

C.V. of Prof. Manoj Mukhopadhyay

Name, affiliation & address

Professor Manoj Mukhopadhyay, Department of Geology & Geophysics, Science College, King Saud University, P.O. Box 2455, Riyadh 11451,
Phone (office): +966 1 4676097
email: brochurem@yahoo.com

Education

M.Sc. Applied Geophysics (1971), Indian School of Mines, Dhanbad (India)
Ph.D. Geophysics (1976) from Indian School of Mines & National Geophysical Research Institute, Hyderabad (India)

Current & previous Positions

- Since Dec. 2008: Professor of Geophysics, Department of Geology & Geophysics, King Saud University, Riyadh
- 2006-08: Visiting Professor, Department Earth & Environmental Sciences, Kuwait, University, Kuwait
- 1989-2006: Professor of Geophysics, Department of Applied Geophysics, Indian, School of Mines (ISM) Dhanbad, Govt. of India
- 1984-89: Assistant Professor of Geophysics, Dept. App. Geophysics, ISM
- 1976-84: Lecturer in Geophysics, Dept. of App. Geophysics, ISM

Additional Assignments

- 1994-97 and 2004-06 (for seven years): Head, Dept. of Applied Geophysics, Indian School of Mines Dhanbad
- 1996-99: Co-Ordinator, M.Tech. (Petroleum Exploration) program, ISM. This post-graduate program is run for Geoscience Executives of the Oil & Natural Gas Corporation, Govt. of India
- 2004-05: Advisor to Director, ISM Dhanbad

International Awards (through open competitions)

- 1991-93: Visiting Fellowship of the Royal Norwegian Council of Scientific & Industrial Research, Oslo, Govt. of Norway, worked at the Petroleum Centre, Norwegian Institute of Technology and the Institute of Continental Shelf, Trondheim.
- 1978-80: Visiting Fellowship of the Natural Sciences & Engineering Research Council Canada, Ottawa, Govt. of Canada, worked at the "Gravity Division" of the Earth Physics Branch (formerly; the Dominion Observatory), Energy Mines & Resources, Ottawa.

National Award (Govt. of India)

- Visiting Scientist (1987) at the Institute of Geophysics, Academy of Mining & Metallurgy, Cracow, Poland.

Ph.D. (Geophysics) supervision

Six (6), at Indian School of Mines

Reviewer for Scientific Journals

- Member, Editorial Board, INDIAN MINERALS, published by Geological Survey of India, for 3-years. Vide http://www.gsi.gov.in/indmin1_59.pdf
- Reviewer, JOURNAL GEOLOGICAL SOCIETY OF INDIA (Bangalore), For ~15 years
- Reviewer, CURRENT SCIENCE by National Academy of Sciences, India
- Reviewer, TECTONOPHYSICS (Elsevier)
- **Reviewer, ARABIAN JOURNAL OF GEOSCIENCES (Springer)**
- Reviewer, ASIAN JOURNAL OF EARTH SCIENCES (Springer)

Contributions to Indian National Environmental Programs

- 1996-2006: Set up the "**Indian School of Mines Seismological Observatory**", under "Earthquake Disaster & Mitigation Program" of the Ministry of Science & Technology, Govt. of India, www.dst.gov.in/scientific-programme/project_list/seismology_04-05.pdf and also subsequently upgraded it to a Broadband Observatory; <http://www.ismdhanbad.ac.in/department/geophysics/index.htm>
- 2003-06: Member of the Indian National Working Group for International Geological Correlation Program **IGCP-490** "ENVIRONMENTAL CATASTROPHES".

Teaching Areas

- Petroleum Geosciences
 - ✚ Gravity & Magnetism in Oil Prospecting,
 - ✚ Advanced Potential Field,
 - ✚ Subsurface Mapping and
 - ✚ Interpretation of Well logs
- Solid Earth Geophysics
 - ✚ Geodynamics, Geophysics of Continental Margins and
 - ✚ Regional Gravity Studies.

