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Education:

- 1965-1968 University of Birmingham, U.K. B.Sc. (with honours) in Physics
1972-1976 University of Newcastle upon Tyne, U.K. Ph.D. in Geophysics

Professional Experience:

- 2001– Present Associate Dean for Graduate Studies, College of Natural Sciences and Mathematics, University of Houston, Houston, Texas.
- Sept/Oct. 2000 Research Scientist on board JOIDES R/V RESOLUTION in the Pacific Ocean collecting paleomagnetic data on Leg 192, Ocean Drilling Program
- 1993-1999 Chairman, Dept of Geosciences, University of Houston, Houston, Texas.
- 1992- Present Professor of Geosciences, University of Houston, Houston, Texas.
- July/Aug. 87 Research Scientist on board JOIDES R/V RESOLUTION in the Indian Ocean collecting paleomagnetic data on Leg 116, Ocean Drilling Program
- 1983- Present Co-Director, Paleomagnetic Research Laboratory, University of Houston, Houston, Texas.
- 1983-1992 Associate Professor of Geosciences, University of Houston, Houston, Texas.
- 1977-1983 Assistant Professor of Geosciences, University of Houston, Houston, Texas.
- 1976-1977 Consultant Geophysicist to the National Oil Corporation, Libya studying the crustal structure of the North African coastal plain.
- March 1975 Research Scientist on board research vessel R.R.S. SHACKLETON in the Indian Ocean and the Gulf of Aden collecting gravity and magnetic data.
- 1972-1975 Geophysicist with the U.S. Geological Survey Saudi Arabian Project, Jeddah, Saudi Arabia, directing a study of the magnetic field over the Red Sea and adjacent land areas.
- 1969-1972 Research Associate/Senior Research Associate, Dept. of Geophysics and Planetary Physics, University of Newcastle upon Tyne, engaged in the analysis and interpretation of geophysical data from the rift areas of East Africa.

Professional Societies:

Fellow of the Royal Astronomical Society	1972-Present
Member of the American Geophysical Union	1973-Present
Member of the Society of Sigma Xi, U.S.A.	1977-Present
Member of the Society of Exploration Geophysicists	1979-Present

Publications:

Hall , S.A. and Girdler, R.W., 1970. An aeromagnetic survey over the junction of the Ethiopian Rift with the Gulf of Aden and Red Sea Rifts: Geol. Soc. London Proc., no. 1663, p. 155.

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Evans, I. and Hall, S.A., 1985. Paleomagnetic results from the Ordovician Table Head Group of southwestern Newfoundland: Trans. Am. Geophys. Union, v. 66, no. 18, p. 255.

Titus, M., Casey, J.F., Hall, S.A. and Elthon, D., 1985. Paleomagnetic evidence bearing on the age of serpentinization of the Bay of Islands Ophiolite Complex and implications for the nature of the oceanic Moho: Trans. Am. Geophys. Union, v. 66, no. 18, p. 375.

Hall, S.A., 1985. Magnetic anomalies and the ocean/continent boundary of western Saudi Arabia: International Assoc. Geomag. Aeronomy, 5th General Assembly, Prague, Czechoslovakia, Abstracts, v. 2, p. 471.

Martin, R.G., Thomas, W.A. and Hall, S.A., 1986. Late Paleozoic suture and accreted terrane in southwest Alabama: Transect F2: Geol. Soc. America Abstracts with Programs, v. 18, no. 6, p. 684.

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Distal Bengal Fan, ODP Leg 116: Am. Assoc. Petr. Geol., Annual Meeting.

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and Blizzard, K.S., 1992. Geophysics and geochemistry of the Siwalik Group, Nepal: implications for the rates and scale of tectonism in the central Himalaya and the onset of the Asian Monsoon: *Trans. Am. Geophys. Union*, v. 73, p. 545.

Hall, S.A., and Najmuddin, I., 1992. Constraints on the tectonic development of the Gulf of Mexico provided by magnetic anomaly data over the deep Gulf: presented at Gulf Coast SEPM Foundation 13th Annual Research Conference entitled " Mesozoic and Early Cenozoic Development of the Gulf of Mexico and Caribbean Region: a context for hydrocarbon exploration", Houston, Tx, Dec. 6-9, 1992

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Nagihara, S., Urizar, S.C., and Hall, S.A., 1999. Three dimensional gravity inversion based on the simulated annealing algorithm for constraining diapiric roots of salt canopies: SEG Annual Convention, Houston, Oct., 1999 - extended abstract

Bird, D.E., Hall, S.A., Casey, J.F., and Burke, K., 2001. Geophysical Evidence for a Possible Late Jurassic Mantle Plume in the Gulf of Mexico : *Trans. AGU*, 82 (47), Fall Meet. Suppl., Abstract T32C-11.

