

## REFERENCES

- Anderson, K.B., Spotila, J.A., and Hole J.A. (2003) Application of geomorphic analysis and ground penetrating radar to characterization of paleoseismic sites in dynamic alluvial environments: an example from southern California. *Tectonophysics*, v. 368, pp. 25-32.
- Annan, A. P., and Davis, J. L. (1976) Impulse radar sounding in permafrost. *Radio Science*, v. 11, pp. 383-394.
- Annan, P., Bauman, P., Greenhouse, J.P. and Redman, J.P. (1991) Geophysics and DNAPLs. *Groundwater Management*, v. 5, pp. 963-977.
- Ascione, A., and Romano, P. (1999) Vertical movements on the eastern margin of the Tyrrhenian extensional basin: New data from Mt. Bulgheria (Southern Apennines, Italy). *Tectonophysics*, v. 315, pp. 337-356.
- Audru, J. C., Bano, M., Begg, J., Berryman, K., Henrys, S. and Niviere, B. (2001) GPR investigations on active faults in urban areas: the Georisc-NZ project in Wellington, New Zealand. *Tectonics*, v. 333, pp. 447-454.
- Bakun, W. H. and McEvilly, T. V. (1979) Earthquakes near Parkfield, California: Comparing the 1934 and 1966 sequence. *Science*, v. 205, pp. 1375-1377.
- Bakun, W. H., Stewart, R. M., Bufe, C. G. and Marks, S. M. (1980) Implication of seismicity for failure of a section of the San Andreas fault. *Bulletin Seismological Society of America*, v. 70, pp. 185-201.
- Bano, M., Marquis, G., Niviere, B., Maurin, J.C. and Cushing, M. (2000) Investigating alluvial and tectonic features with ground-penetrating radar and analyzing diffractions patterns. *Journal of Applied Geophysics*, v. 43, pp. 33-41.
- BaoZheng, C., ZhenQi, H. and WeiDong, L. (2004) The Utilization of GPR data in GIS. *Proceedings of the 12<sup>th</sup> International Conference on Geoinformatics – Geospatial Information Research: Bridging the Pacific and Atlantic*, University of Gavle, Sweden, pp. 307-310.
- Baskaran, M., Deshpande, S.V., Rajaguru, S.N. and Somayajulu, B.L.K. (1989) Geochronology of miliolite rocks of Kutch, western India. *Journal of Geological Society of India*, v. 33, pp. 588-593.
- Becker, A. (1995) An attempt to define a neotectonic period for central and northern Europe, *International Journal of Earth Sciences*, v. 82, doi:10.1007/BF00563271
- Benson, A. K. (1995) Application of ground penetrating radar in assessing some geological hazards: examples of ground water contamination, faults, cavities. *Journal of Applied Geophysics*, v. 33, pp. 177-193.
- Beres, M. and Haeni, F.P. (1991) Application of Ground Penetrating Radar Methods in Hydrogeologic Studies. *Groundwater*, v. 29, pp. 375-386.
- Bhatt, N. P., Patidar, A. K., Maurya, D. M., and Chamyal, L. S. (2006) Delination of three shallow subsurface faults using GPR in south Saurashtra, western India. *11<sup>th</sup> International Beneduce, P., Festa, V., Franciosso, R., Schiattarella, M., Tropeano, M., (2004) Conflicting drainage patterns in the Matera Horst area, southern Italy. *Physics and Chemistry of the Earth*, v. 29, pp. 717-724.*