Research Publications:

Research areas cover: **(a) Petroleum Geosciences, (b) Geodynamic modeling using Gravity & Seismic Data; (c) Gravity Studies for Geologic Interpretation, (d) Proterozoic Plate Tectonics & (e) Seismotectonics.**

a) Petroleum Geosciences

1. R. Chatterjee, M. Mukhopadhyay and S. Paul, 2011. Overpressure zone under the Krishna-Godavary Offshore Basin: Geophysical implications for natural hazard in deeper-water drilling. NATURAL HAZARDS (Springer), vol. 57(1), DOI [10.1007/s11069-010-9659-6](https://doi.org/10.1007/s11069-010-9659-6).

2. S. Mogren, A.H. Al-Ghamdi & M. Mukhopadhyay, 2010. Central Arabia Salt Basin inferred by gravity modeling. GeoCanada2010 – Working with the Earth, Calgary Canada: pp. 1-7.
 3. Firyal Bou-Rabee and M. Mukhopadhyay, 2008. Oilfield seismicity in Kuwait and its environmental impact. In: "Near-surface Geophysics and Human Activity", Proc. 3rd International Conference on Environmental & Engineering Geophysics, June 2008, Wuhan, China, published by Science Press, U.S.A. ISBN 978-1-933100-31-9.
 4. R. Chatterjee and M. Mukhopadhyay, 2008. In-situ stress results from East Coast Basins of India. Presented at WORLD STRESS MAP CONFERENCE – October 2008, Potsdam. Geophysical Institute, Universitat Karlsruhe (Germany), <http://www.world-stress-map.org>
 5. R. Chatterjee and M. Mukhopadhyay, 2003. Stress modeling for the oil and gas fields of Krishna – Godavari and Cauvery Basins, India, using Finite Element Technique. PETROPHYSICS (SPWLA, Texas), 44: 342-350.
 6. R. Chatterjee and M. Mukhopadhyay, 2002. Petrophysical and geomechanical rock properties from the oilfields of the Krishna-Godavari and Cauvery Basins, India. BULL. ENG. GEOL. ENVIRONMENT (Springer-Verlag), 61(2): 169-176.
 7. R. Chatterjee and M. Mukhopadhyay, 2002. Effects of rock mechanical properties on local stress field of the Mahanadi Basin, India – Results from finite element modelling. GEOPHYS. RES. LETTERS. (Am. Geophys. Union), 29 (11), p.28-1 to 28-4.
 8. R. Chatterjee and M. Mukhopadhyay, 2001. In-situ stress determination using well log data for the oilfields of the Krishna-Godavari Basin, India. PETROPHYSICS (SPWLA, Texas), 43(No.1):26-37.
 9. R. Chatterjee and M. Mukhopadhyay, 2001. Stress-induced borehole elongation upto 3.6 km depth in the Cauvery Basin, India. SPWLA 42nd Annual Logging Symp., Houston, June 17-20, 2001, 13 pp.
 10. R. Chatterjee and M. Mukhopadhyay, 2000. Stress studies in the Mahanadi Offshore Basin, India, determined to 4.0 km from wellbore breakout data. PETROPHYSICS (SPWLA, Texas), 41: 481- 491.
 11. U. Ritter, M.B. Myhr and M. Mukhopadhyay, 1996*. Thermal history and hydrocarbon generation modeling in parts of the Voring Basin, Norwegian Sea. EAEG 58th Conf. & Tech. Exhbn., Amsterdam, June 1996, Petroleum Division.
- *Based on the work done by the authors at the Basin Modeling Group, Institute of Continental Shelf (IKU), Trondheim, Norway, during 1992-93.

b) Geodynamic Modeling using Gravity & Seismic Data:

1. M. Radhakrishna, S. Lasitha and M. Mukhopadhyay, 2008. Seismicity, gravity anomalies and lithospheric structure of the Andaman Arc, NE Indian Ocean. TECTONOPHYSICS, 460: 248-262.
2. M. Mukhopadhyay and M.R. Krishna, 1995. Gravity anomalies and deep structure of the Ninetyeast Ridge north of the equator, Eastern Indian Ocean – A hot spot trace model. MARINE GEOPHYS. RES. (Kluwer), 17: 201-216.
3. M. Mukhopadhyay and M.R. Krishna, 1992. Geophysical evidences for crustal transition under the eastern Continental margin of India. "Geoscientific Studies in the Bay of Bengal and the Andaman Sea", Geological Survey of India (Govt. of India), Spl. Publn., 29: 87-103.
4. M. Mukhopadhyay and M.R. Krishna, 1991. Gravity anomalies and deep structure of the Bengal Fan and its adjacent continental margins, NE Indian. TECTONOPHYSICS, 186:365-386.
5. M. Mukhopadhyay, 1988. Gravity anomalies and deep structure of the Andaman Arc. MARINE GEOPHYS. RES. (Kluwer), 90: 197-210.
6. M. Mukhopadhyay, 2000. Deep crustal structure of the West Bengal Basin

