

## BIOGRAPHICAL SKETCH

---

### Ariel D. Anbar

Associate Professor  
School of Earth & Space Exploration and  
Department of Chemistry & Biochemistry  
Arizona State University  
Tempe, AZ 85287-1404

February, 2008

Tel: 480-965-0767  
Fax: 480-965-8102  
anbar@asu.edu

#### a. PROFESSIONAL PREPARATION

Harvard College	Geological Sciences and Chemistry	A.B., 1989
California Institute of Technology	Geochemistry	M.S., 1991
California Institute of Technology	Geochemistry	Ph.D., 1996

#### b. APPOINTMENTS

2004 - present	Associate Professor School of Earth & Space Exploration and Department of Chemistry & Biochemistry Arizona State University
2002 - 2004	Associate Professor
1996 - 2002	Assistant Professor Dept. of Earth & Environmental Sciences and Dept. of Chemistry University of Rochester
1993 - 1996	Graduate Research and Teaching Asst., Calif. Inst. of Technology Division of Geological and Planetary Sciences

#### c. PUBLICATIONS

##### Six Publications Most Relevant to this Proposal:

1. A. D. Anbar, Y. Duan, T. W. Lyons, G. L. Arnold, B. Kendall, R. A. Creaser, A. J. Kaufman, G. Gordon, C. Scott, J. Garvin and R. Buick (2007). A whiff of oxygen before the Great Oxidation Event? *Science*, **317**: 1903-1906.
2. A. J. Kaufman, D. T. Johnston, J. Farquhar, A. L. Masterson, T. W. Lyons, S. Bates, A. D. Anbar, G. L. Arnold, J. Garvin and R. Buick (2007). Global biospheric oxygenation and atmospheric evolution at the close of the Archean Eon. *Science*, **317**: 1900-1903.
3. G. L. Arnold, A. D. Anbar, J. Barling and T. W. Lyons (2004). Molybdenum isotope evidence of widespread anoxia in mid-Proterozoic oceans. *Science* **304**: 87-90.
4. A. D. Anbar and A. H. Knoll (2002). Proterozoic ocean chemistry and evolution: A bioinorganic bridge? *Science* **297**, 1137-1142.
5. H. Nair, M. Allen, A. D. Anbar, Y. L. Yung and R. T. Clancy (1994). Photochemistry of the Martian atmosphere. *Icarus* **111**: 124-150
6. A. D. Anbar and H. D. Holland (1992). The photochemistry of manganese and the origin of banded iron formations. *Geochim. Cosmochim. Acta* **56**: 2595-2603.

### Six Other Significant Publications:

1. S. Weyer, A. D. Anbar, A. Gerdes, G. W. Gordon, T. J. Algeo and E. A. Boyle (2008). Natural fractionation of  $^{238}\text{U}/^{235}\text{U}$ . *Earth Planet. Sci. Lett.*, **72**: 345 – 359.
2. A. D. Anbar and O. Rouxel (2007). Metal stable isotopes in paleoceanography. *Ann. Rev. Earth Planet. Sci.* **35**: 717-746.
3. A. D. Anbar, J. E. Roe, J. Barling and K. H. Nealson (2000). Non-biological fractionation of iron isotopes. *Science* **288**: 126-128.
4. A. D. Anbar (2004). Iron stable isotopes: beyond biosignatures. *Earth Planet. Sci. Lett. (Frontiers)* **217**: 223-236
5. A. D. Anbar (2004). Molybdenum stable isotopes: Observations, interpretations and directions. *Rev. Mineral. Geochem.* **55**: 429-454.
6. A. D. Anbar, G. J. Wasserburg, D. A. Papanastassiou and P. S. Andersson (1996). Iridium in natural waters. *Science* **273**: 1524-1528.

### d. SYNERGISTIC ACTIVITIES

Chair, Science Steering Committee, 2008 Astrobiology Science Conference  
Editorial Boards: *Geobiology* ('02-'07); *Geology* ('03-present), *Chem. Geol.* ('06 – present)  
Member, NASA Planetary Sci. Subcommittee of the NASA Advisory Council, 2006- present  
Co-Chair, Mission to Early Earth Focus Group, NASA Astrobiology Institute, 2001 - present  
Member of Steering Committee, Astrobiology Drilling Project, 2003 – present  
Co-convenor of ~ 12 special sessions at Goldschmidt, AGU and GSA meetings since 1999  
Reviewer for GCA, EPSL, Chem. Geol., Anal. Chem., Science, Nature, NSF and NASA

### e. COLLABORATORS & OTHER AFFILIATIONS

#### i. Collaborators (past 48 months):

T. Algeo (U. Cincinnati), P. Andersson (Swedish Museum of Natural History); J. Barling (U. British Columbia); A. Bekker (Carnegie); S. Brantley (Penn. State University); R. Buick (U. Washington); H. Brumsack (Oldenburg); T. Bullen (USGS); R. Creaser (U. Alberta); J. Hannah (CSU); G. Icopini (LANL); A. Jarzecki (Princeton); G. Jiang (UNLV); A. Kaufman (U. Maryland); A. Knoll (Harvard); T. Lyons (UCR); K. MacLeod (U. Missouri); J. McManus (OSU); J. Payne (Stanford); B. Peucker-Ehrenbrink (WHOI); O. Rouxel (WHOI); B. Sageman (Northwestern); H. Stein (CSU); S. Severmann (UCR); J. Skulan (U. Wisconsin); T. Spiro (Princeton); R. Summons (MIT); S. Weyer (Frankfurt).

#### ii. Graduate and Postdoctoral Advisors:

Graduate: G. Wasserburg (Caltech); Y. Yung (Caltech); Postdoctoral: None

#### iii. Thesis Advisor and Postgraduate Sponsor (Total: 6 Ph.D. (2 complete, 4 in progress), 5 M.S., 6 postdoctoral):

Degrees completed (U. Rochester): G. Arnold (Ph.D. 04); J. Roe (Ph.D. 03); K. Klochko (M.S. 03); S. Goldman (M.S. 02); E. Holman (M.S. 01); K. Knab (M.S. 99); E. Ramon (M.S. 99); Ph.D. in progress (ASU): Y. Duan; J. Glass; J. Morgan; S. Staton.

Postgraduate Sponsor: J. Barling (Ph.D. Monash, '91), 97 – 02; G. Gordon (Ph.D. Yale, '02), 03 – present; A. Michaud (Ph.D. Cornell, '03), 04 – '07; C. Siebert (Ph.D. Berne, '03), 06; L. Wasylenki (Ph.D. Caltech, '98), 04 – present; F. Wolfe-Simon (Ph.D. Rutgers, '06), 06 – present.