- Conference on Ground Penetrating Radar, 2006, (GPR 2006), The Ohio State University, Columbus, USA.
- Bilham., R. (1998) Slip parameters for the rann of Kachchh, India, 16 July 1819, earthquake quantified from contemporary accounts. In: Stewart, I.S. and Vita-Finzi, C. (eds.), Coastal Tectonics, Geological Society Special Publication, London, 146, pp. 295-319.
- Biswas, S. K. (1982) Rift basins in western margin of India and their hydrocarbon prospects with special reference to Kutch Basin. *Journal of American Association of Petroleum Geologists*, v. 10, pp. 1497-1513.
- Biswas, S. K. (1987) Regional tectonic framework, structure and evolution of western marginal basins of India. *Tectonophysics*, v. 135, pp. 307-327.
- Biswas, S.K. (1971) The miliolite rocks of Kutch and Kathiawar. *Sedimentary Geology*, v. 5, pp. 147-164.
- Biswas, S.K. (1973) A note on the mode of eruption of the Deccan Trap lavas with special reference to Kutch. *Journal of Geological Society of India*, v. 14, pp. 134-141.
- Biswas, S.K. (1974) Landscape of Kutch- A morphotectonic Analysis. *Indian Journal of Earth Sciences*, v. 1, pp. 177-190.
- Biswas, S.K. (1977) Mesozoic Rock Stratigraphy of Kutch. *Quarterly Journal of the Geological, Mining and Metallurgical Society of India*, v. 49, pp. 1-52.
- Biswas, S.K. (1981) Basin framework, paleoenvironment and depositional history of the Mesozoic sediments of Kutch basin, Western India. *Quarterly Journal of the Geological, Mining and Metallurgical Society of India*, v. 53, pp. 56-85.
- Biswas, S.K. (1993) Geology of Kutch. KDM Institute of Petroleum Exploration, Dehradun, 450 p.
- Biswas, S.K. (2005) A review of structure and tectonics of Kutch basin, western India, with special reference to earthquakes. *Current Science*, v. 88, pp. 1592-1600.
- Biswas, S.K. and Deshpande, S.V. (1970) Geologic and Tectonic maps of Kachchh. *Bull. Oil and Natural Gas Commission*, v. 7, pp. 115-116.
- Biswas, S.K. and Khattri, K.N. (2002) A geological study of earthquakes in Kachchh, Gujarat, India. *Journal Geological Society of India*, v. 60, pp. 131-142.
- Bridge, J.S., Collier, R.E.L., and Alexander, J. (1998) Large scale structure of Calamas river deposits (Nebraska, USA) revealed using Ground Penetrating Radar. *Sedimentology*, v. 45, pp. 977-986.
- Bristow, C. S. (1995) Facies analysis in the Lower Greensand using ground penetrating radar. *Journal of the Geological Society*, London, v. 152, pp. 591-598.
- Busby, J. P. and Meritt, J. W. (1999) Quaternary deformation mapping with ground penetrating radar. *Journal of Applied Geophysics*, v. 41, pp. 75-91.
- Cai, J., McMechan, G.A. and Fisher, M.A. (1996) Application of ground penetrating radar to investigation of near surface fault properties in the San Francisco Bay region. *Bulletin of the Seismological Society of America*, v. 86, pp. 1459-1470.

