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Brooks

PROFESSIONAL EXPERIENCE

- President & C.E.O, TDI Brooks International Inc., 1996 Present
- Director, B&B Laboratories Inc., 1996 Present
- President, GEO3 Inc., 1998 Present
- Senior Scientist, Arctic Research Institute, University of Alaska-Fairbanks, UAF, 1996 2000
- Director, Geochemical and Environmental Research Center, TAMU, 1987 Sept. 1995
- Director, Geochemical and Environmental Research Group, TAMU, 1984 Sept. 1995
- Faculty of Toxicology Member, TAMU, 1994 2000
- Senior Research Scientist and Senior Lecturer, Oceanography, TAMU, 1985 1996
- Associate Research Scientist, Oceanography, TAMU, 1981 1985
- Lecturer, Oceanography, TAMU, 1979 1996
- Assistant Research Scientist, Oceanography, TAMU, 1976 1980
- Graduate Faculty Member, TAMU, 1978 2000
- Research Associate, Oceanography, TAMU, 1973 1976
- Research Associate, Ocean Affairs Board of the National Academy of Sciences, 1973
- Research Associate, Oceanography, TAMU, 1969 1972

PROFESSIONAL SUMMARY

Dr. Brooks is President of TDI-Brooks International, Inc. a company specializing in offshore research and survey studies for federal/state agencies as well as the oil industry. TDI-Brooks was founded in May 1996 and have average revenues of \$35-40 million of projects each of the last three (3) year. The company owns and operates five research vessels --- the R/V GEOEXPLORER, R/V GYRE, R/V RYLAN-T, R/V GEOEXPLORER and R/V JW POWELL. Dr. Brooks was the founder and Director of the Geochemical and Environmental Research Group (GERG) at Texas A&M University from 1975 until September 1995. As Director between 1975 and 1996, he built an organization specializing in high quality analytical, oceanographic and environmental research and services with annual revenues between 1991 and 1995 of around \$10 million/year. In August 1995, he directed a staff of ~130 people, including 28 Ph.D. level senior personnel, ~60 professional MS- and BS-level full-time research associates, research assistants, technicians, graduate research assistants, and ~40 other staff. He has been Project Director on many federal projects for the National Oceanic and Atmospheric Administration (NOAA), the US Environmental Protection Agency (USEPA), Office of Naval Research (ONR), the Minerals Management Service (MMS), the US Fish and Wildlife Service (USFWS), and other state and federal agencies. He has extensive experience in the management of large environmental and oceanographic projects as well as the technical competency in environmental and geochemistry, surface geochemical exploration, oil spill assessment, gas hydrates, chemosynthetic ecosystems, stable isotope geochemistry, and oceanography. He has academic credentials consisting of 200+ peer-review publications including numerous publications in prestigious journals such as Science and Nature. He has served on many national committees, conferences and workshops. He has chaired 19 M.S. and Ph.D. committees at Texas A&M University. He has won the Faculty Distinguished Achievement Award for Research awarded annually by the Association of Former Students of Texas A&M University. He previously held an appointment in the Faculty of Toxicology at Texas A&M University as well as an Advisory Council Member, Southeast Advisory Council for Undersea Research and Education (SEACURE) for NOAA's Undersea Research Center at UNCW (NURC).

Dr. Brooks manages at TDI-Brooks the current 5-year contract for the NOAA National Status and Trends (NS&T) Mussel Watch project, which is the premier, long standing coastal environmental monitoring program in the nation. He is in his 20+ year of management of this project. He is also Project Director of a 5-year US Fish and Wildlife Service (USFWS) contract for trace organic residue analysis and various other EPA and NOAA projects. Dr. Brooks also directs over \$20-30 million yearly of industry sponsored projects many of which are multidisciplinary.

Dr. Brooks has participated in and/or managed a number of MMS/BOEM projects over the last twenty (20) years both in the Gulf of Mexico and offshore California. On most of these projects his responsibility included project management and/or the contaminant chemistry work element. He was Project Director for the 1991 Chemosynthetic Ecosystem Study (\$1.4 million/31 months) of oil and gas seep communities in the Gulf of Mexico. This project resulted from many of his early discoveries of gas hydrates, oil seepage and chemosynthetic mussels, clams and tubeworms in the deep water Gulf. He has about forty (40) peer-reviewed publications on chemosynthetic ecosystems and associated seep-related phenomena. He was Chemistry Group Leader



