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## **CURRICULUM VITAE**

### **Dennis A. Darby**

#### **EDUCATION**

B.S. in Geology, 1966, University of Pittsburgh, Pennsylvania.

M.S. in Geology, 1968, University of Pittsburgh, Pennsylvania.

Ph.D. in Geology and Oceanography, 1971, University of Wisconsin at Madison, Wisconsin.

#### **EXPERIENCE**

Research Geologist, Geophysics Division, Gulf Research and Development Company, Summer 1969.

Research Associate, University of Wisconsin, Summer 1971.

Assistant Professor, Department of Geology, Hunter College of the C.U.N.Y., 1971-1974.

Research Associate, Institute of Oceanography, City University of New York, 1971-1974.

Part-time Instructor, Department of Geology, New York University, 1973.

Assistant Professor, Department of Physics and Geophysical Sciences, Old Dominion University, 1974-1978.

Adjunct Assistant Professor, Institute of Oceanography, Old Dominion University, 1974-1978;  
Adjunct Associate Professor, 1978-1988; Adjunct Professor, 1988-present.

Assistant Chairman, Department of Physics and Geophysical Sciences, Old Dominion University, 1977-1978.

Associate Professor, Department of Geological Sciences, Old Dominion University, 1978-1988.

Chairman, Department of Geophysical Sciences, Old Dominion University, 1978-1981.

Professor, Department of Geological Sciences, Old Dominion University, 1988-1995;  
Oceanography Department, 1995-1997; Dept. of Ocean, Earth, & Atmospheric Sci., 1998-present.

## **HONORS AND AWARDS**

Elected as a Fellow by the Council of the Geological Society of America, Fall 1979.

Certified Professional Geologist, Virginia Board of Geology, 1983-present. (No.142).

Elected to Phi Kappa Phi Honorary Society, Old Dominion University Chapter, 1992.

## **MEMBERSHIP IN PROFESSIONAL SOCIETIES**

Sigma Xi, 1971-present, Vice-President of Old Dominion University Club 1975-76; President, 1976-77.

Society of Economic Paleontologists and Mineralogists, 1971-1998.

American Association for the Advancement of Science, 1971-1983.

National Association of Geology Teachers, 1971-1997.

American Geophysical Union, 1973-present.

Geological Society of America, 1974-present.

Virginia Academy of Science, 1974-1994, Geology Section Secretary, 1976-77; Geology Section Vice-Chairman, 1977-78, Chairman, 1978-79.

## **NATIONAL RECOGNITION IN THE NEWS**

Science News, "Sand's incredible journey". v. 34, p. 318, 1988.

Earth Science, "Traveling sands traced through time". Winter issue, p. 8-9, 1988.

Insight, "Researcher traces beach sand journey" p.57, Dec. 12, 1988.

Earth, "Early Hudson River was like the Mississippi," p. 70, 1989.

Atlanta Constitution, "New look at birth of beaches", Sept. 18, 1990, p. A11.

Science, Krajick, K., 2007, Race to Plumb the Frigid Depths, DOI: 10.1126/science.315.5818.1525.

## **PUBLICATIONS IN JOURNALS AND BOOKS**

1. Darby, D.A., submitted, The Arctic perennial ice cover over the last 14 million years, *Paleoceanography*, spec vol on ACEX results.
2. Björk, G., Swift, J.H., Jakobsson, J., Anderson, L., Rudels, B., Darby, D.A., Backman, J., Coakely, B., Winsor, P., Polyak, L., and Edwards, M., in press, Bathymetry and deep-water exchange across the central Lomonosov Ridge at 88°-89°N. *Deep-Sea Research Part 1*.
3. Polyak, L., Darby, D.A., Bischof, J., Jakobsson, M., 2007, Stratigraphic constraints on late Pleistocene glacial erosion and deglaciation of the Chukchi margin, Arctic Ocean. *Quaternary Research*, 67: 234-245.
4. Darby, D.A., L. Polyak, and H. Bauch, 2006, Past glacial and interglacial conditions in the Arctic Ocean and marginal seas, a review. In: *Structure and function of contemporary food webs on Arctic shelves: a Pan-Arctic comparison*, P. Wassman, (ed.). *Progr. Oceanography*, 71: 129-144.
5. Cota, G.F., Cooper, L.W., Darby, D.A., and Larsen, I.L., 2006, Unexpectedly high radioactivity burdens in ice-rafted sediments from the Canadian Arctic Archipelago. *Sci. of the Total Environ.*, 366: 253-261.
6. de Vernal, A., Hillaire-Marcel, C., Darby, D.A., 2005, High variability of sea-ice cover in the Chukchi Sea (western Arctic Ocean) during the Holocene. *Paleoceanography*, 20, PA4018, doi: 10.1029/2005PA001157.
7. Darby, D., Jakobsson, M., and Polyak, L., 2005, Icebreaker expedition collects key Arctic seafloor and ice data. *EOS*, 86(52): 549, 552.
8. Stokes, C.R., Clark, C.D., Darby, D.A., and Hodgson, D., 2005, Late Pleistocene ice export events in the Arctic Ocean linked to the M'Clure Strait ice stream, Canadian Arctic. *Global and Planetary Change*, 49(3-4): 139-162.
9. Darby, D. A. and Bischof, J.F., 2004. A Holocene record of changing Arctic Ocean ice drift, analogous to the effects of the Arctic Oscillation, *Paleoceanography*, v. 19, PA1027, doi:10.1029/2003PA000961, 9 p.
10. Hillaire-Marcel, C., A. de Vernal, L. Polyak, and D. Darby, 2004, Size dependent isotopic composition of planktic foraminifers from Chukchi Sea vs. northwest Atlantic sediments – Implications for the Holocene paleoceanography of the western Arctic. *Quat. Sci. Rev.* 23(3-4): 245-260.
11. Darby, D. A., 2003, Sources of sediment found in sea ice from the western Arctic Ocean, new insights into processes of entrainment and drift patterns. *J. of Geophys. Res.*, v. 108, C8, 3257, doi:10.1029/2002JC001350, 13-1 to 13-10.
12. Polyak, L., W. B. Curry, D.A. Darby, J.F. Bischof, and T.M. Cronin, 2003. Contrasting glacial/interglacial regimes in the western Arctic Ocean as exemplified by a sedimentary record from the Mendeleev Ridge. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 203(1-2): 73-93.

13. Darby, D.A., Bischof, J., Spielhagen, R., Marshall, S., and Herman, S., 2002, Arctic ice export events and their potential impact on global climate during the late Pleistocene. *Paleoceanography*, 17(2): 15.1-15.17.
14. Darby, D. Bischof, J, Cutter, G., de Vernal, A., Hillaire-Marcel, C., Dwyer, G., McManus, Osterman, L., J., Polyak, L., and Poore, R., 2001, New record of pronounced changes in Arctic Ocean circulation and climate. *EOS*, 82(49): 603-607.
15. Hovland, M., Backman, J., Coakley, B., Collett, T., Darby, D., Foucher, J.P., Francis, T., Gelfgat, M., Gorshkovsky, A., Jokat, W., Kaminski, M., Kristoffersen, Y., Takahashi, K., Thiede, J., Wiley, C., and Aachos, J., 2001. The High-Arctic Drilling Challenge: Excerpts from the Final Report of the Arctic's Role in Global Change Program Planning Group. *Joides*, 27 (no. 1):7-20.
16. Codispoti, L., Caulfield, R., Darby, D., Falkner, K., Grebmeier, J., Lubin, D., Matrai, P., Ogilvie, A., Perovich, D., Ramsay, M., Semtner, A., Shepson, P., Steele, M., Tynan, C., Weaver, and Weingartner, T. 2000. Arctic System Science, Advancing the Scientific Basis for Predicting the Rapidly Changing Marine Component of the Arctic System: A Prospectus for the Arctic System Science's (ARCSS), Ocean-Atmosphere-Ice Interactions (OAI) Component. Rept. 9, ARCSS/OAI Science Management Office, NSF.
17. Aagaard, K., Darby, D., Falkner, K., Flato, G., Grebmeier, J., Measures, C., and Walsh, J., 1999. Marine Science in the Arctic: A Strategy, Arctic Research Consortium of the United States (ARCUS). Fairbanks, AK. 84 pp.
18. Bischof, J. and Darby, D., 1999, Quaternary ice transport in the Canadian Arctic and extent of Late Wisconsinan glaciation in the Queen Elizabeth Islands. *Canadian J. Earth Science*, 36:2007-2022
19. Darby, D.A., 1998. Mysterious iron-nickel-zinc spherules. *Canadian Journal of Earth Science*, 35:23-39.
20. Reimnitz, E., McCormick, M., Bischof, J., Darby, D.A., 1998. Comparing sea-ice sediment load with Beaufort Sea shelf deposits: is entrainment selective? *Journal of Sedimentary Research*, 68:777-787.
21. Bischof, J.A. and Darby, D.A., 1997, Mid to Late Pleistocene ice drift in the western Arctic Ocean: evidence for a different circulation in the past. *Science*, v.277: 74-78.
22. Meese, D.A., Reimnitz, E., Tucker III, W.B., Gow, A.J., Bischof, J.F., and Darby, D.A., 1997, Evidence for radionuclide transport by sea ice. *Science of the Total Environment*, v. 202:267-278.
23. Darby, D.A., Bischof, J.F., and Jones, G.A., 1997. Radiocarbon chronology of depositional regimes in the western Arctic Ocean. *Deep-Sea Research*, 44:1745-1757.
24. Darby, D.A. and Bischof, J.F., 1996. A statistical approach to source determination of

