth - Basis for comparative planetology" (with Peter Wasilewski, Michael Purucker, Patrick Taylor), GSFC Director's Discretionary Fund, GSFC/NASA (1998-1999).
- "Evaluation of Holocene Movement along the Commerce Geophysical Lineament in Southwestern Illinois: Collaborative Research with Illinois State Geological Survey and Southern Illinois University" to USGS (May 1999).
- "Interpretation of the Mars Crustal Magnetic Anomalies" to NASA (October 1999).
- "Geodynamics of the lithosphere using potential-field variations" to NASA (January 2002).
- "A Collaborative Project between Potential-fields Geophysical Laboratory at Southern Illinois University Carbondale and the U.S. Geological Survey for Generating a Complex Model to Create Long wavelength Correction" to USGS (August 2002).
- "Magnetic Induction Effects on Magnetic Observations" (with V. Labson, T.G. Hildenbrand, J. Love, L. Pellerin, J. Phillips) to U.S.G.S. Mendenhall Post-doc Fellowship committee (December 2003).
- "World Magnetic Anomaly Map processing and evaluation undergraduate research assistantship" to SIUC Undergraduate Assistantship committee (February 2005).
- "Studying Lonar Impact Crater in Deccan Traps: An opportunity to understand some of the Mars magnetic field pattern" to NASA (April 2005).
- "New approach for understanding the volumetric distribution and amount of magnetization in the Earth's lithosphere" to NASA (July 2005).
- "Spectral analysis of aeromagnetic data for geothermal reconnaissance of the west of the Red Sea region in Egypt" to U.S.-Egypt Joint Science & Technology Board / NSF (December 2005).
- "World Magnetic Anomaly Map processing and evaluation undergraduate research assistantship" to SIUC Undergraduate Assistantship committee (February 2006).
- "U.S. Magnetic Anomaly Map processing and evaluation undergraduate research assistantship" to SIUC Undergraduate Assistantship committee (February 2006).
- "Magnetic Anomalies of the continental U.S. from NURE data using the Comprehensive Model" to U.S. Geological Survey (September 2006).
- "Magnetic Anomalies of the continental U.S. from NURE data using the Comprehensive Model (the second year)" to U.S. Geological Survey (August 2007).
- "The Full Spectrum Magnetic Anomaly Database of the Conterminous United States" to NSF (September 2008).
- "Collaborative Research: Lithospheric Temperature, Top to Bottom" to NSF (June 2009).
- "Geoinformatics: Development of a Self-consistent Full Spectrum Magnetic Anomaly Database" to NSF (July 2009).
- "Collaborative Research: Towards a New Magnetic Model for the Lithospheric Mantle" to NSF (December 2009).
- "Collaborative Research: Lithospheric Temperature, Composition, and Mass Structure, Top to Bottom" to NSF (June 2010).
- "Collaborative Research: Deciphering the Evolution of the Cratonic Core of the North American Lithosphere: Cryptic Accretion, Cryptic Rifting, Superplumes and Weak Plumes" to NSF (July 2010).

“Collaborative Research: Deciphering the Evolution of the Cratonic Core of the North American Lithosphere: Cryptic Accretion, Cryptic Rifting, Superplumes and Weak Plumes” to NSF (July 2011).

“Collaborative Research: Deciphering the Structure and Evolution of North America’s Cratonic Core” to NSF (June 2012).

D. Research Grants Received (total 21; 16 external) (> \$1 million)

"Improving the geological interpretation of Magnetic and Gravity Satellite anomalies" from NASA (with W.J. Hinze, L.W. Braile, and R.R.B. von Frese) (\$70,000) (1987-1989).

"Towards developing an analytical procedure of defining the equatorial electrojet for correcting satellite magnetic anomalies" (with W.J. Hinze) (\$70,000) (1989-1991).

"Improved determination of vector lithospheric magnetic anomalies from Magsat data" from NASA (\$18,000) (1992-1993).

"New geophysical strategies for indirect monitoring of deterioration of buried steel drums containing hazardous wastes: The pilot study" from ORDA/SIUC (\$21,000) (1993-1995).