- deduced from gravity and Deep Seismic Sounding data. J. GEOL. SOC. INDIA, 56: 351-364.
7. M. Mukhopadhyay and S. Dasgupta, 1988. Deep structure and tectonics of the Burmese arc: Constraints from earthquake and gravity data. TECTONOPHYSICS, 149: 299-322.

c) Gravity Studies for Geologic Interpretation

1. Saad Mogren, Manoj Mukhopadhyay and Abdulaziz Al-jasser, 2011. Thermal isostasy below the Arabian Shield and Platform: implications caused by Red Sea spreading. Japan Geoscience Union Meeting, May 22-27, 2011, Makuhari, Chiba, Japan. www.jpogu.org/meeting_e2011/
2. Saad Morgan and Manoj Mukhopadhyay, 2011. Crustal configuration below the Arabian Shield and Platform: Constraints from gravity and IRIS Deep Seismic Refraction Data. Arabian Conferences of Geosciences, Riyadh, 26-28 April 2011, Saudi Society for Geosciences. www.geoscience.org.sa
3. M. Mukhopadhyay, 1994. Gravity modeling and its significance for deeper structure of three major anorthosite intrusions in the Eastern Ghats province, India. **IGCP Joint Meeting # 290 and #315**, McGill Univ., Montreal, Canada, Aug. 1994.
4. M. Mukhopadhyay, 1988. Gravity studies and their significance on the origin of anorthosites in eastern India. **PENROSE CONFERENCE** on "The Origin and Evolution of Anorthosites and Associated Rocks", Geol. Soc. America & National Science Foundation, U.S.A., held at Univ. Wyoming, Chugwater, Aug. 1988.
5. M. Mukhopadhyay, 1987. Gravity field and its significance to the origin of the Bengal anorthosite. J. GEOL. SOC. INDIA, 29: 489-499.
6. M. Mukhopadhyay, R.K. Verma and M.H. Ashraf, 1986. Gravity field and structure of the Rajmahal hills: Examples of the Paleo-Mesozoic continental margin in eastern India. TECTONOPHYSICS, 131: 353-367.
7. R.K. Verma, A.U.S. Sarma and M. Mukhopadhyay, 1984. Gravity field over Singhbhum, its relationship to geology and tectonic history. TECTONOPHYSICS, 106: 87-107.
8. R.K. Verma, T.K. Bandyopadhyay and M. Mukhopadhyay, 1980. Gravity field, structure and tectonics of the Raniganj Coalfield – 3D model. J. GEOL. SOC. INDIA, 21: 117-127.
9. R. K. Verma, N.C. Bhui and M. Mukhopadhyay, 1979. Geology, structure and tectonics of Jharia Coalfield (India) – 3 Dimensional model. GEOEXPLORATION (Elsevier), 17:305-324.
10. R.K. Verma, M. Mukhopadhyay, S.K. Roy and B.P. Sinha, 1978. An analysis of the gravity field over Singhbhum (Bihar), India. TECTONOPHYSICS, 44: 41-63.
11. R.K. Verma and M. Mukhopadhyay, 1977. An analysis of the gravity field in Northeastern India. TECTONOPHYSICS, 42: 283-317.
12. R.K. Verma and M. Mukhopadhyay, 1976. Tectonic significance of anomaly- elevation relationships in northeastern India. TECTONOPHYSICS, 34: 117-133.

d) Proterozoic Plate Tectonics

1. S. Mogren and M. Mukhopadhyay, 2012. Geophysics of Proterozoic crustal suturing in the Arabian shield and platform and later modifications caused by Red Sea spreading. **34th International Geological Congress, Brisbane, Australia.** www.34igc.org
2. R.A. Gibb, M.D. Thomas, P. Lapointe and M. Mukhopadhyay, 1983. Geophysics of proposed Proterozoic sutures in Canada. PRECAMBRIAN RES. (Elsevier), 19: 349-384.