lithic and Fe-oxide grains: an example from the Alpha Ridge, Arctic Ocean. *Journal of Sedimentary Research*, v. 66, n. 3, 599-607.

25. Darby, D.A. and Bischof, J.F., 1996. Sources of ice-rafted detritus and iceberg tracks in the Arctic Ocean. In: Tucker, W. and Cate, D., eds, *The 1994 Arctic Ocean Section; The First Major Scientific Crossing of the Arctic Ocean*, U.S. Army Cold Regions Research and Engineering Lab, Hanover, NH, p. 89-91.
26. Darby, D.A. and A.E. Evans, Jr., 1992. Provenance of Quaternary beach deposits, Virginia and North Carolina. in: Fletcher, C. and Wehmiller, J. (eds.), *Quaternary Coasts of the United States: Marine and Lacustrine Systems*. S.E.P.M. Spec. Publ. No. 48, p.113-119. Soc. Econ. Paleon. and Min., Tulsa, OK
27. Darby, D.A., G.R. Whittecar, R.A. Barringer and J.R. Garrett, 1990. Alluvial lithofacies recognition in a humid-tropical setting. *Sedimentary Geology*, v. 67, p.161-174.
28. Darby, D.A., 1990. Evidence for the Hudson River as the dominant source of sand on the U.S. Atlantic Shelf. *Nature*, v. 346, p.828-831.
29. Darby, D.A., A.S. Naidu, T.C. Mowatt and G.A. Jones, 1989. Sediment composition and sedimentary processes in the Arctic Ocean, In: Y. Herman (ed.), *The Arctic Seas: Climatology, Oceanography, Geology, and Biology*. VanNostrand Reinhold, New York, p.657-720.
30. Darby, D.A., G.R. Whittecar, J.R. Garrett, and R.A. Barringer, 1988. Anomalous heavy mineral size relationships in a humid alluvial fan, Colombia: implications for placer formation. *Economic Geology*, v. 83, p. 1015-1025.
31. Darby, D.A. and Y.W. Tsang, 1987. The variation in ilmenite element composition within and among drainage basins: implications for provenance. *Journal of Sedimentary Petrology*, 57(5):831-838.
32. Darby, D.A., D.D. Adams and W.I. Nivens, 1986. Early sediment changes and element mobilization in a manmade estuarine marsh. In: Sly, P.G. (ed.), *Sediments and Water Interactions*, p.341-349. Springer-Verlag, NY.
33. Darby, D.A., A.K. Jasper, and R.C. McDaniel, 1984. Sedimentology of the Mid-Wisconsinan Norfolk Formation: Implications for sea level fluctuations and barrier island genesis. In: Gingerich, K.H. and M.R. Byrnes (eds.). *11th Annual Shelf and Shore Workshop*, Old Dominion University, p.60-66.
34. Darby, D.A., 1984. Trace elements in ilmenite: A way to discriminate provenance or age in coastal sands. *Geol. Soc. America Bull.* 95:1208-1218.
35. Darby, D.A., D.D. Adams, and W. Nivens, 1984. Early element mobilization in a manmade estuarine marsh. *Proceedings of the 3rd International Symposium on the Interaction Between Sediments and Water*, United Kingdom, P.M. Herd (ed.), 4 p.
36. Darby, D.A., 1984. Origin and Deposition of transgressive coarse sediments along the

Pamunkey River, Virginia. In: Ward, L.W. and Krafft, K. (eds.), Stratigraphy and paleontology of the outcropping Tertiary beds in the Pamunkey River region, central Virginia Coastal Plain - Guidebook for Atl. Coastal Plain Geol. Assoc., 1984 Field Trip: Atl. Coastal Plain Geol. Assoc. and ODU Department of Geological Sciences, p.93-110.

37. Darby, D.A., 1983. Sedimentology, diagenesis and stratigraphy of Pleistocene coastal deposits in Southeastern Virginia. Fifteenth Annual Virginia Geologic Field Conference. Old Dominion University, Norfolk, VA, 37 p.
38. Adams, D.A., D.A. Darby, and R.J. Young, 1980. Selected analytical techniques for characterizing the metal chemistry and geology of fine-grained sediments. In: Contaminants and Sediments, Vol.II, Chemistry and Biology, and Toxicology, R.A. Baker (ed.), Ch.1, p.1-26, Ann Arbor Sci. Publ. Inc., MI.
39. Adams, D.D. and D.A. Darby, 1980. A dilution-mixing model for dredged sediments in freshwater systems, In: Contaminants and Sediments, Vol.I, Transport, Fate, and Case Studies, R.A. Baker (ed.), Ch.17, p.373-392, Ann Arbor Sci. Publ., Inc., MI.
40. Darby, D.A., J.E. Robinson, and D.W. Lick, 1979. A faculty managed approach to instructional development. Educational Records 60(1):86-92.
41. Whittecar, G.R. and D.A. Darby, 1979. Introduction to Geology: Laboratory Exercises. Burgess Publ. Co., Minneapolis, MN, 229 p.
42. Darby, D.A., B. Drake, J. Rule, and K. Zauderer, 1978. Audio-Tutorial Laboratory Manual in Physical Geology. Department of Geophysical Sciences, Old Dominion University, Norfolk, VA, 188 p.
43. Darby, D.A., 1975. Kaolinite and other clay minerals in Arctic Ocean sediment cores. Jour. of Sed. Petrology 45(1):272-279.
44. Darby, D.A. and L. Burckle, 1975. Student initiated field studies. Jour. Geol. Education 23:25-26.
45. Darby, D.A., L. Burckle, and D. Clark, 1974. Airborne dust on the Arctic pack ice, its composition and fallout rate. Earth and Planetary Sci. Letters 24:166-172.
46. Darby, D.A., 1974. An evaluation of Arctic Ocean paleomagnetic stratigraphy. In: Proceedings of the Takesi Nagata Conference, University of Pittsburgh, June 1974. Edited by Fisher, R.M., M. Fuller, V.A. Schmidt, and P.J. Wasilewski, pp.230-244.
47. Bennick, A., S. Bernstein, D.A. Darby, H. Hoyer, A. Dritz (ed.), S. McNeill, C. Percelli, and E. Shahn, 1973. Problem Solving in the Sciences. Kendall/ Hunt Publ. Co., Dubuque, Iowa, 179 p.
48. Mullen R., D.A. Darby and D. Clark, 1970. Significance of atmospheric dust and ice-rafting for Arctic Ocean sediment. Geological Society of Amer. Bull., 83:205-212.