- Carreon-Freyre, D., Cerca, M. and Hernandez-Marin, M. (2003) Correlation of near-surface stratigraphy and physical properties of clayey sediments from Chalco Basin, Mexico, using Ground Penetrating Radar. *Journal of Applied Geophysics*, v. 53, pp. 121–136.
- Chakrabarti, A., Somayajulu, B.L.K., Baskaran, M. and Kumar, B. (1993) Quaternary miliolites of Kutch and Saurashtra, western India: Depositional environments in the light of physical sedimentary structures, biogenic structures and geochronological setting of the rocks. *Senckenbergia Maritima*, v. 23, pp. 7-28.
- Chamyal, L. S., Maurya, D. M., Bhandari, S., and Raj, R. (2002) Late Quaternary geomorphic evolution of the lower Narmada valley, western India: implications for neotectonic activity along the Narmada–Son fault. *Geomorphology*, v. 46, pp. 177–202.
- Chamyal, L. S., Patidar, A. K. and Gupta, K. R. (2008) Ground Penetrating Radar and its use in Subsurface Geological Studies: Examples from Gujarat, Western India. *Geo-Spectrum Interface*, v. 2, pp. 5-16.
- Chow, J., Angelier, J., Hua, J.-J., Lee, J.-C. and Sun, R. (2001) Palaeoseismic Events and Active Faulting: from Ground Penetrating Radar and High Resolution Seismic Reflection Profiles Across the Chihshary Fault, Eastern Taiwan. *Tectonophysics*, v. 333, pp. 241-259.
- Coltorti, M., Farabolini, P., Gentili, B. and Pambianchi, G. (1996) Geomorphological evidence for anti-Apennine faults in the Umbro-Marchean Apennines and in the peri-Adriatic basin, Italy. *Geomorphology*, v. 15, pp. 33-45.
- Daniels, J.J. (2000) Ground Penetrating Radar Fundamentals. (Prepared as an appendix to a report to the U.S.EPA, Region V, Nov, 2000), available at <<http://www.geology.ohio-state.edu>>
- Daniels, J.J., Roberts, R., and Vendl, M. (1995) Ground Penetrating Radar for the Detection of Liquid Contaminants. *Journal of Applied Geophysics*, v. 33, pp. 195-207.
- Davis, J. L. and Annan, A.P. (1989) Ground-Penetrating radar for high-resolution mapping of soil and rock stratigraphy. *Geophysical Prospecting*, v. 37, pp. 531-551.
- Dorsey, R. J. and Roering, J. J. (2006) Quaternary landscape evolution in the San Jacinto fault zone, Peninsular Ranges of Southern California: Transient response to strike slip fault initiation. *Geomorphology*, v. 73, pp. 16-32.
- Eaton, J. P., O'Neill, M. E. and Murdock, J. N. (1970) Aftershocks of the 1966 Parkfield-Cholame, California, earthquake: A detailed study. *Bulletin of Seismological Society of America*, v. 60, pp. 1151–1197.
- Ekes, C., and Hickin, E.J. (2001) Ground Penetrating Radar Facies of the Proglacial Cheekye Fan, Southwestern British Columbia, Canada. *Sedimentary Geology*, v. 143, pp. 199-217.
- Feilding, C.R., Alexander, J., and McDonald, R., (1999) Sedimentary facies from Ground Penetrating Radar surveys of the modern, Upper Burdekin River of North Queensland, Australia: consequences of extreme discharge fluctuations. *International Association of Sedimentology, Special Publication*, 28, pp. 347–362.
- Ferry, M., Meghraoui, M., Girard, J., Rockwell, T. K., Kozaci, O., Akyuz, S. and Barka, A. (2004) Ground penetrating radar investigations along the North Anatolian fault near Izmit,

Turkey: Constraints on the right-lateral movement and slip history. *Geology*, v. 32, pp. 85-88.

Fisher, S. C., Stewart, R. R. and Jol, H. M. (1996) Ground penetrating radar (GPR) data enhancement using seismic techniques. *Journal of Engineering and Environmental Geophysics*, v. 1, pp. 88-96.

Ganas, A., Pavlides, S.B., Sboras, S., Valkaniotis, S., Papaioannou, S., Alexandris, G. A., Plessa, A. and Papadopoulos, G.A. (2004) Active fault geometry and kinematics in Parnitha Mountain, Attica, Greece. *Journal of Structural Geology*, v. 26, pp. 2103-2118.

Gawthrope, R.L., Collier, R.E.L., Alexander, J., Bridge, J.S. and Leeder, M.R. (1993) Ground Penetrating Radar: application of sandbody geometry and heterogeneity studies. In: North, C.J., Prosser, D.J. (Eds.), *Characterization of Fluvial and Aeolian Reservoirs*. Special Publication-Geological Society of London, v. 73, 421-432.

Gergan, J. T., Dobhal, D. P. and Kaushik, R. (1999) Ground Penetrating Radar ice thickness measurements of Dokriani bamak (glacier), Garhwal Himalaya. *Current Science*, v. 77, pp. 169-173.

Glennie, K.W. and Evans, G. (1976) A reconnaissance of the Great Rann of Kachchh, India. *Sedimentology*, v. 23, pp. 625-647.

Green, A.G., Gross, R., Holliger, K., Horstmeyer, H. and Baldwin, J. (2003) Results of 3-D georadar surveying and trenching the San Andreas fault near its northern landward limit. *Tectonophysics*, v. 368, pp. 7-23.

Gross, R., Green, A.G. and Horstmeyer, H. (2004) Location and geometry of the Wellington Fault (New Zealand) defined by detailed three-dimensional georadar data. *Journal of Geophysical Research (Solid Earth-Red)*, Vol.109 (B5), art. no. B05401.