3. M. Mukhopadhyay and R.A. Gibb, 1981. Gravity anomalies and deep structure of eastern Hudson Bay. *TECTONOPHYSICS*, 72: 43-60.
4. M.D. Thomas, R.A. Gibb and M. Mukhopadhyay, 1980. Evidence for late Precambrian plate tectonics in west Africa. **NATURE**, 284: 192.
5. R.A. Gibb and M. Mukhopadhyay, 1980. Belcher Foldbelt – segment of the circum-Superior suture in Canada. **26th Int. Geological Congress, Paris, July 1980.**
5. R.A. Gibb, M.D. Thomas and M. Mukhopadhyay, 1980. Precambrian sutures in Canada. *GEOSCIENCE CANADA*, 7:149-154.

e) Seismotectonics:

1. B. Mukhopadhyay, S. Mogren, M. Mukhopadhyay and S. Dasgupta, 2012. Incipient status of dyke intrusion in top crust – Evidences from the Al-Ays 2009 earthquake swarm, Harrat Lunayyr, SW Saudi Arabia. *GEOMATICS, NATURAL HAZARDS & RISK* (Taylor & Francis), London, (Accepted).
2. B. Mukhopadhyay; S. Dasgupta; M. Fnais and M. Mukhopadhyay, 2011. Modeling the pore-fluid diffusion process in aftershock initiation for 2004 Sumatra earthquake – Implications for marine geohazard estimation in the Andaman region. *NATURAL HAZARDS* (Springer), vol. 57(1), DOI 10.1007/s11069-011-9779-7, published online: 16 March 2011.
3. B. Mukhopadhyay, M. Mukhopadhyay and S. Dasgupta, 2011. Seismic clusters and their characteristics at the Arabian Sea Triple Junction: Supportive evidences for plate margin deformation. *J. GEOL. SOC. INDIA*, ISSN: 0016-7622 (print version), ISSN: 0974-6889 (e-version), Journal no. 12594.
4. B. Mukhopadhyay; M. Fnais, M. Mukhopadhyay and S. Dasgupta, 2010. Seismic cluster analysis for the Burmese-Andaman and West Sunda Arc – Insight into subduction kinematics. *GEOMATICS, NATURAL HAZARDS & RISK* (Taylor & Francis), London, 1: 283-314.
5. B. Mukhopadhyay; A. Acharya; S. Dasgupta and M. Mukhopadhyay, 2010. Relationship between earthquake swarm, rifting history, magmatism and pore pressure diffusion – An example from south Andaman Sea, India. *J. GEOL. SOC. INDIA* (Springer), 76: 164-170.
6. S. Dasgupta, B. Mukhopadhyay and M. Mukhopadhyay, 2010. Next impending earthquake in northern Burmese Arc – Search for a probable precursor. *MEMOIR GEOL. SOC. INDIA*, 75: 69-80.
7. S. Dasgupta, M. Mukhopadhyay, A. Bhattacharya and T.K. Jana, 2003. The geometry of the Burmese – Andaman subducting lithosphere. *J. SEISMOLOGY* (Kluwer), 7: 155-174.
8. M. Mukhopadhyay, 1999. The Indian School of Mines Seismological Observatory, Dhanbad (India). *J. GEOL. SOC. INDIA*, 54: 315-316.
9. M. Mukhopadhyay and S.K. Arora, 1999(#). Current seismicity and tectonics near the Gulf of Cambay: Evidences for the Khambhat Plume induced activity (using data from 'Gauribidanur Seismic Array', India). *J. GEOL. SOC. INDIA*, 54: 23-36. (#): The '**Gauribidanur Seismic Array**' is maintained by **Bhaba Atomic Research Centre (Mumbai), Dept. Atomic Energy, Govt. of India.**
10. S. Dasgupta and M. Mukhopadhyay, 1997. Aseismicity of the Andaman subduction zone and recent volcanism. *J. GEOL. SOC. INDIA*, 49: 513-521.
11. S. Dasgupta and M. Mukhopadhyay, 1993. Seismicity and plate deformation below the Andaman arc. *TECTONOPHYSICS*, 225: 529-542.
12. M. Mukhopadhyay, 1992. On earthquake focal mechanism studies for the Burmese arc. In: "**Seismology in India – An overview**", **INDIAN NATIONAL SCIENCE ACADEMY**, 62: 72-85.