## PAPERS IN PREPARATION

Darby, D. A., Burnette, S., Seaver, E., and Herman, S., An evaluation of the accuracy of clay mineral abundance measurements using X-ray diffraction, *Applied Clay Mineralogy*.

Darby, D.A., Cook, M., Keigwin, L., and Grosch, C., in prep., A record of the Arctic Oscillation over the last 10,000 years.

Darby, D.A., Jakobsson, M., Rigor, I., in prep., Recent changes in Arctic sea ice drift, the possible influence of the Arctic Oscillation.

Jakobsson, M., Darby, D.A., Polyak, L., Coakely, B., in prep., Seafloor mapping results from HOTRAX 2005.

Rudels, R., Björk, G., Darby, D.A., Jakobsson, M., Quadfasel, D., Swift, J., Winsor, P., in prep., Deep-water exchanges between the different basins in the Arctic Ocean. *Deep-Sea Research*.

## PUBLISHED ABSTRACTS

1. Ortiz, J., Polyak, L., Jakobsson, M., and Darby, D., 2006, Preliminary evidence of Milankovitch cyclicity recorded in sediment brightness (LI\*) records from central arctic ocean sediments recovered by the HOTRAX program. GSA North-Central Meeting, Abs. #103665, *GSA Abstracts with Program*, v. 38(4).
2. Herman, S., Darby, \*D. A., Cook, M. S., and Keigwin, L. D., 2006. The Century-Scale History of the Arctic Oscillation Based on Detrital Fe Grain Provenance of Russian Sea Ice Origins in the Arctic Off Alaska. *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract: OS52B-06 MCS 310.
3. Jakobsson, \*M., Polyak, L., Darby, D. A., Coakley, B., Edwards, M., 2006, Shaping the seafloor by glacial ice and deep ocean currents; morphology along the HOTRAX 2005 transect. *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract: OS52B-05 MCS 310.
4. Polyak, \*L. Ortiz, J. D., Darby, D. A., 2006, Sediment Records From the Alaskan/Chukchi Slope Suggest High Meltwater Inputs From the Northern Laurentide Margin During the Last Deglaciation. *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract: OS52B-08 MCS 310
5. Ortiz, \*J.D., Polyak, L., Jakobsson, M., and Darby, D., 2006, Quaternary Inferences on Central Arctic Ocean Circulation and Sediment Provenance Based on Diffuse Spectral Reflectance Analysis. *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract: OS53B-1098.
6. Darby, \*D. A., Jakobsson, M., and Rigor, I., 2006, New Insights in Sea Ice Drift Based on Dirty Ice Samples Collected in 2005 by the HOTRAX Expedition. *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract: OS53B-1099.

7. McKay, \*J. L., Hillaire-Marcel, C., de Vernal, A., Polyak, L., and Darby, D., 2006, Holocene Paleooceanography of the Chukchi Sea / Alaskan Margin, Western Arctic Ocean. *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract: OS53B-1101.
8. Zimmerman, \*P. E., Darby, D. A., 2006, The Innuitian Ice Sheet Collapse History and its Relationship to the Laurentide Ice Sheet Collapse Events in Arctic Ocean Cores. *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract: OS53B-1104.
9. Not, \*C., Hillaire-Marcel, C., Polyak, L., and Darby, ., 2006, Thorium-230 Stratigraphy of Alpha Ridge Sediment (Arctic Ocean). *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract: OS53B-1106.
10. Bjork, G. G., Jakobsson, \*M., Rudels, B., Swift, J. A., Anderson, L., Darby, D. A., and Winsor, P., 2006, Bathymetry and deep-water exchange at the central Lomonosov ridge. *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract: OS53B-1112.
11. Darby, D.A. and Jakobsson, M., 2005, HOTRAX cores provide new hope for a pan-Arctic stratigraphic and paleoclimatic framework for IPY projects. ICARP II Prog. & Abstracts.
12. Darby, D.A., Jakobsson, M., and Polyak, L., 2005, Trans-Arctic Coring Expedition Results. *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract PP33A-15
13. W K Warnick, \*J Warburton, H V Wiggins, S A Marshall, D A Darby, 2005, Across the Arctic Teachers Experience Field Research, *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract ED21B-05.
14. Bischof, J. and Darby, D., 2004, Penultimate glaciation succeeded by huge meltwater pulse in the Northwind Ridge area, western Arctic Ocean. AGU, 85(47), Fall Meet Suppl., Abstract PP21B-1384, p. F1136.
15. deVernal, A., Hilliare-Marcell, C., and Darby, D.A., 2004, Are millennial oscillations a feature inherent to interglacials in the North Atlantic-Arctic system? AGU, 85(47), Fall Meet Suppl., Abstract PP11C-07, p. F1122.
16. Polyak, L., Brachfeld, S., Darby, D.A., Bischof, J., Phillips, L., Febo, L.A., Coakley, B.J., Edwards, M.H., Engels, J.L., 2003, Multiple glacial erosion on the Chukchi Borderland, Arctic Ocean, as indicated by preliminary data on sediment stratigraphy and seafloor morphology. XVI INQUA Conf., Program with Abstracts, p. 195.
17. Darby, D.A. and Bischof, J., 2003, A Holocene record of changing Arctic surface ice drift, analogous to the effects of the Arctic Oscillation. EOS Trans., AGU, 84(46), Fall Meet. Suppl., Abstract OS11B-02, 2003.
18. Bischof, J. and Darby, D., 2003, The not so ice-free Norwegian Sea, and its connection to the Arctic Ocean, EOS Trans., AGU, 84(46), Fall Meet. Suppl., Abstract OS21B-1120, 2003.
19. Darby, D.A., Bischof, J., deVernal, A., and Hilliare-Marcel, C., 2002. A millennial-scale paleoclimate record from the western Arctic Ocean. EOS, v. 83, p. F787.

20. Bischof, J. and Darby, D., 2002. A thick, grounded ice shelf in the Northwind Ridge region, western Arctic Ocean? EOS, v. 83, p. F782.
21. Darby, D., deVernal, A., Bischof, J., Dwyer, G., Osterman, L., Cutter, G., Hillaire-Marcel, C., Poore, R., Polyak, L., McManus, J., and Dreger, D., 2000. Fluctuations during the Holocene in the western Arctic Ocean: a guide for modern shelf-basin interactions. Western Arctic Shelf-Basin Interactions (SBI) Phase I Principal Investigators Meeting, Baltimore, MD, p.7
22. Darby, D., Sea Ice Rafting Events – Present and Past: Global Climate Significance, Program for the CAPE 2000 meeting, Kirkjubaejarklaustur, Iceland, June, 2000
23. Darby, D., Bischof, J., Cutter, G., deVernal, A., Dwyer, G., Hillaire-Marcel, McManus, J., C., Osterman, L., Polyak, L., and Poore, R., 2000. Holocene changes at the Chukchi Shelf edge – the last millennium anomaly. Shelf-Basin Interactions Pan Arctic Meeting, Callaway Gardens, GA, Nov. 7-9, 2000, p. 30-32.
24. Darby, D.A., Bischof, J., and Spielhagen, R., 2000, The Potential Role of Sea Ice Export from the Arctic Ocean in Global Climate Change, EOS, v81, no. 48, p. F763.
25. Pfirman, S., Haxby, W., Eichen, H., Darby, D., Bischof, J., Jeffries, M.O., Rigor, I., Schlosser, P., and Morlock, R., 2000, Sediment-laden Arctic Sea Ice: Variations in Sources and Fate. EOS, v. 81, no. 48, p. F763.
26. Bischof, J., Darby, D., and Spielhagen, R., 2000, Seamless transition from Late Weichselian Iceberg-rafting to Holocene sea ice and iceberg rafting in the northern Greenland Sea. EOS, v. 81, no.48, p. F763.
27. Darby, D.A., 2001, Arctic ice export events and their potential impact on global climate during the Late Pleistocene. International Assoc. of Physical Sciences of the Oceans (IAPSO), Mar del Plata, Argentina, October, IAO2.
28. Darby, D.A., Bischof, J.F., Spielhagen, Robert, and Pfirman, Stephanie, 1999, Rapid purging of Arctic icebergs from the northern Laurentide and Innuitian ice sheets as a possible cause of cooling preceding Heinrich events. EOS, v.80, no. 46, p.F524.
29. Bischof, J.F. and Darby, D.A., 1999, Sequence of Laurentide Ice decay recognized in Late Pleistocene to Holocene sediments of the western Arctic Ocean. EOS, v.80, no. 46, p.F534.
30. Darby, D., Bischof, J., Poore, R., Osterman, L., Polyak, L., Dwyer, G., de Vernal, A., Hillaire-Marcel, C., Cutter, G., McManus, J., and Dreger, D., 1999, SBI-initiative, paleoceanography study shows significant fluctuations in the western Arctic Ocean, even during the Holocene. OAII All Hands Meeting and Planning Workshop, ARCSS, NSF, p. 24.
31. Bischof, J. and Darby, D., 1999, Significance of the paleo record for the Arctic Ocean circulation. OAII All Hands Meeting and Planning Workshop, ARCSS, NSF, p. 5.