Gross, R., Holliger, K., Green, A.G. and Begg, J. (2000) 3D Ground Penetrating Radar Applied to Palaeoseismology: examples from the Willington Fault, New Zealand. *Proceedings of the 8<sup>th</sup> International Conference on Ground Penetrating Radar (GPR 2000)*, Gold Coast, Australia, 2000, May 23-26, 478- 481.

Gupta., S. K. (1975) Silting of the Rann of Kachchh during Holocene. *Indian Journal of Earth Sciences*, v. 2, pp. 163-175.

Hill, D. P. (1977) A model for earthquake swarms. *Journal of Geophysical Research*, v. 82, pp. 1347-1352.

<http://neotectonics.seismo.unr.edu/CNSHome.html> University of Nevada, Reno, Center for Neotectonic Studies.

Huisman, J. A., Hubbard, S. S., Redman, J. D. And Annan, A. P. (2003) Measuring Soil Water content with Ground Penetrating Radar: A review. *Vadose Zone Journal*, v. 2, pp. 476-491.

Johnson, C. E. and Hadley, D. M. (1976) Tectonic implications of the Brawley earthquake swarm, Imperial Valley, California, 1975. *Bulletin Seismological Society America*, v. 66, pp. 1132-1144.

- Jol, H. M. (1995) Ground penetrating radar antenna frequencies and transmitter powers compared for penetration depth, resolution and reflection continuity. *Geophysical Prospecting*, v. 43, pp. 693-709.
- Jol, H. M., Bristow, C. S. (2003) GPR in sediments: Advice on data collection, basic processing and interpretation, a good practice guide. In: Bristow, C. S., Jol, H. M. (Eds.), *Ground Penetrating Radar in sediments*, Geological Society, London, Special Publication, 211, pp. 9-27.
- Jol, H.M., Smith, D.G. (1991) Ground Penetrating Radar of northern lacustrine deltas. *Canadian Journal of Earth Sciences*, v. 28, pp. 1939–1947.
- Kar, A. (1993) Neotectonic influences on morphological variations along coastline of Kachchh, India. *Geomorphology*, v. 8, pp. 199-219.
- Kar, A. (1995) Geomorphology of the Western India. *Memoir of Geological Society of India*, v. 32, pp. 168–190.
- Kruk, J. V. D. and Slob, E. C. (1996) Reduction of reflection from above surface objects in GPR data. *Journal Applied Geophysics*, v. 35, pp. 271-278.
- Liner, C.L. and Liner, J.L. (1997) Application of GPR to a site investigation involving shallow faults. *The Leading Edge*, v. 16, pp. 1649-1651.
- Lui, L., Lane, J. and Quan, Y. (1998) GPR Attenuation Tomography using Frequency Shift Method. *Journal Applied Geophysics*, v. 40, pp. 105-116.
- Lui, L., Li, Y. (2001) Identification of liquefaction and deformation features using Ground Penetrating Radar in the New Madrid Seismic Zone, USA. *Journal of Applied Geophysics* v. 47, pp. 199–215.
- Mac Murdo, J. (1824) Papers relating to the earthquake which occurred in India in 1819. *Philosophical Magazine*, v. 63, pp. 105–177.
- Maurya, D. M., Patidar, A. K., Mulchandani, N., Goyal, B., Thakkar, M. G., Bhandari, S., Vaid, S. I., Bhatt, N. P. and Chamyal, L. S. (2005) Need for initiating ground penetrating radar studies along active faults in India: An example from Kachchh. *Current Science*, v. 88, pp. 231-240.
- Maurya, D. M., Thakkar M. G. and Chamyal, L. S. (2003a) Implications of transverse fault system on tectonic evolution of Mainland Kachchh, western India. *Current Science*, v. 85, pp. 661-667.
- Maurya, D. M., Thakkar, M. G., Patidar, A. K., Bhandari, S., Goyal, B. and Chamyal, L. S. (2008) Late Quaternary geomorphic evolution of the coastal zone of Kachchh, Western India. *Journal of Coastal Research*, v. 24, pp. 746-758.
- Maurya, D.M., Bhandari, S., Thakkar, M.G., Chamyal, L.S. (2003b) Late Quaternary fluvial sequences of southern Mainland Kachchh, western India. *Current Science*, v. 84, pp. 1056-1064.
- Maurya, D.M., Goyal, B., Patidar, A.K., Mulchandani, N., Thakkar, M.G. and Chamyal, L.S. (2006) Ground Penetrating Radar imaging of two large sand blow craters related to the 2001 Bhuj earthquake, Kachchh, Western India. *Journal of Applied Geophysics*, v. 60, pp. 142-152.