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Riisager, P., Hall, S.A., Antretter, M., and Zhao, X., 2003. Paleomagnetic paleolatitude of Early Cretaceous Ontong Java Plateau basalts : implications for Pacific apparent and true polar wander: EUG-AGU meeting in Nice, France,

Heggy, E., F. Horz, F., Reid, A., Hall, S.A., and C. Chan, C., 2004. Potential of radar imaging and sounding methods in mapping heavily eroded impact craters: mapping the Hico Crater: *Lunar Planet. Sci. XXXV*, # , Lunar and Planetary Institute, Houston, Texas, USA

Rajmon, D., Hall, S.A., Reid, A. M., Miller, R. McG., Robertson, D. J., 2004. Magnetic investigations of breccia veins and basement rocks from Roter Kamm Crater and surrounding region, Namibia: *Lunar Planet. Sci. XXXV*, #1867, Lunar and Planetary Institute, Houston, Texas, USA

Hamade, A.K., Murphy, M.A., and Hall, S.A., 2004. Controls on Structural Styles in the

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Bird, D.E., Burke, K, Hall, S.A., and Casey, J.F., 2005. The Tectonic History of the Gulf of Mexico. AGU/SEG Joint Assembly, New Orleans, May.

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Research Interest:

Current interests fall broadly into three categories. These include:

1. The use of geophysical data, predominantly magnetic and gravity data, to investigate the early history and development of small ocean basins (e.g. Gulf of Mexico and Red Sea), the tectonic evolution of oceanic plateaus (e.g., Caribbean Sea and the Ontong Java Plateau) and the structure of presently active (Mid Atlantic Ridge) and extinct (e.g. Coral Sea and Labrador Sea) mid-ocean spreading centers.
2. Paleomagnetic investigations of local, regional and global tectonic problems including the structural/ tectonic history of orogenic belts (e.g., the Sierra Madre Oriental of northeastern Mexico, the Pontide Mountains of northern Turkey, and the Appalachian Mountains of the eastern US), magnetostratigraphic studies of both ancient and recent deposits (e.g., Ordovician carbonates in Newfoundland, and molasse deposits in Nepal), and rock magnetic property studies of shelf carbonates from the Permian Basin aimed at developing a better understanding of the role of migrating fluids on the acquisition of magnetic remanence.
3. Geomagnetic time variations such as polarity reversals, secular changes, etc produced by internal processes within the Earth's core. The preparation and refinement of an internationally accepted geomagnetic field from magnetic survey and observatory data.

Research Experience:

LIBYA	A study of the regional tectonics of the coastal areas of Tripolitania 1976-1977 using gravity and magnetic data. Project included an investigation of the structure and emplacement of igneous bodies in the Ghadames Basin.
EGYPT	A study of the Eastern Desert and adjacent Red Sea coastal areas 1980-1986 using land based and seaborne gravity and magnetic surveys. Aims of the project included the delineation of the ocean/continent transition and an attempt to better define the crustal structure beneath young continental margins.
SAUDI ARABIA	A study of the structure of the Arabian Red Sea coastal plain using 1980-1986 land based gravity and magnetic surveys. The purpose of the study was twofold: (1) to determine variations in structural features and crustal nature across the coastal plain and (2) to relate these variations to similar features observed on the corresponding Egyptian Red Sea coastal plain.
CARIBBEAN	A project involving the analysis of existing magnetic data from 1978-present each of the four Caribbean basins, viz. Yucatan, Colombian, Venezuelan and Grenada basins, initiated as part of a NASA project on the Caribbean Plate. The main objective of the project was a better understanding of the tectonic evolution of the entire area.
MEXICO	Paleomagnetic studies of Cretaceous sediments in northeast Mexico. 1979-1993 Initial projects involving the Cupido (Barremian) and Aurora (Albian) formations indicated a major rotation associated with a substantial bend in the Sierra Madre Oriental near Saltillo, which is thought to be related to the Laramide Orogeny in the region. Present studies are aimed at better defining the extent of the region involved in the rotation. Toward this end similar age rocks have been collected from areas around Torreon and southeast of Saltillo.
TURKEY	Magnetostratigraphic studies of Jurassic limestones in the Pontide 1979-1981 Mountains of northern Turkey. Samples gathered from western Anatolia indicate that the Pontides possibly comprise several discrete crustal blocks which have undergone deformation during the closure of the neo-Tethys. A large block, the Sakarya Continent, has been studied in some detail in order to ascertain its size and the timing of its deformation.
1987-93	Paleomagnetic analyses of Paleozoic aged rocks from the Istanbul-Balkan Fragment. Initial sampling has been carried out across an extensive area of the Istanbul Nappe. Future studies will focus on more intensive sampling of the region. Initial results support a complex model for the late Paleozoic evolution of the area.
GULF OF MEXICO	1. The initial phase of the Ocean Margin Drilling Project involved a 1980-1984 synthesis of geological and geophysical data in the Gulf of Mexico by a four-university consortium. The compilation of existing gravity and magnetic data for the eastern block was the special