"Investigation of Source Location Determination From Magsat Magnetic Anomalies: The Euler Method Approach" from Space Science Directorate, NASA (\$14,000 + \$3,000) (1994-1996).

"Geophysical Characterization of Some Terranes and the Geophysical Modeling of Candidate Suture Zones" from NASA Headquarters (with R.A. Langel and P. Wasilewski of GSFC/NASA and Scott King of Purdue University). (Three year support to SIUC - \$70,000.) (1995-1997, 1998-1999).

"Investigation of a New Geo-Physical Technique for Detection and Monitoring of Subsurface Contaminant Leakage" from UPIIP, SIUC (with Naushad Ali, Physics Department at SIUC) (April 1995, \$6,000+Depts/COS matching; December 1995, \$6,000+Depts/COS matching) (1995-1996).

"IPA Appointment for Research in Geomagnetism" from NASA (\$140,000) (1997-1998).

"Magnetic hotspots in the crust of the Earth - Basis for comparative planetology" (with Peter Wasilewski, Michael Purucker, Patrick Taylor), from GSFC Director’s Discretionary Fund, GSFC/NASA (funding to P. Wasilewski) (1998-1999).

"Comprehensive Models of the Near-Earth Magnetic Field" from NASA (\$111,000) (1998-2002).

"Geologic Interpretation of Satellite Altitude Crustal Magnetic Anomaly Data" from NASA (\$133,000) (1998-2002).

"Interpretation of the Mars Crustal Magnetic Anomalies" from NASA (\$64,000) (2000-2003).

"A Collaborative Project between Potential-fields Geophysical Laboratory at Southern Illinois University Carbondale and the U.S. Geological Survey for Generating a Complex Model to Create Long wavelength Correction" from U.S. Geological Survey (\$41,000) (2002-2003).

"Magnetic Induction Effects on Magnetic Observations" (with V. Labson, T.G. Hildenbrand, J. Love, L. Pellerin, J. Phillips) from U.S.G.S. Mendenhall Post-doc Fellowship (beneficiary Dr. Paul Bedrosian) (2005-2007).

"Geodynamics of the lithosphere using potential-field variations" from NASA (\$152,000) (+ >\$26000 SIUC and departmental match) (2003-2007).

"World Magnetic Anomaly Map processing and evaluation" undergraduate research assistantship from SIUC (> \$3100) (2005-2006).

"U.S. Magnetic Anomaly Map processing and evaluation" undergraduate research assistantship from SIUC (> \$2000) (2006-2007).

- “World Magnetic Anomaly Map processing and evaluation” undergraduate research assistantship from SIUC (> \$3100) (2006-2007).
- “Magnetic Anomalies of the continental U.S. from NURE data using the Comprehensive Model” from U.S. Geological Survey (\$50,000) (2006-2008).
- “Spectral analysis of aeromagnetic data for geothermal reconnaissance of the west of the Red Sea region in Egypt” from U.S.-Egypt Joint Science & Technology Board / NSF (\$60,000 jointly for UK & NMA, Egypt) (2007-2011).
- “Collaborative Research: Deciphering the Structure and Evolution of North America’s Cratonic Core” University of Kentucky and Utah State University (\$205,000) (2013-2016).

Other Collaborative Research and Conference/Workshop Travel Funding (> \$55K)

