

## Anthony George Coates

### Permanent address

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### Education

1958,	Kings College, London University,	Geology (Honours) B.Sc.
1963	University of Caen, Calvados, France and University of London,	Geology Ph.D.

**Languages** English (Native)  
Speaking and reading; French, Spanish

### Positions Held

- 2003-present **Senior Scientist Emeritus**, Smithsonian Tropical Research Institute
- 2008-9 **Senior Executive Director**, the Frank Gehry Biomuseum, Amador, Panama City, Republic of Panama. (Contract to oversee the creation and launch of the Bruce Mau-designed Biomuseum to be housed inside the iconic Frank Gehry building at the Pacific entrance of the Panama Canal. Involves fundraising and creating the exhibits as well as the Museum's administrative structure, budget, and staffing)
- 2003-2008 **Roving Ambassador**, Smithsonian Tropical Research Institute, (STRI), Washington DC  
(Travelled nationally and internationally on behalf of STRI to lecture and host groups such as the Smithsonian Regents, US Senators and Congressmen, major NGOs and Donors as well as radio, film and television crews)
- 2000-2003 **Director, Scientific Research Programs**, Smithsonian Institution, Washington, D.C.  
(Responsible for evaluating research scientists and for reorganizing the financing, administration and personnel of all science departments and programs of the Smithsonian Institution.)
- 1991-2000 **Staff Research Scientist and Deputy Director**, Smithsonian Tropical Research Institute (STRI), Panama  
(Carried on funded personal research; evaluated and helped assign budgets to permanent research scientists, and assisted the Director in all scientific and administrative policy decisions)
- 1986-1991 **Associate Vice President for Research and Graduate Studies**, George Washington University, Washington, DC

(Carried on funded personal research; oversaw sponsored research programs; developed University competitive grant awards to faculty; reorganized University research and teaching fellowships; fundraised extensively among alumni and Foundations; oversaw computerization of all registrar functions)

- 1974-1986 **Professor of Geology**, George Washington University, Washington, DC  
1976-77 **Visiting Professor**, Institut de Paleontologie, Museum d'Histoire Naturelle, Paris, France  
1975-76 **Visiting Professor**, Wolfson College, Oxford University, Oxford, England  
1967-1974 **Associate Professor** of Geology, George Washington University, Washington, DC  
1972-1973 **Visiting Senior Lecturer**, Kings College, London University, London, England  
1966-72 **Assistant Professor**, George Washington University, Washington, DC  
1963-1966 **Lecturer in Geology**, University of the West Indies, Kingston, Jamaica  
1962-1963 **Geologist**, Geological Survey of Jamaica, Kingston, Jamaica  
1959-1962 **Doctoral Fellow**, University of Caen, Calvados, France

#### **Miscellaneous Honors and Public Service**

- 2016 Made Honorary Member, APANAC (Panamanian Association for Advancement of Science)  
2008- present Member, Board of Trustees, American University of Sharjah, Sharjah, United Arab Emirates  
2009 “Resources and themes relevant to Panama”; Meeting of Latin American CEOs, Panama City, (June). Invited plenary speaker.  
2005 World Wildlife Fund (WWF) Annual General Meeting; Invited speaker  
2004 Plenary Address to the Panamanian Association for the Advancement of Science on their 100<sup>th</sup> Anniversary (In Spanish), Republic of Panama  
2003 The International meeting of the Young Presidents Organization (YPO), held in Panama; Invited Speaker  
2001 Invited Speaker; Smithsonian Legacy Society, The Castle, Washington, DC  
1999 Sabado Gigante (Host; Don Francisco); interviewed on largest television program in US and Latin American Television.  
1999 Scientific Frontiers (Host; Alan Alda), National Public Television; (my research was featured and I acted as host to Mr. Alda).  
1998-present Trustee and Fellow, Pangea Inc. (Dr Hana Ayala Founder).  
1997-present Smithsonian lecturer, Regent and Crystal Cruise Lines  
1997 Inaugural Speaker, “Rainforests Past and Future” Symposium; Jointly hosted by Smithsonian Institution and Cooperative Research Centre for Tropical Ecology and Management, Cairns, Australia.  
1995 Darien Expedition, Panama, for National Public Radio program on Rivers. (Produced by Alex Chadwick and Carolyn Jensen).  
1984-1994, taught (with two colleagues) a week-long science Elderhostel Program, “The Origin of Everything”, George Washington University and the

Smithsonian Institution, Washington, DC.