32. Darby, D.A., and Bischof, J.F., 1998. Evidence for the Chukchi Sea as an Important Source of Sea-ice Entrainment and the Role of Sea-Ice in Transporting Fine-grained Sediment from one Shelf to Another in the Arctic. *EOS*, v. 79, no. 47, p. F438.
33. Bischof, J., Darby, D., and Spielhagen, R., 1998. Rapidly changing sources of ice-rafted debris: a 30 kyr record of ice passage through Fram Strait. *EOS*, v. 79, no. 47, F438.
34. Darby, D.A. and Bischof, J.F., 1997. Neoglaciation event recognized in AMS radiocarbon-dated box cores from the Arctic Ocean. 27th Arctic Workshop, Program and Abstracts, University of Ottawa, p.42.
35. Bischof, J.F. and Darby, D.A., 1997. Is the Beaufort Gyre an exception and potentially unstable feature of the Arctic circulation? ARCSS/OAII All Hands Meeting & Planning Workshop (NSF), Virginia Beach, p.24.
36. Bischof, J.F. and Darby, D.A., 1997. Origin of sea ice sediment in the western Arctic Ocean. ARCSS/OAII All Hands Meeting & Planning Workshop ARCSS/OAII Report No. 6, Sept., 1997 (NSF), Virginia Beach, p.13.
37. Darby, D.A., Bischof, J.F., and Jones, G.A., 1997. The Arctic Ocean: long intervals of low sedimentation interspersed with short, coarse intervals of high rates. ARCSS/OAII All Hands Meeting & Planning Workshop, ARCSS/OAII Report No. 6, Sept., 1997 (NSF), Virginia Beach, p.34.
38. Darby, D.A., Bischof, J.F., and Reimnitz, E., 1997. Sources of Arctic Ocean sea ice based on entrained grain composition and Fe oxide grain chemical fingerprinting. *EOS*, v. 78, no. 46, p. F27.
39. Darby, D.A. and Bischof, J.F., 1996, History of Holocene and Late Pleistocene ice-rafting events. In: *Toward an Arctic System Synthesis: Results and Recommendations from the ARCSS All-Hands Workshop*, Snowbird, Utah, p.60.
40. Bischof, J. and Darby, D., 1996, Changing origin of ice-rafted clastic debris for the Northwind Ridge, western Arctic Ocean, during the Late Wisconsin-Holocene transition. *Proceedings of the Arctic System Science (ARCSS) All-Hands Workshop*, Snowbird, Utah.
41. Bischof, J.F. and Darby, D.A., 1996. Rapid export of icebergs from the western Arctic Ocean during the past 800 ka recognized as a possible global climate factor. Fall AGU Meeting, *EOS*, 77(46): F307.
42. Darby, D.A., Bischof, J.F., and Jones, G.A., 1996. Highly variable Late Pleistocene and Holocene sedimentation rates in AMS  $^{14}\text{C}$  dated box cores from the central Arctic Ocean. Fall AGU Meeting, *EOS*, 77(46): F307.
43. Darby, D.A., Bischof, J.F., and Li, D., 1995, Late Pleistocene ice transport in the Queen Elizabeth Islands. 5th International Conference on Paleoceanography, Halifax, Nova Scotia,
44. Darby, D.A., 1993. Origin of ilmenite placer deposits at Old Hickory, Va. and implications for Trail Ridge and other ilmenite placers. *Geol. Soc. Amer. Abs. with Prog.*, v.25, No.2,

p.16.

45. Darby, D.A. and Bischof, J.F., 1993. The ice-rafted dispersal history for the eastern Alpha Ridge, Arctic Ocean over the last 700KA: evidence for changes in the Beaufort Gyre., Amer. Geophysical Union Fall Meeting. EOS, 74:(43) p.360.
46. Darby, D.A., and Evans, A.E., 1992. Provenance of Quaternary beach deposits, Virginia and North Carolina. Geol. Soc. Amer. Abs. with Prog. SE section, v.24, No. 2, p.11.
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## **GRANTS PENDING**

Polyak, L., Darby, D.A., Bischof, J.F., and Ortiz, J., 2006, Collaborative research: Investigating Quaternary Climate Change in the Central Arctic Ocean; Is a Warm, Ice-Free Arctic Anomalous? NSF-OPP, \$751,168 (ODU portion \$211,259), 3 yrs. Pending

Darby, D.A., Jones, C., Elsayed-Ali, H., Elmustafa, A.A., and Cook, D., 2007. Acquisition of an electron probe micro-analyzer for innovative geological, biogeochemical, and material science applications. NSF-MRI, \$995,800, 1 year. Pending

## **GRANTS AWARDED**

**Total Funding Since 1990: \$2,289,274 (ODU portions); \$3,239,532 (as lead PI for all institutions)**

**Total Career Funding: \$7,973,983 (all institutions)**

Darby, D.A., Cutter, G., Polyak, L., Brachfeld, S., Ortiz, J., 2006, Collaborative Research: Investigating Holocene paleoclimate in the Western Arctic Ocean using very high resolution marine records off Alaska. NSF-OPP-0612493, \$423,725 (ODU portion), total \$828,706, 3 years. 10/1/06-9/30/09.

Darby, D.A., 2005, Establishing the onset and history of perennial sea ice in the Arctic. 2006-2008, NSF-ODP, \$308,497, grant # 6454079. proposal #: 0525881

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Darby, D. and Bischof, J., 2003. Decadal-Millennial variability in sea ice and carbon flux. Canadian Arctic Shelf Exchange Study (CASES), with P. Mudie, D. Scott, and others, 2003-2009, NSERC, \$1176.

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Darby, D.A. (Lead Principal Investigator), Bischof, J.F., Cutter, G.A., Dwyer, G.S., Polyak, L., de Vernal, A., Hillaire-Marcel, C., McManus, J., and Poore, R.Z., 1999. Collaborative research: Paleoceanographic records of western Arctic shelf-basin interactions. NSF Div. Of Polar Programs, OPP-9817051, total for 2 years, extended to 3 years (March 2002) \$805,501, ODU portion: \$536,774.

Darby, D.A. (Principal Investigator), Bischof, J.F., Spielhagen, R., and Pfirman, S. (Co-investigators). 1996. The role of the western Arctic Ocean in global climate. NSF Div. of Polar Programs, \$250,000 for two years.

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Ewing, R.M. (Project Coordinator), R.W. Alden, and D.A. Darby (Co-investigators), 1991. Southeastern Public Service Authority Municipal Solid Waste Incineration Residue Utilization Program. Phase I: Characterization and Evaluation Study. Virginia's Center for Innovative Technology. \$61,754 for one year.