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for the Gulf of Mexico Offshore Operations Monitoring Experiment (GOOMEX) which was funded at \$4.4 million/31 months (Chemistry Group Leader). On this project he was responsible for the review and integration of the hydrocarbon and trace metal work elements. He was a member of the Scientific Review Board and provided the chemical analysis for the Southern California Platform Study under subcontract to SAIC. He was Project Director of the Mississippi-Alabama Marine Ecosystem Study (\$3.2 million/3 years). He was a Principal Investigator responsible for the field collection, chemistry elements and physical oceanography for the Northern Gulf of Mexico Slope Study under subcontract to LGL Associates. In the late 1970's/early 1980's, he was Co-PI responsible for parts of the hydrocarbon component of the South Texas OCS Study. TDI-Brooks under subcontract to CSA is currently providing the field collection and hydrocarbon chemistry components of the MMS "Deepwater Program: Effects of Oil and Gas Exploration and Development at Selected Continental Slope Sites in the Gulf of Mexico" project. TDI-Brooks' research vessel, the R/V JW POWELL, was used for the field sampling on this project.

Dr. Brooks has been conducting research and oil industry-sponsored service projects in the Gulf of Mexico for the last thirtyfive (35) years. As part of his surface geochemical exploration (SGE) studies, which he developed for industry in the early 1980's, he has collected approximately 9,000 cores in the Gulf, mostly in the deep water. These SGE coring studies resulted and contributed to the discoveries of macro oil seepage, chemosynthetic communities, and gas hydrates in the Gulf of Mexico. He was a co-discoverer of oil seep and chemosynthetic communities in the deep water Gulf of Mexico in 1985. He made the first discoveries of thermogenic gas hydrates in the deep water Gulf of Mexico that was published in <u>Science</u> as well as participated in the initial discoveries of other oil-seep related phenomena including oil-stained cores on the continental slope, widespread occurrence of shallow and outcropping gas hydrates, brine seepage, and visible oil seepage to the sea surface. In the late 80's and early 90's he was awarded extensive NOAA National Undersea Research Program (NURP) JOHNSON SEA-LINK, ALVIN, and Navy NR-1 submersible dive time in the Gulf of Mexico. His current SGE coring and satellite seep studies in the southern Gulf for PEMEX resulted in the recent publication in <u>Science</u> on the discovery of tar flows and chemosynthetic communities in the Campeche Knoll region offshore Mexico. He has also made the first chemosynethetic ecosystems discovery of chemosynthetic ecosystems in West Africa (i.e., Nigeria) north of the equator.

SELECTED PROFESSIONAL ACTIVITIES/AWARDS

- Advisory Council Member, SouthEast Advisory Council for Undersea Research and Education (SEACURE) for NOAA's Undersea Research Center at UNCW (NURC), January 2005 to 2007.
- Invited Member, Consortium of Oceanographic Research and Education (CORE), Economic Development Committee, Partnership for Stakeholders in the Ocean's Report, July 1995.
- Invited Participant, Int'l Arctic Monitoring and Assessment Program Meeting, Tromsø, Norway, March 1993.
- Organizing Committee Member, Second International Ocean Pollution Symposium (2IOPS), 1993.
- U.S. EPA, Science Advisory Board, Ecological Processes and Effects Committee, Marine Monitoring Task Group; member of a review team for draft monitoring guidance document for the National Estuary Program, 1991.
- Estuarine Assessment and Contaminant Problem Identification, Member, EPA-sponsored workshop, Biloxi, MS, 23 25 April, 1991.
- Ad Hoc Advisory Committee on the NOAA Undersea Research Program (NURP), 1991.
- Marine Organic Geochemistry Workshop, December 1990, Honolulu, HA, sponsored by NSF and ONR; Invited participant, December 1990.
- Faculty Distinguished Achievement Award for Research Association of Former Students of Texas A&M University, May 1988.
- Organic Geochemist, Deep Sea Drilling Project, Leg 96, 1983.
- National Science Foundation, Marine Chemistry Proposal Review Panelist, August 1984.
- Executive Committee Member, Third International Ocean Dumping Symposium, Woods Hole, Mass., 1981.

SELECTED CONSULTING INCLUDING:

• California Fish and Game Commission, Office of Oil Spill Prevention & Response (OSPR) through Hagler Bailly Consulting, Inc., Consultant on the Unocal/Guadalupe Natural Resource Damage Assessment, 1996.