13. S. Dasgupta, M. Mukhopadhyay and D.R. Nandy, 1990. Magmatism and tectonic setting in the Burmese – Andaman Arc. *INDIAN J. GEOLOGY*, 62: 117-141.
14. S. Dasgupta, M. Mukhopadhyay and D.R. Nandy, 1987. Active transverse features in central portion of the Himalaya. *TECTONOPHYSICS*, 136: 255-264.
15. S. Dasgupta, D.R. Nandy and M. Mukhopadhyay, 1985. Active mega structures of Nepal-Sikkim Himalaya. *BULL. GEOL. MINING & METALLURGICAL SOC. INDIA*, 53: 18-26.
16. M. Mukhopadhyay, 1984. Seismotectonics of the transverse lineaments in the eastern Himalaya and its foredeep. *TECTONOPHYSICS*, 109: 227-240.
17. M. Mukhopadhyay, 1984. Seismotectonics of subduction and back-arc rifting under the Andaman Sea. *TECTONOPHYSICS*, 108: 229-239.
18. R.K. Verma, M. Mukhopadhyay and B.N. Roy, 1981. Seismicity of Himalaya and Tibetan region, implications of continental plate convergence. *Geol. Survey of India Misc. Publn.*, 41 (Part IV):193-206.
19. R.K. Verma, M. Mukhopadhyay and A.K. Bhanja, 1980. Seismotectonics of the Hindukush and Baluchistan Arc. *TECTONOPHYSICS*, 66: 301-322.
20. R.K. Verma, M. Mukhopadhyay and A.K. Nag, 1980. Seismicity and tectonics in south China and Burma. *TECTONOPHYSICS*, 64: 85-96.
21. R.K. Verma, M. Mukhopadhyay and N.C. Bhuin, 1978. Seismicity, gravity and tectonics in the Andaman Sea. *J. PHYS. EARTH (Tokyo)*, 26: S323-S248.
22. R.K. Verma, M. Mukhopadhyay and B.N. Roy, 1977. Seismotectonics of the Himalaya and the continental plate convergence. *TECTONOPHYSICS*, 42: 319-333.
23. R.K. Verma, M. Mukhopadhyay and M.S. Ahluwalia, 1976. Seismicity, gravity and tectonics of northeast India and northern Burma. *SEISMO. SOC. AMERICA BULL.*, 66:1683-1694.
24. R.K. Verma, M. Mukhopadhyay and M.S. Ahluwalia, 1976. Earthquake mechanisms and tectonic features in northern Burma. *TECTONOPHYSICS*, 32: 387-399.

Cited References (of Prof. Mukhopadhyay's work) in:

CANADIAN GEOPHYSICAL ATLAS, published by the Geological Survey of Canada, Ottawa:

- i. Map 3, Bouguer Gravity Anomaly Map of Canada, scale 1:10 million, 1987, by A.K. Goodacre, R.A.F. Grieve & J.F. Halpenny.
- ii. Map 5, Horizontal Gradient of the Bouguer Gravity Anomaly Map of Canada, scale 1:10 million, 1987, by A.K. Goodacre, R.A.F. Grieve, J.F. Halpenny and V.L. Sharpton.
- iii. Map 6, Vertical Gradient of the Bouguer Gravity Anomaly Map of Canada, scale 1:10 million, 1989, by A.K. Goodacre, R.A.F. Grieve and J.F. Halpenny.

BOUGUER GRAVITY ANOMALY MAP OF BANGLADESH, published by the Geological Survey of Bangladesh and the United States Geological Survey, Denver, scale 1:1 million, 1990. Authors: M.A. Rahman, M.A. Mannan, H.R. Jr. Blank, M.D. Kleinkopf and R.P. Kucks.

SEISMOTECTONIC ATLAS OF INDIA AND ITS ENVIRONS, published by the Geological Survey of India, 2000. References (of M. Mukhopadhyay's work) cited in 19 out-of-a-total-of 42 Map Sets presented in the ATLAS.