Maurya, D.M., Thakkar, M.G., Chamyal, L.S. (2003). Quaternary geology of the arid zone of Kachchh: Terra incognita. Proceedings of Indian National Scieince Academy, v. 69, pp. 125-135.

Merh, S. S. (1995) Geology of Gujarat. Geological Society of India, Bangalore, 222 pp.

Merh, S. S. and Patel, P. P. (1988) Quaternary Geology and Geomorphology of the Rann of Kutch. Proc. National Seminar on Recent Quaternary studies in India. M. P. Patel and N. D. Desai (eds.), pp. 371-391.

Meschede, M., Aspiron, U. and Reicherter, K. (1997) Visualisation of tectonic structures in shallow-depth high-resolution ground penetrating radar (GPR) profiles. *Terra Nova*, v. 9, pp. 167-170.

Meyers, R.A., Smith D.G., Jol, H.M. and Peterson, C.D. (1996) Evidence for Eight Great Earthquake- Subsidence Events Detected with Ground Penetrating Radar, Willapa Barrier, Washington, *Geology*, v. 24, pp. 99-102.

Mulchandani, N., Patidar, A. K., Vaid, S. I. and Maurya, D.M. (2007) Late Cenozoic geomorphic evolution in response to inversion tectonics, Kim river basin, Western India. *Journal of Asian Earthsciences*, v. 30, pp. 33-52.

Neal, A. (2004) Ground-penetrating radar and its use in sedimentology: principles, problems and progress. *Earth-Science Reviews*, v. 66, pp. 261–330.

Neal, A. and Roberts C. L., 2000. Applications of Ground Penetrating Radar (GPR) to sedimentological, geomorphological and geoarchaeological studies in coastal environments. From: Pye, K. and Allen J. R. L. (eds.). *Coastal and Estuarine Environments: sedimentology, geomorphology and geoarchaeology*. Geological Society, London, Special Publication, 175, pp. 139-171.

Obruchev, V. A. (1948). Osnovnye cherty kinetiki i plastiki neotektonik. *Izv. Akad. Nauk, Ser. Geol.*, v. 5, pp. 13-24.

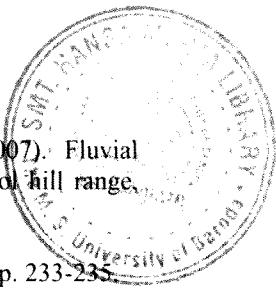
Olhoeft, G. R. (1984) Application and limitations of ground penetrating rdar. 54<sup>th</sup> Annual international Meeting and exposition of the society of exploration Geophysicists, December, 2-6, Atlanta, Georgia, Expanded Abstract with Biographies, pp. 147-148.

Ouchi, S. (1985) Response of alluvial rivers to slow active tectonic movement. *Geological Society America Bulletin* 96, 504-515.

Parsons, T. (2008) Persistent earthquake clusters and gaps from slip on irregular faults. *Nature Geoscience*, v. 1, pp. 51-63.

Patidar, A. K., Maurya D. M., Thakkar, M. G. and Chamyal, L. S. (2008) Evidence of neotectonic reactivation of the Katrol Hill Fault during late Quaternary and its GPR characterization. *Current Science*, v. 94, pp. 338-346.

Patidar, A. K., Maurya, D. M., Thakkar, M. G. and Chamyal, L. S. (2006) Shallow subsurface characterization of active faults using Ground Penetrating Radar: example of Katrol Hill Fault (KHF), Kachchh, western India. 11<sup>th</sup> International Conference on Ground Penetrating Radar, (GPR 2006), The Ohio State University, Columbus, USA.