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- SAIC for MMS Phase III Project entitled "Monitoring Assessment of Long-Term Changes in Biological Communities in the Santa Marina Basin" Member of Quality Review Board, 1993-1995.
- Lillick & Charles, Consultant on alleged 1991 SAMMI SUPERSTARS oil spill in Los Angeles Harbor, 1992-1996.
- Exxon Company USA, Background technical report on Hydrocarbons in Subtidal Sediments Temporal and Polar Climates, 1990.
- Technical Resources Inc., Evaluation of the hydrocarbon chemistry aspects of oil spill fisheries interactive models for a MMS contract, 1987.
- Continental Shelf Associates, Summary of existing knowledge of hydrocarbon chemistry and chemosynthetic communities in the Gulf of Mexico for a MMS contract, 1987.
- Exxon Production Research, Oil dispersant review, 1985.
- Saudi Arabian Ministry of Health through Morgan-Newman Associates, Contaminant testing for Arabian Gulf fisheries, 1984.

FORMAL EDUCATION

- Ph.D. Oceanography, Texas A&M University, 1975
- M.S. Oceanography, Texas A&M University, 1970
- B.S. Chemistry, Abilene Christian University, 1969

MANAGEMENT STRENGTHS

- Providing leadership and vision for organizational growth in the environmental and geochemical arenas.
- Managed one of the world's premier environmental and geochemical research organizations with core competencies in high quality environmental analysis, oceanographic field operations often in remote environments, petroleum geochemistry including surface geochemical exploration, marine surveys, and multidisciplinary project management.
- Demonstrated ability to manage as Project Director large multidisciplinary environmental and oceanographic programs for federal and state agencies.
- Extensive experience in the management of field operation in remote regions as well as coastal sampling.
- Demonstrated ability to manage a domestic and international marketing team consisting of industrial and federal project development personnel and scientist.
- Demonstrated ability to manage a diverse trace organic and geochemical analytical laboratory.
- Has a network of academic and industrial scientists from past projects that can be brought together, often on an exclusive basis, to form strong project teams for multidisciplinary projects.

TECHNICAL STRENGTHS

- Technical specialties in environmental chemistry, surface geochemical exploration, oil spill assessment, gas hydrates, chemosynthetic ecosystems, stable isotope geochemistry, and oceanography.
- Project Management experience for a number of major federal projects including:
 - Six periods (1984-2018) of NOAA's National Status and Trends Mussel Watch Project (\$0.5 to 1.0 million/ years for 25 years);
 - EPA's Environmental Monitoring and Assessment Program (EMAP) Near Coastal (\$3 million/3 years);
 - MMS's Chemosynthetic Ecosystems Study (\$1.3 million/3 years);
 - ONR's Arctic Nuclear Waste Assessment Project (a number of separate projects \$2.5 million/3 years);
 - EPA's Arctic Contaminants Research Program (\$700,000/3 years);
 - o USFWS's Contract Laboratory Program for Both Trace Organics and Trace Metals (\$8 million over 5 years);
 - MMS's "Gulf of Mexico Benthic Slope Study" (~\$800,000/4 years); and
 - Numerous other NSF, DOE, EPA and other federal agency projects.
- Oil spill response, fingerprinting and NRDA expertise and experience including:
 - Extensive analytical work for both the Trustee's and Exxon Company USA for the EXXON VALDEZ NRDA;
 - Response to numerous oil spills including MEGA BORG, BAHIA PARISO, APEX Barge, Neah Bay, IXTOC-I, etc.; and

TDIBrooks

James M. Brooks, Ph.D. President & Chief Executive Officer

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- Oil spill dispersant research for Exxon, MSRC and the Texas General Land Office.
- Development of widely used surface geochemical exploration techniques that have generated nearly \$20 million of revenue over the last 15 years.
- Development of oil, rock and seep petroleum geochemistry correlation studies that have generated over \$2 million of revenue.
- The supervision and production of complex multidisciplinary proposal, technical reports, peer-reviewed articles and synthesis reports.
- Making presentations at national and international meeting for both marketing and scientific purposes.