### **Selected career achievements**

1. For 20 years (1966-1986), I taught Geology at George Washington University. Courses, including a large geology course (12-14 graduate teaching and research assistants) for non-science majors and two required courses for the major. I also created, with colleagues in Anthropology and Biology, a graduate program in Geobiology that drew on the scientists and vast resources of the Smithsonian and other Federal agencies in the Washington, D.C. area.

2. Starting in 1986, jointly with Dr. Roderick French, Vice President for Academic Affairs, I undertook the first comprehensive survey of Graduate Programs and their financial support at George Washington University, Washington, DC. This led to standardization of Graduate Research and Teaching Fellowships across all schools and allowed the University to raise compensation to nationally competitive levels

3. In 1987 I chaired the University Academic committee that oversaw the conversion of all registrar functions onto a central computerized system. This involved diplomacy and protracted negotiations with the Computer Company and with the Faculty and Staff of the University

4. In 1987-8 I negotiated with the President and Vice President for Finance of the University to return a % of the overhead on research grants to the Principal Investigators. I also developed, with the Vice President of Academic Affairs, a series of competitive research grants within the University and I chaired the University Committee that made the awards.

5. In 1988 I co-founded with Dr. Jeremy Jackson, the Panama Paleontology Project (PPP) which brought together and integrated research among 40 scientists in 8 countries in order to understand the significant global changes that the rise and closure of the Isthmus of Panama produced about three million years ago. The PPP has published some 200 scientific papers in refereed journals (including *Nature* and *Science*) and has obtained major grants from the National Science Foundation, the National Geographic Society, the Swiss National Science Foundation, and the Smithsonian Institution.

6. As Deputy Director of STRI, I helped select young scientists from around the world for awards ranging from postdoctoral fellowships to undergraduate senior thesis grants. I also chaired the Institute's search committees for all full-time research scientist appointments, and evaluated and assigned their budgets.

7. In 1994, I negotiated a collaborative master's program in tropical environmental biology between STRI and McGill University, Montreal, Canada. Similar programs have now been developed with Yale and Princeton Universities and the University of Wisconsin. Several professors and dozens of students spend a semester resident in Panama, taking courses for credit towards their degree, and arranging internships in various scientific, economic, social, or conservational organizations or government ministries in Panama.

8. In 1995, I was instrumental in planning and purchasing an eight hectare site in Bocas del Toro, western Caribbean Panama, and developing a major Smithsonian marine educational and research center that is now attracting researchers and student courses from all over the world.

9. In 1996, I raised >\$1 million to help organize the International Coral Reef Symposium in Panama, attended by more than 1000 scientists, and including full funding for 85 young scientists from developing nations around the world.

10. In 2000, the Panama Canal and Zone was handed over to the Government of Panama. I played a major role in the conversion of the Smithsonian Tropical Research Institute from a completely federally organized entity to a unit in which Panamanians were transferred to the Labor Law of Panama, the USA employees remained federal or Smithsonian Trust Funded, and all other nationalities had an independent status negotiated for them.

11. In 2000, I was tasked by the Secretary of the Smithsonian to undertake a major review of the status and structure of scientific research at the Institution and to draw up an organizational plan for the future, which was submitted in 2002

12. In 2003, I raised a \$3 million endowment from private sources to create an independent and permanent chair in Geology and Paleontology at STRI.

13. During 2002- present, I have lectured extensively to the public, on behalf of the Smithsonian, within the United States and Panama, as well as in many other countries, on Earth and Biological Sciences, the importance of the Tropics to global welfare, the role of the Smithsonian in the Tropics, the history and future of the Panama Canal (including comparison with the Suez Canal), and on the vast global changes triggered by the gradual formation of the Isthmus of Panama.