- Patidar, A. K., Maurya, D. M., Thakkar, M. G. and Chamyal, L. S. (2007) Fluvial geomorphology and neotectonic activity based on field and GPR data, Katrol hill range, Kachchh, western India. *Quaternary International*, v. 159, pp. 74-92.
- Pavlides, S. B. (1989) Looking for a definition of neotectonics. *Terra Nova*, v. 1, pp. 233-235.
- RADAN for windows (2000) User's Manual. Published by Geophysical Survey Systems, Inc., USA
- Rajendran, C. P. and Rajendran, K. (2001) Characteristics of Deformation and Past Seismicity Associated with the 1819 Kutch Earthquake, Northwestern India. *Bulletin of Seismological Society of America*, v. 91, pp. 407-426.
- Rajendran, C. P. and Rajendran, K. (2003) Studying earthquake recurrence in the Kachchh region, India. *Eos Trans. AGU*, v. 84 (48), pp. 529, 533, 536.
- Rajendran, C. P., Rajendran, K., Thakkar, M. G. and Goyal, B. (2008) Assessing the previous activity at the source zone of the 2001 Bhuj earthquake based on the near-source and distant paleoseismological indicators. *Journal of Geophysical Research*, v. 113, pp. 1-17.
- Rajendran, K., Rajendran, C.P., Thakkar, M.G. and Gartia, R.K. (2002) Sand blows from the 2001 Bhuj earthquake reveal clues on past seismicity. *Current Science*, v. 83, pp. 603-610.
- Rajendran, K., Rajendran, C.P., Thakkar, M.G. and Tuttle, M.P. (2001) The 2001 Kutch (Bhuj) earthquake: coseismic features and their significance. *Current Science*, v. 80, pp. 1397-1405.
- Rajnath, (1942) The Jurassic rocks of Kutch and their bearing on some problems of Indian Geology. Pres. Add. Geol. Geog. Section, Proc. 29<sup>th</sup> Ind. Sci. Cong. Pt. II.
- Rashed, M., Kawamura, D., Nemoto, H., Miyata, T. and Nakagawa, K. (2003) Ground penetrating radar investigations across the Uemachi fault, Osaka, Japan. *Journal of Applied Geophysics*, v. 53, pp. 63-75.
- Rockwell T.K., Keller E.A., Clark M.N. and Johnson D.L. (1984) Chronology and rates of faulting of Ventura river terraces, California. *Geological Society of America Bulletin*, v. 95, pp. 1466-1474.
- Roy, B. and Merh, S. S. (1981) The Great Rann of Kutch—an intriguing Quaternary terrain. *Recent Researches in Geology*. Hindustan Publishing Corporation, India, pp. 100-108.
- Saarenketo, T. (1998) Electrical properties of water in clay and silty soil. *Journal of Applied Geophysics*, v. 40, pp. 73-88.
- Salvi, S., Cinti, F. R., Colini, L., Addezio, G. D., Doumaz, F. and Pettinelli, E. (2003) Investigation of the active Celano-L'Aquila fault system, Abruzzi (central Appennines, Italy) with combined ground penetrating radar and palaeoseismic trenching. *Geophysical Journal International*, v. 155, pp. 805-818.
- Schrott, L. and Sass, O. (2008) Application of field geophysics in geomorphology: Advances and limitations exemplified by case studies. *Geomorphology*, v. 93, pp. 55-73.
- Schumm, S.A., Dumont, J.F. and Holbrook, J.M. (2000) Active tectonics and alluvial rivers. Cambridge University Press, 274p.