- To attend Indo-US Workshop on Geomagnetism in Studies of the Earth's Interior, Pune, India (Reimbursed by NSF, NASA, DST) (~ \$3500) (August 1994).
- To conduct collaborative research at Geodynamics Branch NASA/GSFC, Greenbelt, MD (Reimbursed by Universities Space Research Association) (~ \$2000) (July/August 1995).
- To participate in Earthquake Workshop at ISGS, Urbana, IL (Reimbursed by USGS) (~\$400) (April 1998).
- To visit Danish Space Research Institute, Copenhagen, Denmark (Partly defrayed by DSRI) (~ \$200) (February 2001).
- To conduct collaborative research at GFZ-Potsdam, Potsdam, Germany (Partly funded by GFZ-Potsdam) (~ \$8000) (Summer 2002).
- To attend USGS Gravity Database and HAMM Workshop, Denver, CO (Reimbursed by USGS) (~ \$500) (August 2002).
- To attend the Fourth Ørsted satellite science conference in Copenhagen, Denmark (Partly reimbursed by Danish Meteorological Institute, DSRI, ESA, NASA) (~ \$1500) (September 2002).
- To determine the long-wavelength anomaly surface for the North American Magnetic Anomaly Map (Partly funded by USGS) (\$5000) (2002-2003).
- To conduct collaborative research at Istituto Nazionale di Geofisica e Vulcanologia, Roma, Italia (Partly reimbursed by INGV) (~\$1000) (January 2004).
- To conduct collaborative research at Jet Propulsion Laboratory, Pasadena, CA (Reimbursed by JPL/CatITech/NASA) (~ \$2000) (July-August 2004).
- To attend Earthscope – Mid America workshop (Reimbursed by Univ. Memphis/NSF/USGS) (~\$500) (August 2004).
- To attend InSAR workshop, Oxnard, CA (Reimbursed by NASA/USGS) (~ \$750) (October 2004).
- To conduct reconnaissance fieldwork at Lonar, India (Partly covered by Indian Institute of Geomagnetism) (~ \$500) (November/December 2004).
- To advise on the preparation of the World Digital Magnetic Anomaly Map (Partly reimbursed by GFZ-Potsdam) (~\$4200) (Summer 2005).
- To facilitate participation in the World Digital Magnetic Anomaly Map meetings and evaluation (from geophysical contractors) (~\$11,000) (2006-2007).
- To conduct collaborative research at Geoscience Australia (~\$10,000) (November/December 2008).
- To conduct collaborative research at Istituto Nazionale di Geofisica e Vulcanologia, Roma, Italia (~\$4500) (December 2009).

E. Research Honors and Awards (including academic honors)

Outstanding Alumnus Award, Department of Earth & Atmospheric Sciences and the College of Science, Purdue University, West Lafayette, IN, 2011.

Department of Geology, SIUC, *nomination* for the College of Science Outstanding Researcher Award, 2006.

Inclusion in *WHO'S WHO in Science and Engineering* 1996-1997, third edition, Marquis, New Providence.

David Ross Fellowship, Purdue University, March 1984 to February 1986.

First in the B.Sc. (Geology) examination, M. S. University of Baroda, India, 1981 (since 1990 a Gold Medal is awarded for this honor).

National Merit Scholarship for further graduate studies in India, 1982 (could not accept because I came to the U.S.).

High School Scholarship, State Government of Maharashtra, India, 1971-1975.

IX. PUBLICATIONS

A. Reviewed Articles (total 50) (Reviewed articles in books, edited volumes and major research products listed separately below)

- Ravat, D.N., L.W. Braile, and W.J. Hinze, 1987, Earthquakes and Plutons in the Midcontinent - Evidence from the Bloomfield Pluton, New Madrid Rift Complex, *Seism. Res. Lett.*, 58, 41-52.
- von Frese, R.R.B., D.N. Ravat, W.J. Hinze, and C.A. McGue, 1988, Improved Inversion of Geopotential Field Anomalies for Lithospheric Investigations, *Geophysics*, 53, 375-385.
- von Frese, R.R.B., W.J. Hinze, C.A. McGue, and D.N. Ravat, 1989, Use of Satellite Magnetic Anomalies for Tectonic Lineament Studies, *in* Qureshy, M.N., and W.J. Hinze (eds.), *Regional Geophysical Lineaments - Their Tectonic and Economic Significance*, *Geol. Soc. India Memoir* 12, 171-180.
- Goyal, H.K., R.R.B. von Frese, W.J. Hinze, and D.N. Ravat, 1990, Statistical Prediction of Satellite Magnetic Anomalies, *Geophys. J. Int.*, 102, 101-111.
- Ravat, D.N., W.J. Hinze, R.R.B. von Frese, 1991, Lithospheric Magnetic Property Contrasts within the South American Plate Derived from Damped Least-Squares Inversion of Satellite Magnetic Data, *Tectonophysics*, 192, 159-168.
- Hinze, W.J., R.R.B. von Frese, and D.N. Ravat, 1991, Mean Magnetic Contrasts between Oceans and Continents, *Tectonophysics*, 192, 117-128.
- Ravat, D.N., W.J. Hinze, and R.R.B. von Frese, 1992, Analysis of MAGSAT Magnetic Contrasts across the African and South American Lithospheric Plates, *Tectonophysics*, 212, 59-76.
- Taylor, P.T., W.J. Hinze, and D.N. Ravat, 1992, The Search for Crustal Resources: Magsat and Beyond, *Adv. Space Res.*, 12, (7)5-(7)15.
- Ravat, D.N. and W.J. Hinze, 1993, Considerations of variations in ionospheric field effects in mapping equatorial lithospheric Magsat anomalies, *Geophys. J. Int.*, 113, 387-398.
- Ravat, D.N., W.J. Hinze, and P.T. Taylor, 1993, European tectonic features observed by Magsat, *Tectonophysics*, 220, 157-173.