14. In 2007 I was invited to be the Senior Executive Director of the Biomuseo Panama. The Museum is housed in an iconic building designed by Frank Gehry. The museum exhibits are designed by Bruce Mau Associates. The museum sits with a panoramic view of the Pacific mouth of the Panama Canal, the Pacific Ocean, and a wide sweep of the Panama coast including the whole city of Panama and will become a branding image of Panama analogous to the Sydney Opera House for Australia.

15. In 2009 I became a member of the Board of Trustees of the American University of Sharjah, United Arab Emirates which is an American liberal Arts coeducational University, accredited in the United States, serving the Middle Eastern countries from Afghanistan to Morocco

## **Publications; books**

- 1996 Jackson, J.B.C., A.F. Budd, and **A.G. Coates** (eds.), *Evolution and Environment in Tropical America*: University of Chicago Press
- 1997 **Coates, A. G.**, Ed. *Central America, A Natural and Cultural History of Central America*: Yale University Press, 277 pp.
- 2000 Collins L.S. and **Coates A.G.** Eds. The Neogene of the Isthmus of Panama; a Paleobiotic Survey of the Caribbean Coast, *Bulletins of American Paleontology*, No. 425 pp.
- 2003 **Coates, A.G.**, Ed. *Paseo Pantera*, Smithsonian Institution Press, 302 pp.

## Reviewed Journal Articles (from 1986 only)

- 2016 O'Dea, A., Lessios, H, **Coates, A.** and 32 others, Formation of the Isthmus of Panama. *Science Advances*. 2, e1600883
- 2012 Klaus, J. S., McNeill, D. F., Budd, A. F., and **Coates, A. G.**, submitted. Neogene reef coral assemblages of the Bocas del Toro region, Panama: The rise of *Acropora palmata*. *Coral Reefs* v. 31-1;101-203.
- 2013 **Coates A. G.**, and Stallard, R., How old is the Isthmus of Panama? *Bulletin Marine Science*, v.89-4; 801-813.
- 2013 McNeill, D., Klaus, J. S. O., Connell, L. G., **Coates, A. G.**, and Morgan, W. A., Depositional sequences and stratigraphy of the Colón Carbonate Platform: Bocas del Toro Archipelago, Panama. *Journal of Sedimentary Research*, 83(2):183-195. Doi:
- 2007 O'Dea, A., Rodríguez, F., DeGracia, C., **Coates, A.G.** La paleontología marina en el Istmo de Panamá. *Canto Rodado* 2: 149-179
- 2005 **Coates, A. G.**, McNeill, D.F. Aubry, Berggren, W.A. and L.S. Collins An Introduction to the Geology of the Bocas del Toro Archipelago, Panama, *Caribbean Journal of Science*, Vol. 41, No.3, 374-391
- 2004 **Coates, A. G.**, L. S. Collins, M.-P. Aubry, and W. A. Berggren. The geology of the Darien, Panama, and the late Miocene-Pliocene collision of the Panama arc with northwestern South America. *Geological Society of America, Bulletin* 116 (11): 1327–1344.
- 2003 **Coates, A. G.**, M.-P. Aubry, W.A. Berggren, L. S. Collins, and M. Kunk. Early Neogene history of the Central American arc from Bocas del Toro, western Panama. *Geological Society of America, Bulletin* 115 (3): 271-287.
- 2000 McNeill, D. F., **Coates, A. G.** Budd, A. F. and P. F. Borne, Integrated paleontologic and paleomagnetic stratigraphy of the upper Neogene deposits around Limon, Costa Rica: A coastal merge record of the Central American Isthmus. *Geological Society of America, Bulletin* 112: 963-981.
- 1999 Collins, L. S., and **Coates, A. G.** (Editors), A Paleobiotic Survey of Caribbean Faunas from the Neogene of the Isthmus of Panama: *Bulletins of American Paleontology* No. 357: 351pp.
- 1999 **Coates, A. G.**, Lithostratigraphy of the Neogene strata of the Caribbean coast from Limon, Costa Rica to Colon, Panama. In; Collins, L. S., and A. G. Coates (Editors), A Paleobiotic Survey of Caribbean Faunas from the Neogene of the