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Alden, R. (Principle Investigator), J.H. Rule, D.A. Darby and C. Blair 1987-88. Virginia Department of Highways and Transportation, Monitoring program for dredge sites associated with the construction of I-664. \$1,600,000 for 1 year.

Darby, D.A. (Principal Investigator), J.V. Sanchez-Hucles, J.D. Teachman, S.W. Tonnelson and D.D. Davis (Co-Principal Investigators), 1986-88. Building a model for general education. Virginia State Council for Higher Education, Funds for Excellence Program, \$253,000 for 2 years.

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Rule, J.H. (Principal Investigator) and D.A. Darby (Co-Investigator), 1976-1977. National Science Foundation, RANN, Physical-Chemical Reactions of Metals in Petroleum with Beach Sediments, \$71,549. (\$54,122 from NSF, \$17,427 from ODU Matching funds).

Lick, D.W. (Principal Investigator), D.A. Darby (Project Coordinator), G.E. Copeland, Harry Kuper, J. Robinson (Steering Committee Members), 1976-1979. Grant No. NSF, SER-76-16298, Comprehensive Assistance to Undergraduate Science Education, \$285,100 (NSF), \$384,094 (Old Dominion University). Total budget \$669,194.

Adams, D.D. (Principal Investigator), and D.A. Darby (Co-Investigator), 1976-1977. Grant No. DACW65-C-0039, Pollutant Mobilization Studies for the Windmill Point Marsh Development Site, James River, Virginia, \$99,575.

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Burckle, L. (Principal Investigator) and D.A. Darby (Co-Principal Investigator), 1972-1974. Research Foundation of the City University of New York, Pleistocene Paleoclimatology and Paleoenvironmental Changes Reflected in Sediments of the South Indian Ocean, \$19,000.

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moisture content, and settling column test results for Onondago Inlet and Ashtabula River samples. Report for Engineering and Environment, Inc. and the U.S. Army Corps of Engineers, Buffalo, N.Y. District, 78 p.

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24. Culver, S.J., Spencer, R.S., Koch, C.F., and Darby, D.A., 1989. Foraminifera, ostracodes, molluscs, and sediments of Puerto Rican mangrove-lagoon systems: potential for paleoenvironmental interpretations. Old Dominion University Research Foundation Tech. Rept. 74p.

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34. Darby, D.A., 1983. Hydrologic assessment of the planned hydraulic mining along the Rio Magui, S.W. Colombia, SA., Tech. Report GSTR-83-1, Old Dominion University, Norfolk, VA, 11 p., 2 tables, 2 figures, 2 maps.
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monitoring at the Norfolk Disposal Site. Tech. Report No.GSTR-81-14, Old Dominion University, 35 p., 6 tables, 5 figures.

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39. Adams, D.D., D.A. Darby, and R.J. Young, Habitat development field investigations, Windmill Point Marsh Development Site, James River, Virginia. Appendix F: Environmental impacts of marsh development with dredged material: sediment and water quality. Volume I: Characteristics of channel sediments before dredging and effluent quality during and shortly after marsh development, 46 pp. Volume II: Substrate and chemical flux characteristics of a dredged material marsh, 126 pp. Tech. Report D-71-23, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS, 62 tables, 23 figures, and 314 tables in Appendices, 1978.
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## RESEARCH PAPERS PRESENTED AT PROFESSIONAL MEETINGS

1. **Darby, D.A.**, 2007, Role of the Arctic Ocean in global climate change. Keynote address at the 119<sup>th</sup> Annual Meeting of the Iowa Academy of Science, April 25, Pella, IA.
2. **Darby, D.A.**, Cook, M., Keigwin, L., Grousch, C., and Herman, S., 2007, A Holocene proxy for the Arctic Oscillation. 1<sup>st</sup> Annual Meeting of the Arctic Paleoclimate and its Extremes (APEX) group, Royal Swedish Academy of Sciences, Stockholm.
3. **Darby, D. A.**, Jakobsson, M., and Rigor, I., 2007, New Insights in Sea Ice Drift Based on Dirty Ice Samples Collected in 2005 by the HOTRAX Expedition. APEX Meeting, Royal Swedish Academy of Sciences, Stockholm.
4. Herman, S., **Darby, D. A.**, Cook, M. S., and Keigwin, L. D., 2006. The Century-Scale History of the Arctic Oscillation Based on Detrital Fe Grain Provenance of Russian Sea Ice Origins in the Arctic Off Alaska. *AGU Fall Meeting*, session on HOTRAX results, San Francisco, December.
5. **Darby, D.A.**, 2006. The Healy-Oden Trans-Arctic Expedition (HOTRAX'05) and initial results, INSTAAR, University of Colorado, Boulder, CO, April.
6. **Darby, D.A.**, 2006, The Healy-Oden Trans-Arctic Expedition (HOTRAX'05), GAC-MAC Meeting, UQAM, Montreal, Canada, May.
7. **Darby, D.A.**, 2003, What the paleo-record in the western Arctic tells us about recent changes and the future. Shelf-Basin\_Interaction Principal Investigator's Meeting, Univ. of Miami, March, 2003.
8. **Darby, D.A.** and Bischof, J., 2003, A Holocene record of changing Arctic surface ice drift, analogous to the effects of the Arctic Oscillation. AGU Fall Meeting, Spec. Session on Arctic Oscillation, Past, Present, and Future, San Francisco, December.
9. **Darby, D.A.**, 2002, Large Arctic ice export events during the last 20,000 years. GEOTOP Annual Workshop on the Arctic –North Atlantic linkage, (St-Michel des Saints; February 21-24) Montreal.
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11. **Darby, D.A.**, 2001, Report of the Arctic's Role in Global Change Program Planning Group, Science Advisory Committee of JOIDES (SCICOM), annual meeting, Shanghai, China, March.
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13. **Darby, D.A.**, 2001, Paleo-Studies in ARCSS during the last five years. OAI All Hands Meeting, Salt Lake City, Nov.
14. **Darby, D.**, deVernal, A., Bischof, J., Dwyer, G., Osterman, L., Cutter, G., Hillaire-Marcel, C., Poore, R., Polyak, L., McManus, J., and Dreger, D., 2000, Fluctuations during the Holocene in the western Arctic Ocean: a guide for modern shelf-basin interactions. Western Arctic Shelf-Basin Interactions (SBI) Phase I Principal Investigators Meeting, Baltimore, MD, March 21-22.
15. **Darby, D.A.**, Bischof, J.F., Spielhagen, Robert, and Pfirman, Stephanie, 1999, Rapid purging of Arctic icebergs from the northern Laurentide and Inuitian ice sheets as a possible cause of cooling preceding Heinrich events. American Geophysical Union National Meeting, Dec. San Francisco.
16. Bischof, J.F. and **Darby, D.A.**, 1999, Sequence of Laurentide Ice decay recognized in Late Pleistocene to Holocene sediments of the western Arctic Ocean. American Geophysical Union National Meeting, Dec. San Francisco.
17. **Darby, D.**, Bischof, J., Poore, R., Osterman, L., Polyak, L., Dwyer, G., de Vernal, A., Hillaire-Marcel, C., Cutter, G., McManus, J., and Dreger, D., 1999, SBI-initiative, paleoceanography study shows significant fluctuations in the western Arctic Ocean, even during the Holocene. OAI All Hands Meeting and Planning Workshop, ARCSS, NSF, Va. Beach, Oct.
18. Bischof, J. and **Darby, D.**, 1999, Significance of the paleo record for the Arctic Ocean circulation. OAI All Hands Meeting and Planning Workshop, ARCSS, NSF, Va. Beach, Oct.
19. **Darby, D.A.**, and Bischof, J.F., 1998. Evidence for the Chukchi Sea as an Important Source of Sea-ice Entrainment and the Role of Sea-Ice in Transporting Fine-grained Sediment from one Shelf to Another in the Arctic. Amer. Geophysical Union Annual Meeting, San Francisco, CA, December
20. **Darby, D.A.** and Bischof, J.F., 1997. Neoglaciation event recognized in AMS radiocarbon-dated box cores from the Arctic Ocean. 27th Arctic Workshop, University of Ottawa.
21. Bischof, J.F. and **Darby, D.A.**, 1997. Is the Beaufort Gyre an exception and potentially unstable feature of the Arctic circulation? ARCSS/OAI All Hands Meeting & Planning Workshop (NSF), Virginia Beach, VA.
22. Bischof, J.F. and **Darby, D.A.**, 1997. Origin of sea ice sediment in the western Arctic Ocean. ARCSS/OAI All Hands Meeting & Planning Workshop (NSF), Virginia Beach, VA.
23. **Darby, D.A.**, Bischof, J.F., and Jones, G.A., 1997. The Arctic Ocean: long intervals of low sedimentation interspersed with short, coarse intervals of high rates. ARCSS/OAI All Hands Meeting & Planning Workshop (NSF), Virginia Beach, VA.
24. **Darby, D.A.**, Bischof, J.F., and Reimnitz, E., 1997. Sources of Arctic Ocean sea ice

based on entrained grain composition and Fe oxide grain chemical fingerprinting. Amer. Geophysical Union Annual Meeting, San Francisco, CA, December.