- Ravat, D., R.A. Langel, M. Purucker, J. Arkani-Hamed, and D.E. Alsdorf, 1995, Global vector and scalar Magsat magnetic anomaly maps, Journal of Geophysical Research - Solid Earth, 100, 20,111-20,136.
- Taylor, P.T., and D. Ravat, 1995, An interpretation of the Magsat anomalies of central Europe, J. Applied Geophys., 34, 83-91.
- Ravat, D., 1996, Magnetic properties of unruled steel drums from laboratory and field-magnetic measurements, Geophysics, 61, 1325-1335.
- Ravat, D., 1996, Analysis of the Euler method and its applicability in environmental magnetic investigations, Jour. Environmental Engineering Geophys., 1, 229-238.
- Taylor, P.T., and D. Ravat, 1997, Reply to comments by R. Pucher and T. Wonik on "An interpretation of the Magsat anomalies of central Europe, J. Applied Geophys., 34, 83-91," J. Applied Geophys., 36, 217-219.
- Hildenbrand, T.G. and D. Ravat, 1997, Geophysical Setting of the Wabash Valley Fault System, Seism. Res. Lett., 68, 567-585.
- Ravat, D., and P.T. Taylor, 1998, Determination of depths to centroids of three-dimensional sources of potential-field anomalies with examples from environmental and geologic applications, J. Applied Geophysics, 39, 191-208.
- Ravat, D., Z. Lu, and L.W. Braile, 1999, Velocity-density relationships and modeling the lithospheric density variations of the Kenya Rift, Tectonophysics, 302, 225-240.
- Ravat, D., and M. Purucker, 1999, The future of satellite magnetic anomaly studies is bright!, The Leading Edge, 18, 326-329.
- Purucker, M., D. Ravat, H. Frey, C. Voorhies, T. Sabaka, and M. Acuna, 2000, An altitude-normalized magnetic map of Mars and its interpretation, Geophys. Res. Lett., 27, 2449-2452.
- Salem, A., K. Ushijima, T.J. Gamey, and D. Ravat, 2001, Automatic detection of UXO from airborne magnetic data using a neural network, Journal of Subsurface Sensing Technologies and Applications, 2 (3), 193-215.
- Salem, A., D. Ravat, R. Johnson, and K. Ushijima, 2001, Detection of Buried Steel Drums from Magnetic Anomaly Data using a Supervised Neural Network, Jour. Environmental Engineering Geophys., 6, 115-122.
- Ravat, D. B. Wang, E. Wildermuth, P.T. Taylor, 2002, Gradients in the interpretation of Satellite-altitude Magnetic Data: An Example from Central Africa, J. Geodynamics, 33, 131-142.
- Ravat, D., K.A. Whaler, M. Pilkington, T. Sabaka, and M. Purucker, 2002, Compatibility of high-altitude aeromagnetic and satellite-altitude magnetic anomalies over Canada, Geophysics, 67, 546-554.
- Ravat, D., K. Kirkham, and T.G. Hildenbrand, 2002, A source-depth separation filter: Using the Euler method on the derivatives of total intensity magnetic anomaly data, The Leading Edge, 21, 360-365.
- Salem, A., D. Ravat, T.J. Gamey, and K. Ushijima, 2002, Analytic signal approach and its applicability in environmental magnetic investigations, J. Applied Geophysics, 49, 231-244.
- Hildenbrand, T.G., J.H. McBride, and D. Ravat, 2002, The Commerce geophysical lineament and its possible relation to Mesoproterozoic igneous complexes and large earthquakes in the central Illinois Basin, Seism. Res. Lett., 73, 640-659.
- Wheeler, R.L., and D. Ravat, 2002, Introduction to the special issue on Seismic hazards of the Illinois basin, Seism. Res. Lett., 73, 590-596.
- Bankey, V., A. Cuevas, D. Daniels, C.A. Finn, I. Hernandez, P. Hill, R. Kucks, W. Miles, M. Pilkington, C. Roberts, W. Roest, V. Rystrom, S. Shearer, S. Snyder, R. Sweeney, J. Velez, J.D. Phillips, and D. Ravat, 2002, Digital data grids for the magnetic anomaly map of North America, U.S. Geological Survey Open-File Report 02-414 (<http://pubs.usgs.gov/of/2002/ofr-02-414/>).
- Ravat, D., and P.S. Millegan, 2003, An introduction – Geophysics: Doing it in space, The Leading Edge, 22, 757-758.