PUBLICATIONS

Over 210 peer-reviewed publications including:

- Brooks, J.M., Deep methane maxima in the northwestern Caribbean Sea: possible seepage on the Jamaica Ridge, Science, 206: 1069-1071, 1979.
- Brooks, J.M., D.A. Wiesenburg, R.A. Burke, and M.C. Kennicutt II, Gaseous and volatile hydrocarbon inputs from a subsurface oil spill in the Gulf of Mexico, Environmental Science and Technology, 15(8): 951-959, 1981.
- Burke, R.A., J.M. Brooks, and W.M. Sackett, Light hydrocarbons in Red Sea brines and sediments, Geochimica et Cosmochimica Acta, 45(5): 627-634, 1981.
- Brooks, J.M., D.F. Reid, and B.B. Bernard, Methane in the upper water column of the northwestern Gulf of Mexico, Journal of Geophysical Research, 86(11): 11029-11040, 1981.
- Wiesenburg, D.A., J.M. Brooks, and R.A. Burke, Jr., Gaseous hydrocarbons around an active offshore gas and oil field, Environmental Science and Technology, 16(5): 278-282, 1982.
- Brooks, J.M., D.A. Wiesenburg, G. Bodennec, and T.C. Sauer III, Volatile organic wastes at the Puerto Rico dumpsite. In Wastes in the Ocean, Vol. I, edited by I.W. Duedall, B.H. Ketchum, P.K. Park, and D.R. Kester, John Wiley & Sons, pp. 171-200, 1983.
- Brooks, J.M., L.A. Barnard, D.A. Wiesenburg, M.C. Kennicutt II, and K.A. Kvenvolden, Molecular and isotopic compositions of hydrocarbons at Site 533, DSDP Leg 76. In Initial Reports of the Deep Sea Drilling Project, 76, edited by R.E. Sheridan, F.M. Gradstein, et al., U.S. Govt. Printing Office, Washington, pp. 377-389, 1983.
- Wiesenburg, D.A., and J.M. Brooks, Eddy-enhanced dispersion of ocean-dumped organic waste at Deep Water Dumpsite 106, Canadian Journal of Fisheries and Aquatic Science, 40(2): 248-261, 1983.
- Jeffrey, A.W.A., R.C. Pflaum, J.M. Brooks, and W.M. Sackett, Vertical trends in particulate organic carbon 13C:12C ratios in the upper water column, Deep-Sea Research, 30(9): 971-983, 1983.
- Kennicutt, M.C. II, and J.M. Brooks, Relationship between pelagic tar, fluorescence, and biological markers in the South Atlantic Ocean, Marine Pollution Bulletin, 14(9): 335-342, 1983.
- Brooks, J.M., M.C. Kennicutt II, R.R. Fay, T.J. McDonald, and R.A. Sassen, Thermogenic gas hydrates in the Gulf of Mexico, Science, 225: 409-411, 1984.
- Bidigare, R.R., M.C. Kennicutt II, and J.M. Brooks, Rapid determination of chlorophylls and their degradation products by high-performance liquid chromatography, Limnology and Oceanography, 30, 434-437, 1985.
- Trees, C.C., M.C. Kennicutt II, and J.M. Brooks, Errors associated with the standard fluorometric determinations of chlorophylls and phaeopigments, Marine Chemistry, 16, 1-12, 1985.
- Wiesenburg, D.A., J.M. Brooks, and B.B. Bernard, Biogenic hydrocarbon gases and sulfate reduction in the Orca Basin brine, Geochimica et Cosmochimica Acta, 49(10): 2069- 2080, 1985.
- Kennicutt, M. C. II, J. M. Brooks, R. R. Bidigare, R. R. Fay, T. L. Wade, and T. J. McDonald, Vent type taxa in a hydrocarbon seep region on the Louisiana slope, Nature, 317: 351- 353, 1985.
- Brooks, J.M., M.C. Kennicutt II, R.R. Bidigare and R.A. Fay, Hydrates, oil seepage and chemosynthetic ecosystems on the Gulf of Mexico slope, EOS, 66(10): 105, 1985.
- Trees, C.C., R.R. Bidigare, and J.M. Brooks, Distribution of chlorophylls and phaeopigments in the northwestern Atlantic Ocean, Journal of Plankton Research, 8(3): 447-458, 1986.