25. **Darby, D.A.**, 2006. The Healy-Oden Trans-Arctic Expedition (HOTRAX'05) and initial results, invited talk at INSTAAR, University of Colorado, Boulder, CO, April.
26. **Darby, D.A.** and Bischof, J.F., 1996, History of Holocene and Late Pleistocene ice-rafting events. Arctic System Science (ARCSS) All-Hands Workshop, Snowbird, Utah.
27. **Darby, D.A.** and Bischof, J.F., 1996, History of Holocene and Late Pleistocene ice-rafting events. Proceedings of the Arctic System Science (ARCSS) All-Hands Workshop, Snowbird, Utah.
28. **Darby, D.A.**, Bischof, J.F., and Jones, G.A., 1996. Highly variable Late Pleistocene and Holocene sedimentation rates in AMS  $^{14}\text{C}$  dated box cores from the central Arctic Ocean. Fall AGU Meeting, San Francisco.
29. Bischof, J.F. and **Darby, D.A.**, 1995. Pleistocene North American ice sheet dynamics and Arctic Ocean circulation. First SEPM Congress on Sedimentary Geology, St. Petersburg, Florida.
30. **Darby, D.A.** and Bischof, J.F., 1995. Statistical linkage of Alpha Ridge ice-rafted detritus to Pleistocene ice sheets. First SEPM Congress on Sedimentary Geology, St. Petersburg, Florida.
31. Jones, G.A., **Darby, D.A.**, and Bischof, J.F., 1995, Holocene vs. last glacial maximum sedimentation in the central Arctic Ocean. 5th International Conference on Paleoceanography, Halifax, Nova Scotia, Canada.
32. Bischof, J.F. and **Darby, D.A.**, 1995, Changing origin of ice-rafted clastic debris for the Northwind Ridge, western Arctic Ocean, during the Late Pleistocene - Holocene transition. 5th International Conference on Paleoceanography, Halifax, Nova Scotia, Canada.
33. **Darby, D.A.**, Bischof, J.F., and Li, D., 1995, Late Pleistocene ice transport in the Queen Elizabeth Islands. 5th International Conference on Paleoceanography, Halifax, Nova Scotia, Canada.
34. **Darby, D.A.** and Bischof, J.F., 1995, Mid to Late Pleistocene variations of the western Arctic Ocean's ice drift regime recognized in the changing composition of ice-rafted debris. 5th International Conference on Paleoceanography, Halifax, Nova Scotia, Canada, Program with Abstracts, p.
35. **Darby, D.A.**, 1993. Origin of ilmenite placer deposits at Old Hickory, Va. and implications for Trail Ridge and other ilmenite placers. Southeastern Geol. Society of Amer. Annual Meeting, Tallahassee, Fl.
36. **Darby, D.A.** and Bischof, J.F., 1993. The ice-rafted dispersal history for the eastern Alpha Ridge, Arctic Ocean over the last 700KA: evidence for changes in the Beaufort Gyre. Amer. Geophysical Union Fall Meeting. San Francisco, CA.

37. **Darby, D.A.**, and Evans, A.E., Jr., 1992. Provenance of Quaternary beach deposits, Virginia and North Carolina. SE. Geol. Soc. Amer. annual Meeting. Winston-Salem, N.C. March, 1992.
38. Grosz, A.E. and **Darby, D.A.**, 1992. Geochemistry of ilmenites from the New Jersey continental shelf. SE Geol. Soc. Amer. annual meeting. Winston-Salem, N.C. March.
39. **Darby, D.A.**, 1992. Use of detrital Fe-oxides in provenance. Geological Sciences Department Colloquium, Va. Polytechnic Institute & State University, Blacksburg, Va.
40. **Darby, D.A.**, 1991. An assessment of detrital Fe-Ti oxide grain types as indications of provenance. National Meeting of Geol. Soc. of America in San Diego, Oct.
41. Council, E.A., III and **D.A. Darby**, 1988. Sources of sand in large estuaries. Southeastern Section Meeting, Geological Society of America, Columbia South Carolina, March.
42. **Darby, D.A.**, 1988. Sources of sand for the eastern U.S. Shelf and Coastal Plain-National Meeting of Geol. Soc. of America in Denver, Nov.
43. **Darby, D.A.**, E.A. Council, III, and A. Grosz, 1987. General dispersal patterns of sand on the U.S. Atlantic Shelf based on ilmenite composition and heavy mineral suites. Geol. Soc. America Annual Meeting, Norfolk, VA, March.
44. **Darby, D.A.**, A.S. Naidu, T.C. Mowatt, and G. Jones, 1987. Plio-Pleistocene sediment composition and sedimentary processes in the Arctic Ocean. INQUA-87, Ottawa, Canada, August.
45. Barringer, R.A., **D.A. Darby**, G.R. Whittecar and J. Garrett, 1987. The stratigraphy of Late Quaternary deposits in the Payan mining district, Colombia, South America. Southeastern Section Meeting, Geological Society of America, Norfolk, VA, March.
46. **Darby, D.A.** and G.R. Whittecar, 1985. A model of placer deposition in tropical alluvial fans lacking in bedrock control. Southeastern Section Geological Society of America Annual Meeting, Knoxville, TN, March 1985.
47. **Darby, D.A.**, Tsang, Yu Wen and Council, E.A., III, 1985. Detrital ilmenite composition: implications for coastal sand sources and dispersal pathways. Geol. Soc. America Annual Meeting, Orlando, FL, Nov. 1985.
48. Whittecar, G.R., **D.A. Darby**, R.A. Barringer, J.R. Garrett and M.L. Babuin, 1984. Changes of Quaternary fluvial systems in a high-relief humid tropical environment. Geological Society of America Annual Meeting, Reno, NV, November 1984.
49. Jasper, A.K. and **D.A. Darby**, 1983. A reinterpretation of the stratigraphy and sedimentology for the Late Pleistocene coastal deposits of southeastern Virginia. Southeastern Section Geological Society of America Annual Meeting, Tallahassee, FL, March 1983.
50. **Darby, D.A.**, 1982. Provenance of Late Pleistocene coastal sands using trace elements in detrital ilmenites. Geological Society of America National Meeting, New Orleans,

October 1982.