- Ravat, D., T.G. Hildenbrand, and W. Roest, 2003, New way of processing near-surface magnetic data: The utility of the Comprehensive Magnetic Field Model, The Leading Edge, 22, 784-785.
- Salem, A., and D. Ravat, 2003, A combined analytic signal and Euler Method (AN-EUL) for automatic interpretation of magnetic data, Geophysics, 68, 1952-1961.
- Salem, A., D. Ravat, M.F. Mushayandebvu, and K. Ushijima, 2004, Linearized least-squares method for interpretation of potential-field data from sources of simple geometry, Geophysics, 69, 783-788.
- Milligan, P.R., R. Franklin, and D. Ravat, 2004, A new generation of Magnetic Anomaly Grid Database of Australia (MAGDA) - use of independent data increases the accuracy of long wavelength components of continental-scale merges, Preview, 113, 25-29.
- Salem, A., D. Ravat, R. Smith, and K. Ushijima, 2005, Interpretation of magnetic data using an enhanced local wavenumber (ELW) method, Geophysics, 70, L7-L12, DOI: 10.1190/1.884828.
- Hinze, W.J., (and the rest alphabetically) C. Aiken, J. Brozena, B. Coakley, D. Dater, G. Flanagan, R. Forsberg, T. Hildenbrand, G. R. Keller, J. Kellogg, R. Kucks, X. Li, A. Mainville, R. Morin, M. Pilkington, D. Plouff, D. Ravat, D. Roman, J. Urrutia-Fucugauchi, M. Véronneau, M. Webring, and D. Winester, 2005, New standards for reducing gravity data: The North American gravity database, Geophysics, 70, J25-J32, DOI: 10.1190/1.1988183.
- Gaya-Pique, L.R., D. Ravat, A. De Santis, and J.M. Torta, 2006, New model alternatives for improving the representation of the core magnetic field of Antarctica, Antarctic Science, 18(1), 101-109, DOI: 10.1017/S0954102006000095.
- Bexfield, C.E., J.H. McBride, A.J.M. Pugin, D. Ravat, S. Biswas, W.J. Nelson, T.H. Larson, S.L. Sargent, M.A. Fillerup, B.E. Tingey, L. Wald, M.L. Northcott, J.V. South, M.S. Okure, and M.R. Chandler, 2006, Integration of P- and SH-wave high resolution seismic reflection and micro-gravity techniques to improve interpretation of shallow subsurface structure: New Madrid seismic zone, Tectonophysics, 420, 5-21.
- Hinze, W.J., (and the rest alphabetically) B. Coakley, T. Hildenbrand, G.R. Keller, X. Li, D. Plouff, D. Ravat, and M. Webring, 2006, Reply to "Vasanthi, A., Sharma, K.K., and Mallick, K., Discussion on the paper 'New standards for reducing gravity data: The North American gravity database' by Hinze, W.J, Aiken, C.J. and 20 others: Geophysics, v. 70, No. 4, pp. J25-J32, 2005.", Geophysics, 71, X32-X33, DOI: 10.1190/1.2361084.
- Bektas, O., D. Ravat, A. Büyüksarac, F. Bilim, and A. Ates, 2007, Regional geothermal characterization of East Anatolia from aeromagnetic, heat flow and gravity data, Pure and Applied Geophysics, 164, 975-998.
- Ravat, D., A. Pignatelli, I. Nicolosi, and M. Chiappini, 2007, A study of spectral methods of estimating the depth to the bottom of magnetic sources from near-surface magnetic anomaly data, Geophys. J. Int., 169, 421-434.
- Maus, S., T. Sazonova, K. Hemant, J. D. Fairhead, and D. Ravat, 2007, National Geophysical Data Center candidate for the World Digital Magnetic Anomaly Map, Geochem. Geophys. Geosyst., 8, Q06017, doi:10.1029/2007GC001643.
- Hemant, K., E. Thébault, M. Manda, D. Ravat, and S. Maus, 2007, Magnetic anomaly map of the world: merging satellite, airborne, marine and ground-based magnetic data sets, Earth and Planetary Science Letters, 260, 56-71, doi:10.1016/j.epsl.2007.05.040.
- Salem, A., S. Williams, J.D. Fairhead, D. Ravat, and R. Smith, 2007, Tilt-depth method: A simple depth estimation method using first order magnetic derivatives, The Leading Edge, 26, 1502-1505.
- Salem, A., S. Williams, J.D. Fairhead, R. Smith, and D. Ravat, 2008, Interpretation of magnetic data using tilt-angle derivatives, Geophysics, 73, L1-L10.