- responsibility of the University of Houston. Project involved an appraisal of the evidence for several tectonic models in light of the gravity, magnetic and other data.
- 1982-1985 2. The U.S. Geodynamics Transects Program involved a study of geological and geophysical data along narrow (100 km wide) corridors which originate in the Proterozoic of N. America and extend to the present-day continental margins. Working Group "F" was involved in modelling gravity and magnetic data along the transect which stretches across the eastern Gulf of Mexico from NE Mississippi to the southern coast of Cuba.
- 1989 -Present 3. Analysis and interpretation of a detailed, high quality aeromagnetic survey of the eastern deep Gulf. Survey area covers boundary between oceanic crust and transitional crust and permits the seafloor spreading history of the Gulf to be examined in much more detail.
- NEWFOUNDLAND 1. A magnetostratigraphic study of Middle to Upper Ordovician 1983-1991 sediments western Newfoundland. Samples included a variety of lithologies in biostratigraphically well-dated sediments that have been collected from both autochthonous and parautochthonous parts of the Table Head Group and overlying formations. Study is aimed at establishing a magneto-stratigraphic section for the Middle and Upper Ordovician and forms the first stage of broader study to characterize the Ordovician geomagnetic field in N. America.
2. Paleomagnetic studies of the Bay of Islands Ophiolite Complex. Studies include the determination of magnetic mineralogy and paleomagnetic pole positions for the various units of the ophiolite. Special emphasis has been on determining the timing of serpentization of the gabbros. Future studies are planned to examine the sheeted dykes and pillow lavas.
- NEPAL Magnetostratigraphic study of the Siwalik Group in Nepal. Study focuses 1993-present on the use of magnetostratigraphy as a tool with which to date various tectonic events in the uplift of the Himalaya. Changes in deposition are being linked to major thrusting events. Ar39/Ar40 dating is providing information on the
- PERMIAN BASIN Project involves the careful examination of the magnetic properties of WEST TEXAS a reservoir rock (San Andres Formation) within a mature hydrocarbon 1992-present province(i.e. the Permian Basin) . The objectives of the study include the determination of the magnetic signature variations within core material from the reservoir horizons in both the Vacuum Field (New Mexico) and the Monahans Field of west Texas , the correlation of variations in the magnetic properties (from both reservoir and non-reservoir rocks) with petrographic, sedimentologic, geochemical and petrophysical property (porosity, permeability, oil saturation etc.) information provided by industrial collaborators, and the evaluation the role played by in-situ

hydrocarbons on these magnetic properties.

MISCELLANEOUS PROFESSIONAL ACTIVITIES:

- International Geomagnetic Reference Field Committee, Society of Exploration Geophysicists, 1978-79, 1979-80
- Sigma XI Research Society, Houston Chapter, Treasurer, 1979-80, 1980-81
- Sigma XI Research Society, Houston Chapter, Awards Committee(chair)1995/96
- Member of Steering Committee for Caribbean Plate Project (Lunar & Planetary Institute), 1980-81
- Center for Potential Field Research (Colorado School of Mines) - Advisory Board, 1984
- United Nations Consultant to India, Geotechnical Advisor, 1984
- Member of Working Group "F" (Gulf of Mexico) - U.S. Geodynamics Transects Program, 1982-86
- Session Chairman, Texas A&M Geodynamics Symposium "Silver Anniversary Celebration of Plate Tectonics"1987
- Session Chairman , Am. Assoc. Petr. Geol. National Meeting "New Applications of Paleomagnetism" 1988
- Magnetic Map of North America Committee (Geol. Soc. Am.), 1986-87
- Panel Member 1996 - Proposal review - Civilian Research & Development Foundation - a part private/part public (NSF/NIH) funded research foundation
- Member, Society of Exploration Geophysicists Research Committee 1997-present
- District Representative, SEG Council, 1997 – 2000.
- Member, SEG Continuing Education Committee, 1998-present
- Convenor of SEG Post-Convention Workshop on "Gravity Gradiometry: Exploration Value" Dallas, Nov. 1997
- Reviewer of scientific articles for Geophysical Journal International, Tectonics, Journal of Geophysical Research, Geophys. Res. Lett, Geofisica Internacional, Eclogae Geologicae Helvetiae, Ocean Drilling Program Science Results, LPI Special Papers, Tectonophysics, Physics of the Earth and Planetary Interiors, Journal of Asian Earth Sciences, Computers

and Geosciences.

-Reviewer of various grant proposals including NSF (Marine Geology & Geophysics), Ocean Drilling Program, and Petroleum Research Fund (American Chemical Society) and internal