51. **Darby, D.A.**, 1982. Pleistocene environments of deposition along the Hickory Scarp, Southeastern Virginia. Coastal Plain Geology Symposium, Old Dominion University, November 1982.
52. **Darby, D.A.** and D.D. Adams, 1979. Sedimentology and sediment chemistry of a dredged channel of the James River estuary. Southeastern section of the Geological Society of America, 28th Annual Meeting, Blacksburg, VA, April 1979.
53. **Darby, D.A.**, 1977. Sedimentological comparison of a natural and a dredge spoil marsh in the James River Estuary, Virginia Academy of Sciences, Petersburg, VA.
54. **Darby, D.A.** and P. Bowen, 1976. Sediment sorption of common petrochemicals in two estuaries, Virginia Academy of Sciences Meeting, Fairfax, VA.
55. Lyle, M. and **D.A. Darby**, 1976. Evaluation of semiquantitative clay mineral analysis, Virginia Academy of Sciences Meeting, Fairfax, VA.
56. **Darby, D.A.**, 1976. Cation exchange of James River sediment near Hopewell, Virginia, and the implications for water pollution, Virginia Academy of Sciences Meeting, Fairfax, VA.
57. **Darby, D.A.**, 1976. Change in James River sediment size, clay mineralogy and cation exchange capacity upon dredge disposal into a confined dike, Geological Society of America Annual Meeting, Denver, CO, November 1976.
58. **Darby, D.A.**, 1974. Effects of oil on sediment accumulation in Arthur Kill, N.Y. American Geophysical Union Topical Conference on Nearshore Transport, Mystic, Connecticut.
59. **Darby, D.A.**, 1974. An Evaluation of Arctic Ocean paleomagnetic stratigraphy. Nagata Conference on Paleomagnetism, Pittsburgh, PA.
60. **Darby, D.A.**, 1971. Carbonate cycles in Arctic Ocean sediment cores. Second International Symposium on Arctic Geology, San Francisco.

## **NATIONAL AND INTERNATIONAL COMMITTEES**

Science Steering Committee of Ocean-Atmosphere-Ice Interaction initiative in Arctic System Science (ARCSS), National Science Foundation (NSF) 1997-2004.

JEODI Workshop on the future of Deep-Sea Drilling in the Arctic Ocean. Copenhagen, Denmark, Jan. 2003. Chair of subcommittee on "High-Resolution Coring".

Polar TREC Selection Committee, Amer. Research Consortium U.S. (ARCUS): chooses outstanding teachers and researchers for the 2007/2008 Polar TREC expeditions in the Arctic.

Icebreaker Committee for the Canadian Arctic Shelf Exchange Study (CASES) site visit in Quebec, Canada, March 2-4, 2002.

Chair of Arctic Research Consortium of the United States (ARCUS) student research paper award selection committee in earth science, spring 2001.

Arctic Program Planning Group of JOIDES charged with developing a science plan for Arctic Deep-Sea drilling dealing with global climate problems, 2000-2001.

Invited participant to 1999 COMPLEX meeting to plan for Ocean Drilling Program beyond 2002, NSF, Vancouver, BC.

Invited participant to US/Norwegian Collaborative Arctic Research Workshop in Svalbard, Norway, ARCUS, NSF, Aug., 1999.

NSF Shelf-Basin Interaction Science Steering Committee, 1999-2002.

NSF Arctic Research Consortium of the United States (ARCUS) Committee to write the Strategic Plan for the Arctic Marine Science section, 1998. Wrote the section on Arctic Ocean geology, tectonics, and sediments.

Invited participant in NSF sponsored U.S. Arctic Marine Geology and Geophysics Workshop at Woods Hole Oceanographic Institute, Sept. 1989.

City of Virginia Beach Advisory Committee on Groundwater Utilization, 1985.

## **OTHER PROFESSIONAL AND UNIVERSITY SERVICE**

Reviewer for *Deep-Sea Research*, *Progress in Oceanography*, *Geology*, *Science*, *Nature*, *Geological Society of America Bulletin*, *Journal of Sedimentary Petrology*, *Quaternary Research*, *Paleoceanography*, *Global and Planetary Change*, *Quaternary Science Reviews*.

Proposal reviewer for NSF, Hudson River Research Consortium, and NCERC.

Co-Chair and organizer of Special Session (OS21): Tectonic and Paleoclimatic History of the Arctic Ocean Basin: Results from HOTRAX and Other Arctic Ocean Research Programs. Fall AGU Meeting, San Francisco, December 15, 2006.

Organizer and Chair of AGU Fall Meeting Special Session (with L. Mysak), Ocean Sciences: The Arctic Oscillation, Past, Present, & Future. Dec. 2003.

Moderator for the National Ocean Sciences Bowl competition among high school students February 24, 2007 at VIMS, Gloucester, VA.

Member of the search committee for the department chair, 2001-2002.

Dept. of Ocean, Earth, & Atmospheric Sci. Seminar Series Coordinator, 2001-2002.

Moderator for Faculty Focus Groups on the Status of Old Dominion University, Sept. 2001.

Moderator for External Constituencies (HS Principals) Focus Groups on the Status of Old Dominion University, April, 2002.

Graduate Curriculum Committee, Dept. OEAS, 2004-

Chair of Search Committee for climate modeler in OEAS (2006).

Spring 2007 Seminar Coordinator OEAS

Member of search committee for Physical Oceanographer and endowed chair position, 1999-2000.

Attended facilitator training session and conducted two faculty- training sessions on sexual harassment, fall, 1999 and one session in spring, 2000.

Chair and Coordinator of College of Sciences Distinguished Lecture Series, 1998. Six leaders in research on global change brought on by natural processes involving the arctic were invited to campus for two talks each; speakers included Wally Broecker, Knut Aagaard, Richard Alley, John Walsh, Walt Oechel, and Bruce Molnia.

University Radiation Safety Committee, 1996-2002.

Member of Chair Search Committee, Dept. Ocean, Earth, & Atmospheric Sciences, Old Dominion University, 1998-1999.

Chair of Selection Committee for Hydrogeologist/Stratigrapher, Environmental Geochemist, and Remote Sensing/Structural Geologist faculty positions, 1997-1998.

University Diversity Committee, 1994-1995; 1998.

Helped conduct Faculty Workshops on Valuing Diversity, 3 workshops during Fall 1998.

Chair of the Selection Committee for Hydrologist/Stratigrapher, 1997

School of Sciences Computer Utilization Committee, 1992-93

Chair of Financial Resources Subcommittee for the Southern Assoc. of Colleges and Schools Self Study for reaccreditation, 1990-91.

Conducted Valuing Diversity Workshops for Faculty at ODU. April, November 5 & 19, 1991, 1992.

Conducted Valuing Diversity Workshop for freshmen students, November 12, 1991.

Chair of Search Committee for Sedimentology faculty position, 1990.

SAS Committee for introduction of version 6.06 by computer center, 1990.

Departmental Coordinator for Combined Virginia Charitable Campaign, 1990-1997.

Chair of Search Committee for Mineralogy/Petrology faculty position, 1989, 1991-92.

Partner for Success, 1989-1991.

Honors Screening Committee for University, 1989-1994.

Curriculum Committee of the College of Sciences, 1989-1992.

Interdisciplinary Studies Committee, 1991-92.

General Education Implementation Workshops, October 19, 1985 and February 28-March 2, 1986. Drafted report outlining problems in implementing the new general education requirements at ODU.

Organized symposium on Atlantic Shelf Sediments for SE Geological Society of America Annual Meeting, March 1987, Norfolk, VA.

University Safety Committee, ODU, 1984-1985.

Helped organized faculty volunteers in the School of Sciences and Health Professions for the 1984 faculty/staff phonathon resulting in over \$12,000 in pledges for ODU Library.

University Self-Study Committee on Foreign Languages, ODU, 1984.

Working Committee to develop documentation for Chapter Status of Sigma Xi Club at ODU, 1983-84.

Tenure Committee, School of Sciences and Health Professions, ODU, 1984-present.

Faculty Senate Committee on Promotion and Tenure, ODU, 1984 - 1985.

Virginia Tidewater Consortium Faculty Development Committee, 1977-1980.

University Task Force on Undergraduate Education at Old Dominion University, 1978-79.

Steering Committee of the Center for Instructional Development 1979-80.

Department of Geophysical Sciences Committee to develop Five Year Plan for the Geology Department, 1981.

Chairman of Environmental Geology Section at the 28th Annual Meeting of the Southeastern Section of the Geological Society of America, Blacksburg, VA, April 1979.

Chairman, Innovative Laboratory Committee School of Sciences and Health Professions, 1975-76 and 1976-77.