- Wang, B., E.S. Krebs, and D. Ravat, 2008, High-precision potential-field and gradient-component transformations and derivative computations using cubic B-splines, *Geophysics*, 73, I35-I42.
- Salem, A., Williams, S., Samson, E., Fairhead, D., Ravat, D., and R.J. Blakely, 2010, Sedimentary basins reconnaissance using the magnetic Tilt-Depth method, *Exploration Geophysics*, 41, 198-209.
- Ravat, D., 2011, Interpretation of Mars southern highlands high amplitude magnetic field with total gradient and fractal source modeling: New insights into the magnetic mystery of Mars, *Icarus*, 214, 400-412.
- Ravat, D., A. Salem, A.M.S.Abdelaziz, E. Elawadi, and P. Morgan, 2011, Probing magnetic bottom and crustal temperature variations along the Red Sea margin of Egypt, *Tectonophysics*, 510, 337-344.
- De Ritis, R., D. Ravat, G. Ventura, and M. Chiappini, 2013, Curie isotherm depth from aeromagnetic data constraining shallow heat source depths in the central Aeolian Ridge (Southern Tyrrhenian Sea, Italy), *Bull. Volcanol*, 75, 710-xxx, DOI 10.1007/s00445-013-0710-9.

B. Professional Books, Edited Volumes, Special Issues of Journals, and Major Research Products (total 5)

- Wheeler, R.L., and D. Ravat, 2002, (editors, special issue) The Illinois basin: Seismicity, Quaternary faulting, and Seismic Hazard, *Seism. Res. Lett.*, v. 73, no. 5, Seismological Society of America, Sept/Oct issue.
- Ravat, D., and P.S. Millegan, 2003, (editors, special Grav/Mag section) Geophysics from Space, *The Leading Edge*, 22 (8), August issue.
- Korhonen, J., (and the rest alphabetically) J.D. Fairhead, M. Hamoudi, K. Hemant, V. Lesur, M. Manda, S. Maus, M. Purucker, D. Ravat, T. Sazonova and E. Thebault, 2007, World Digital Magnetic Anomaly Map, *CCGM-CGMW/UNESCO*, 1:50 000 000, 1 sheet and 1 DVD.
- Hill, P.L., Kucks, R.P., and Ravat, D., 2009, Aeromagnetic and aeroradiometric data for the conterminous United States and Alaska from the National Uranium Resources Evaluation (NURE) Program of the U.S. Department of Energy: U.S. Geological Survey Open-File Report 2009–1129.
- Ravat, D., Finn, C., Hill, P., Kucks, R., Phillips, J., Blakely, R., Bouligand, C., Sabaka, T., Elshayat, A., Aref, A., and Elawadi, E., 2009, A preliminary, full spectrum, magnetic anomaly grid of the United States with improved long wavelengths for studying continental dynamics--A website for distribution of data: U.S. Geological Survey Open-File Report 2009–1258.

C. Reviewed Articles in Professional Books (total 16)

- Ravat, D., 2000, Aeromagnetic Surveying, *in The Oxford Companion to the Earth*, P.L. Hancock and B.J. Skinner (eds.), Oxford University Press, Oxford, U.K., pp.6-7.
- Ravat, D., 2000, Curie Temperature, *in The Oxford Companion to the Earth*, P.L. Hancock and B.J. Skinner (eds.), Oxford University Press, Oxford, U.K., pp.202-203.