- Shukla, S. B., Patidar, A. K. and Bhatt, N. (2008) Application of GPR in the study of shallow subsurface sedimentary architecture of Modwa spit, Gulf of Kachchh. *Journal of Earth System Sciences*, v. 117, pp. 33-40.
- Slater, L. and Niemi, T.M. (2003) Ground-penetrating radar investigation of active faults along the Dead Sea Transform and implications for seismic hazards within
- Somayajulu, B.L.K. (1993) Age and mineralogy of the miliolites of Saurashtra and Kachchh, Gujarat. *Current Science*, v. 64, pp. 926-928.
- Sridhar, A. and Patidar, A. (2005) Ground penetrating radar studies of a point-bar in the Mahi River Basin, Gujarat. *Current Science*, v. 89, pp. 183-189.
- Srivastava, P.K. (1971) Recent sediments of the Ranns of Kutch. *Journal of the Geological Society of India*, v. 12, pp. 392-395.
- Sun, J. and Young., R. A. (1995) Recognising surface scattering in ground penetrating radar data. *Geophysics*, v. 60, pp. 1378-1385.
- Thakkar, M.G. and Goyal, B. (2004) On the relation between magnitude and liquefaction dimension at the Epicentral zone of 2001 Bhuj Earthquake. *Current Science*, v. 67, pp. 811-817.
- Thakkar, M.G., Goyal, B., Patidar, A.K., Maurya, D.M. and Chamyal, L.S. (2006) Bedrock gorges in the central Mainland Kachchh: implications for landscape evolution. *Journal of Earth System Science*, v. 115, pp. 1-8.
- Thakkar, M.G., Maurya, D.M., Rachna Raj. and Chamyal, L.S. (1999) Quaternary tectonic history and terrain evolution of the area around Bhuj, Mainland Kachchh, Western India. *Journal Geological Society of India*, v. 53, pp. 601-610.
- Todoeschuck, J. P., Lafleche, P. T., Jensen, O. G., Judge, A. S. and Pilon, J. A. (1992) Deconvolution of ground probing radar data. In Pilon, J.A. (eds.) *Ground Penetrating Radar*. Geological Survey of Canada Paper, v. 90-4, pp. 227-230.
- Topp, G. C., Davis, J. L. and Annan, A. P. (1980) Electromagnetic determination of soil water content: measurements in coaxial transmission lines. *Water Resource Research*, v. 16, pp. 574-582.
- Van Dam, R. L. and Schlager, W. (2000) Identifying causes of groundpenetrating radar reflections using time-domain reflectometry and sedimentological analyses. *Sedimentology*, v. 47, pp. 435-449.
- Van Overmeeren R.A. (1998) Radar facies of unconsolidated sediments in the Netherlands: a Radar Stratigraphy Interpretation Method for Hydrogeology. *Journal of Applied Geophysics*, v. 40, pp. 1- 18.
- Waagen, W. (1875) Jurassic fauna of Cutch. *Pal. Jour. Ind. (G.S.I.) Ser. 9, 1.*
- Wallace, R.E. (1977) Profiles and ages of young fault scarps, north-central Nevada. *Geological Society of America Bulletin*, v. 88, pp. 1267-1281.

Wells S. G., Bullard T. F., Menges C. M., Drake P. G., Karas, P. A., Kelson K. I., Ritter J. B. and Wesling J. R. (1998) Regional variations in tectonic geomorphology along a segmented convergent plate boundary pacific coast of Coast Rica. *Geomorphology*, v. 1, pp. 239-265.

Wesnousky, S. G. (2005) The San Andreas and Walker Lane fault system, western North America: transpression, transtension, cumulative slip and the structural evolution of a major transform plate boundary. *Journal of Structural Geology*, v. 27, pp. 1505-1512.

[www.mines.edu/~golhoeft](http://www.mines.edu/~golhoeft)

Wyatt, D. E. and Temples, T. J. (1996) Ground penetrating radar detection of small-scale channels, joints and faults in the unconsolidated sediments of the Atlantic coastal plain. *Environmental Geology*, v. 27, pp. 219-225.

Wynne, A.B. (1872) Memoir on the geology of Kutch. *Mem. Geol. Surv. India*, 9 (2), 289p.

Wynne, A.B. and Fedden., F. (1872). The geology of Kutch. *Mem. Of G.S.I.*, vol. IX, pt. 1.

Yilmaz, O. (2001) Seismic Data Analysis. *Soc. Explor. Geophysics*, Tulsa.

Young, R. A. Deng, Z. and Sun, J. (1995) Interactive processing of GPR data. *The Leading Edge*, v. 14, pp. 275-280.

Young, R. A., Stewart, S. C., Seman, M.R. and Evans, B. J. (1990) Fault plane reflection processing and 3D display: the Darling Fault, Western Australia. *Tectonophysics*, v. 173, pp. 107-117.

Young, R.A. and Sun, J. (1998) Extracting a Radar Reflection from a Cluttered Environment Using 3-D Interpretation. *Journal of Environmental and Engineering Geophysics*, v. 3, pp. 121-131.