- Isthmus of Panama: *Bulletins of American Paleontology* No.357: 351pp.
- 1998 Coates, A. G. & J. B. C. Jackson. Neogene sedimentary basins of Costa Rica and Panama. 11th Conference Inter. Bryozoology Association, Panama. 39 p.
- 1998 **Coates A. G.**, Geology and terrestrial fauna of Cayos Cocinos, Honduras, *Revista de Biología Tropical, Vol 4;15-37l*
- 1997 **Coates, A. G.**, The forging of Central America. In Coates, A.G., Ed. *Central America; A natural and cultural history*. Yale University Press, p.1-37
- 1996 **Coates, A. G.** and J. A. Obando. The geologic evolution of the Central American isthmus. In; Jackson, J. B. C., Budd, A.F. and **Coates A. G.** (eds.), *Evolution and Environment in Tropical America*: University of Chicago Press.
- 1996 Collins, L. S., Budd, A. F. Budd, and **Coates, A. G.** Earliest evolution associated with the evolution of the tropical American Seaway. *Proceedings of the National Academy of Sciences, 93; 6069-6072*
- 1996 Collins, L.S., **Coates, A. G.** Berggren, W. A. Aubry M-P and J. Zhang. The late Miocene Panamanian isthmian strait, *Geology, 24;687-690*
- 1995 Collins, L. S., **Coates, A. G.**, Jackson J. B. C. and J. A.Obando, Timing and rates of emergence of the Limon and Bocas del Toro basins: Caribbean effects of Cocos Ridge subduction? In; *Geologic and tectonic development of the Caribbean plate boundary in southern Central America*, Ed. P. Mann 263-289, *Geological Society America, Special Paper No. 295*
- 1993 Jackson, J. B. C., P. Jung, **Coates, A. G** and L. S. Collins. Diversity and extinction of tropical American mollusks and emergence of the Isthmus of Panama. *Science 260: 1624-1626.*
- 1993 Jackson, J. B. C. and **Coates, A. G.**, Biología and geología marina del Istmo de Panama, in Agenda Ecológico y Social para Bocas del Toro. S. Heckadon, Ed. *Actas de los Seminarios Talleres*
- 1992 **Coates, A. G.**, J. B. C. Jackson, L. S. Collins, T. M. Cronin, H. J. Dowsett, L. M. Bybell, P. Jung, and J. A. Obando. Closure of the Isthmus of Panama: the near-shore marine record of Costa Rica and western Panama. *Geological Society of America, Bulletin, 104:814-828*
- 1992 Budd, A. and **Coates, A.G.**, Non-progressive evolution in a clade of Cretaceous *Montastraea*- like corals. *Paleobiology, 18(4); 425-446*
- 1989 **Coates, A. G.**, Kauffman, E. G., Johnson, C. and N. Sohl, A field guide to the Cretaceous Carbonate Platforms and rudist reefs of Jamaica. *University of Colorado Geological Sciences Publication 93pp.*
- 1987 **Coates, A. G.** and J. B. C. Jackson, Clonal growth, algal symbiosis, and reef formation by corals. *Paleobiology, 13(4)363-378*
- 1987 **Coates, A. G.** and W. O. Oliver, Chapter 12; Cnidaria in Boardman R., Cheetham, A. and Rowell, E. Eds. *Fossil Invertebrates, Blackwell Scientific Publications Inc. Boston and Oxford, 713pp.*
- 1986 Jackson, J. B. C., and **Coates, A. G.**. Life cycles and evolution of clonal (modular) animals. *Phil. Trans. Royal Society of London, ser. B, 313: 7-22.*
- 1986 **Coates, A. G.**, and J. B. C. Jackson. Morphologic themes in the evolution of clonal and aclonal invertebrates, p.67-106 in J. Jackson, L. Buss and R. Cook (eds.), *Population Biology and Evolution of Clonal Organisms*: Yale University Press, New Haven

1986 Jackson, J.B.C., Winston J., and **Coates, A.G.**. Niche breadth, biogeographic range and evolutionary longevity of Caribbean reef-associated cheilostome bryozoa and Scleractinia. *Proceedings Fifth International Coral Reef Congress, Tahiti. International Association of Biological Oceanographers (IABO), Tahiti, France, 1985, Vol 4.*