- Ravat, D., 2000, Geomagnetic Measurement, Techniques and Surveys, *in The Oxford Companion to the Earth*, P.L. Hancock and B.J. Skinner (eds.), Oxford University Press, Oxford, U.K., pp.417-420.
- Ravat, D., 2000, Geomagnetism: External Fields, *in The Oxford Companion to the Earth*, P.L. Hancock and B.J. Skinner (eds.), Oxford University Press, Oxford, U.K., pp.420-421.

- Ravat, D., 2000, Geomagnetism: Main Field, Secular Variation and Westward Drift, *in The Oxford Companion to the Earth*, P.L. Hancock and B.J. Skinner (eds.), Oxford University Press, Oxford, U.K., pp.421-422.
- Ravat, D., 2000, Geomagnetism: Polarity Reversals, *in The Oxford Companion to the Earth*, P.L. Hancock and B.J. Skinner (eds.), Oxford University Press, Oxford, U.K., pp.422-423.
- Ravat, D., 2000, Magnetic Pole, *in The Oxford Companion to the Earth*, P.L. Hancock and B.J. Skinner (eds.), Oxford University Press, Oxford, U.K., pp.630-631.
- Ravat, D., 2000, Magnetic Field: Origin of Internal Field, *in The Oxford Companion to the Earth*, P.L. Hancock and B.J. Skinner (eds.), Oxford University Press, Oxford, U.K., p.631.
- Ravat, D., 2000, Magnetohydrodynamic Waves in the Earth, *in The Oxford Companion to the Earth*, P.L. Hancock and B.J. Skinner (eds.), Oxford University Press, Oxford, U.K., p.632.
- Ravat, D. and M. Purucker, 2002, Unraveling the Magnetic Mystery of the Earth's Lithosphere: The Background and the Role of the CHAMP Mission, In: C. Reigber, H. Luehr, P. Schwintzer (Eds.), *First CHAMP Mission Results for Gravity, Magnetic and Atmospheric Studies*, Springer-Verlag, Heidelberg, pp. 251-260.
- Ravat, D. 2003, New uses of continuous coverage satellite magnetic field data in studying the Earth's lithosphere, In: P. Stauning, H. Lühr, P. Ulte-Guerard, J. LaBrecque, M. Purucker, F. Primdahl, J. Jorgensen, F. Christiansen, P. Hoeg, and K. Lauritsen (Eds.), *OIST-4 Proceedings*, Narayana Press, Denmark, pp. 79-82.
- Salem, A., D. Ravat, T.J. Gamey, K. Ushijima, 2005, Detection of buried steel drums from magnetic anomaly data using an artificial intelligence technique, D.K. Butler (ed.), *Near Surface Geophysics volume of Society of Exploration Geophysicists*, Ch. 16, 513-523.
- Ravat, D., 2007, Crustal Magnetic Fields, *Encyclopedia of Geomagnetism and Paleomagnetism*, D. Gubbins and E. Herrero-Bervera (eds.), Springer, 140-144.
- Ravat, D., 2007, Reduction to pole, *Encyclopedia of Geomagnetism and Paleomagnetism*, D. Gubbins and E. Herrero-Bervera (eds.), Springer, 856-857.
- Ravat, D., 2007, Upward and Downward Continuation, *Encyclopedia of Geomagnetism and Paleomagnetism*, D. Gubbins and E. Herrero-Bervera (eds.), Springer, 974-976.
- Ravat, D., 2011, Magnetic Methods, Satellite, *Encyclopedia of Solid Earth Geophysics*, Gupta, H.K. (ed.), Springer, 771-774.