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- Kennicutt, M. C. II, J. L. Sericano, T. L. Wade, F. Alcazar, and J. M. Brooks, High molecular weight hydrocarbons in Gulf of Mexico continental slope sediments, Deep-Sea Research, 34(3A): 403-424, 1987.
- Kennicutt, M.C. II, G.J. Denoux, J.M. Brooks, and W.A. Sandberg, Hydrocarbons in Mississippi fan and intraslope basin sediments, Geochimica et Cosmochimica Acta, 51: 1457-1466, 1987.
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- Kennicutt, M.C. II, J.M. Brooks, E.A. Atlas, and C.S. Giam, Organic compounds of environmental concern in the Gulf of Mexico: a review, Aquatic Toxicology, 11(1): 191- 212, 1988.
- Kennicutt, M.C. II and J.M. Brooks, Surface geochemical exploration studies predict API gravity, offshore California, Oil and Gas Journal, 86(37): 101-106, 1988.
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- Kennicutt, M.C. II and J.M. Brooks, Relationship between shallow sediment bitumens and deeper reservoired hydrocarbons: Offshore Santa Maria basin, Applied Geochemistry, 3(6): 573-582, 1988.
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- Fisher, C.R., M.C. Kennicutt, and J.M. Brooks, Carbon isotopic evidence for carbon limitation in hydrothermal vent Vestimentiferans, Science, 247: 193-197, 1990.
- MacDonald, I.R., J.F. Reilly II, N.L. Guinasso, Jr., J.M. Brooks, R.S. Carney, W.A. Bryant, and T.J. Bright, Chemosynthetic mussels at a brine-filled pockmark in the northern Gulf of Mexico, Science, 248: 1096-1099, 1990.
- Brooks, J.M., M.C. Kennicutt II, T.L. Wade, A.D. Hart, G.J. Denoux, and T.J. McDonald, Hydrocarbon distributions around a shallow water multiwell platform, Environmental Science and Technology, 24(7): 1079-1085, 1990.
- Brooks, J.M., D.A. Wiesenburg, H. Roberts, R.S. Carney, I.R. MacDonald, R.A. Burke, Jr., P. Ahron, and T.J. Bright, Salt, seeps and symbiosis in the Gulf of Mexico: a preliminary report of deep water discoveries using DSV Alvin, EOS, Transactions Am. Geophysical Union, 74(45): 1772-1773, 1990.



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- Kennicutt, M.C. II, J.M. Brooks, and T.J. McDonald, Origins of hydrocarbons in Bering Sea sediments --- I. Aliphatic hydrocarbons and fluorescence, Organic Geochemistry, 17(1): 75-83, 1991.
- Brooks, J.M., M.E. Field, and M.C. Kennicutt II, Observations of gas hydrates offshore northern California, Marine Geology, 96: 103-109, 1991.
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- Kennicutt, M.C. II, T.J. McDonald, P.A. Comet, G.J. Denoux, and J.M. Brooks, The origins of petroleum in the northern Gulf of Mexico, Geochemica et Cosmochimica Acta, 56(3): 1259-1280, 1992.
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- Fang, J., P.A. Comet, T.L. Wade, and J.M. Brooks, Gulf of Mexico hydrocarbon seep communities: IX. Sterol biosynthesis of seep mussels and its implications for host- symbiont association, Organic Geochemistry, 18(6): 861-867, 1992.
- Kennicutt, M.C. II, R.A. Burke, I.R. MacDonald, J.M. Brooks, G.J. Denoux, and S.A. Macko, Stable isotope partitioning in seep and vent organisms: chemical and ecological significance, Chemical Geology (Isotope Geoscience Section), 101: 293-310, 1992.
- McDonald, S.J., M.C. Kennicutt, and J.M. Brooks, Evidence for polycyclic aromatic hydrocarbon (PAH) exposure in fish from the Antarctic peninsula, Marine Pollution Bulletin, 25: 313- 317, 1992.
- Childress, J.J., R.W. Lee, N.K. Sanders, H. Feldbeck, D.R. Oros, A. Toulmond, D. Desbruyeres, M.C. Kennicutt, and J.M. Brooks, Inorganic carbon uptake in hydrothermal vent tubeworms facilitated by high environmental pCO2, Nature, 362(6416): 147-149, 1993.
- Krahn, M.M., G.M. Ylitalo, J. Buzitis, S-L Chan, U. Varanasi, T.L. Wade, T.J. Jackson, J.M. Brooks, D.A. Wolff, and C.A. Manen, Comparison of HPLC/Fluorescence screening and GC/MS analysis for aromatic compounds in sediments sampled after the EXXON VALDEZ oil spill, Environmental Science and Technology, 27(4): 699-708, 1993.
- Sassen, R., J.M. Brooks, M.C. Kennicutt, I. MacDonald, and N.L. Guinasso, Jr., How oil seeps, discoveries relate in the deep-water Gulf of Mexico, Oil and Gas Journal, pp. 64--69, April 19th, 1993.
- Sericano, J.L., T.L. Wade, J.M. Brooks, E.L. Atlas, R.R. Fay, and D.L. Wilkinson, National status and trends mussel watch program: chlordane-related compounds in Gulf of Mexico oysters, 1986-1990, Environmental Pollution, 82: 23-32, 1993.
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