Coordinator, NSF Proposal Task Force for Comprehensive Assistance to Undergraduate Science Education, 1975-1978. (This involves working with Science and engineering faculty in developing course improvement projects, utilizing instructional technologies; managing project activities and expenditures; overseeing staff (4 full-time and 4 part-time) duties; coordinating project activities with the Instructional Media Center, Computer Center and Center for Instructional Development; and chairing the CAUSE Steering Committee).

University Senate, 1978-80, Senate Executive Committee, Faculty Caucus Executive Committee.

Degrees and Curriculum Committee of the School of Sciences and Health Professions, 1974-1977.

Instructional Media Center Advisory Committee, 1975-77.

Committee for the Development of the Masters Degree proposal in Geophysical Sciences, Department of Geophysical Sciences, 1975, ODU.

School of Sciences and Health Profession Ad Hoc Committee on Innovative Labs, Chairman, 1976-75-76.

University Senate Ad Hoc Committee on the 12-hour Teaching Load, 1976.

Senate Ad Hoc Committee on the Analysis of the Twelve-Hour Teaching Load, School of Sciences and Health Professions Representative, 1976.

Conducted the Sigma Xi Faculty Survey on the Research Foundation, January 1977.

Planetarium shows, "A Journey Through Time" for 1975 and 1976 ODU Preview. Also presented this show to several classes and special groups such as Norfolk City School Science Supervisors and ODU Alumni at Homecoming, 1976 (February 20 and 21).

## **INSTRUCTIONAL VIDEOS**

Instructional Video of Coring Onboard the USCGC Healy, 25 min., produced by D. Darby. 2007 Contains footage of coring during the maiden high Arctic coring cruise of Healy.

## **CONSULTING ACTIVITIES**

Pan-American Industrial and Mining Development Company, Miami Beach, Rio Magui Gold Placer Deposit, Colombia, South America. Included two week field investigations in the jungles of southwestern Colombia, 1975-76.

National Science Foundation Student Originated Studies, R. VanNieuwenhuise (Principal Investigator), Multiple Land-Use Criteria Evaluation for Urban Coastal Plains Environments. Layne-Atlantic Drilling Company, 1976-77, Sediment Size Analysis for Eocene Strata from Tidewater, VA.

Groundwater Development Company for their drilling activities in the Piedmont and Coastal Plain of the east coast, 1978-81.

Cal-Colombian Mines, Ltd., Placer deposits in Colombia, South America, 1982-84.

Seminar on Stratigraphy and sedimentation in Southeastern Virginia for water well drillers, 1982.

Mr. Arthur Riddell and citizens of Homestead in the Kempsville Borough of Virginia Beach concerning a planned project to fill a 22 acre burrow pit, 1982.

Virginia Natural Gas Co., consultant on methane extraction project from Landfill, 1986.

U.S. Army Corps of Engineers, 1985.

Piedmont Mining Co., 1990.

Froehling and Robertson, Inc., 1990-Pres.

Engineering Science, Inc., 1991-pres.

Dr. Akyurtlu, Mechanical Engineering, Hampton University, 1992.

Gulf Coast Research Lab, Ocean Springs, MI.

Materials Analysis, Inc., Va. Beach, VA.

Colonial Williamsburg Foundation, Williamsburg, VA.

Engineering and Environment, Inc., Virginia Beach, Va.

## **GRADUATE ADVISING**

Major advisor or Ph.D. dissertation committee member for the following Graduate Candidates (not listed are numerous M.S. candidates upon whose thesis committees I served):

Graduate M.S. Candidate: William I. Niven - 1976-1978

Research Topic: The distribution of several metals and cation exchange capacity in sediment fractions from an artificial and natural marsh, James River, Virginia

Graduate M.S. Candidate: Kim Zauderer - 1978-1982

Research Topic: Provenance of Arctic Ocean Ice Rafted Sediment

Graduate M.S. Candidate: Alan Jasper - 1980-1982

Research Topic: Depositional Environments of Hickory Scarp Pleistocene Sediments, SE Virginia

Graduate M.S. Candidate: Malcom Kay - 1980-1983

Research Topic: Bahamian Carbonate Lithofacies and Stratigraphy

Graduate M.S. Candidate: William Fraser - 1981-1982

Research Topic: Morphology and distribution of buried post-Miocene channels in SE Virginia

Graduate M.S. Candidate: Robert McDaniel - 1981-1985

Research Topic: Genesis and distribution of a Pleistocene boulder layer in SE Virginia

Graduate Ph.D. Candidate: Gerardo Perillo - 1980-1981

Research Topic: Geomorphology and dynamics of a sand wave in Lower Chesapeake Bay, Virginia

Graduate M.S. Candidate: Allen Evans - 1982-1987

Research Topics: Linear sand deposits in Southeastern Virginia

Coastal Plain: A Fourier shape analysis and trace element content study of ilmenites

Graduate M.S. Candidate: Yu Wen Tsang - 1982-1986

Research Topic: The use of ilmenite for provenance determination

Graduate M.S. Candidate: Richard Barringer - 1982-1987

Research Topic: The sedimentology, depositional history, and stratigraphic correlation of auriferous alluvial terraces near Payan, Colombia

Graduate M.S. Candidate: Jim Garrett - 1982-1985

Research Topic: The morphology of placer gold grains and its relationship to the sedimentology and petrology of the auriferous gravels in the Payan Mining District, Colombia

Graduate M.S. Candidate: Edward C. Council - 1983-1987

Research Topic: Dispersal patterns and provenance of Chesapeake Bay sands using ilmenite element compositions

Graduate M.S. Candidate: Mary Goeke Mullen - 1984-1993

Research Topic: Petrology and diagenesis of Pleistocene carbonate rock cores from Abaco Island, Bahamas.

Graduate M.S. Candidate: Lynn Weyenberg - 1984-1987

Research Topic: Depositional and diagenetic history of the Middle Ordovician carbonates of the Shenandoah Valley, northern Virginia.

Graduate M.S. Candidate: Majekodunmi A. Ayinmide - 1989-1993 (dropped-out of program for financial reasons)

Graduate M.S. Candidate: Ronald Augustin - 1992-1995      Research Topic: Alteration of Quartzites in Alluvial Farms:  
Valley & Ridge/Blue Ridge, VA; dropped out of program due to job.

Graduate M.S. Candidate: Steven Marshall - 1992-1998 (unfinished, switched to non-thesis)  
Research Topic: Characterization of Fe-Ti oxides for tectonic provenance studies.

Graduate M.S. Candidate: Duan Li - 1992-1997

Research Topic: Ice transport in the Queen Elizabeth Islands, Canadian Arctic using detrital Fe oxide grain composition.

Graduate M.S. Candidate: Pablo Luchette - 1993-1997

Research Topic: Depositional analysis of the non-marine and marginal marine facies of the Sunnyside Member of the Upper Cretaceous (Campanian) Blackhawk Formation, Utah.

Graduate M.S. Candidate: Paula E. Zimmerman – 2003-

Graduate M.S. Candidate: John Rand – 2003-

Graduate M.S. Candidate: Shavonne Miles–2007-

## **RESEARCH INTERESTS**

1. Clay mineral identification and semiquantitative analysis
2. Cation exchange in estuarine sediments and the adsorption of petrochemicals
3. Sedimentology of recent sediments
4. Glacial history and sedimentology of Arctic Ocean sediments
5. Heavy mineral provenance and sedimentary petrology
6. Electron Microprobe analysis of detrital grains.
7. Fe oxide mineral "fingerprinting" for source determination

## **TEACHING INTERESTS**

1. Sedimentology and Stratigraphy (UG)
2. Sedimentary Petrology (UG & G)
3. Introductory Geology, i.e., Physical Geology and Historical Geology (UG)
4. Pleistocene Geology (UG)
5. Paleoclimatology (G)
6. Clay Mineralogy (G)
7. Carbonate Petrology (G)
8. Sandstone Petrology (G)
9. Geology of the Arctic Ocean (G)