D. Other: Limited Review Expanded Abstracts (total 11)

- Ravat, D., 1994, Use of fractal dimension to determine the applicability of Euler's homogeneity equation for finding source locations of gravity and magnetic anomalies, *Symposium on the Application of Geophysics to Engineering and Environmental Problems*, vol. 1, 41-53. [This is one of Dr. Ravat's article referred in the important textbook, *Potential Theory in Gravity and Magnetic Applications* Author: Richard J. Blakely, Publisher: Cambridge University Press, 1995.]
- Ravat, D., Pilkington, M., Purucker, M., Sabaka, T., Taylor, P.T., von Frese, R.R.B., and Whaler, K.A., 1998, Recent advances in the verification and geologic interpretation of satellite-altitude magnetic anomalies, 68th Ann. Meeting, *Soc. Expl. Geophysicists*, Expanded Abstracts, 507-510.
- Salem, A., K. Ushijima, D. Ravat, and R. Johnson, 2000, Detection of buried steel drums from magnetic anomaly data using neural networks, *Symposium on the Application of Geophysics to Engineering and Environmental Problems*, 443-452.
- Salem, A., D. Ravat. and K. Ushijima, 2001, Subsurface imaging of of buried steel drums from magnetic data using the Hopfield neural network, *The 5th Soc. Expl. Geophysicists Japan Internat. Symposium*, 369-375.

- Salem, A., T.J. Gamey, D. Ravat, and K. Ushijima, 2001, Automatic detection of UXO from *airborne* magnetic data using the Hopfield neural network, Symposium on the Application of Geophysics to Engineering and Environmental Problems, pp. n/a.
- Salem, A., D. Ravat, M. Mushayandebvu, and K. Ushijima, 2002, Estimation of depth and shape factor from potential-field data over sources of simple geometry, 72nd Ann. Meeting, Soc. Expl. Geophysicists, Expanded Abstracts, pp.n/a (cd-rom).
- Ravat, D., and J. Miller, 2004, Analytic signal in the interpretation of Mars Southern Highlands magnetic field, 35th Lunar & Planetary Science Conference, League City, Texas, paper #1047.
- Biswas, S., and D. Ravat, 2005, Why meaningful paleopoles can't be determined without special assumptions from Mars Global Surveyor data? 36th Lunar & Planetary Science Conference, League City, Texas, paper #2192.
- Ravat, D., 2005, Deconstructing a few myths in the interpretation of satellite-altitude crustal magnetic field: Examples from Mars Global Surveyor, 36th Lunar & Planetary Science Conference, League City, Texas, paper #2118.
- Li, X., T.G. Hildenbrand, W.J. Hinze, G.R. Keller, D. Ravat, and M. Webring, 2006, The quest for the perfect gravity anomaly: Part 1 – New calculation standards, 76th Ann. Meeting, Soc. Expl. Geophysicists, Expanded Abstracts, 859-863.
- Keller, G.R., T.G. Hildenbrand, W.J. Hinze, X. Li, D. Ravat, and M. Webring, 2006, The quest for the perfect gravity anomaly: Part 2 – Mass effects and anomaly inversion, 76th Ann. Meeting, Soc. Expl. Geophysicists, Expanded Abstracts, 864-868.