

Curriculum Vitae

Nora Noffke, PhD



Old Dominion University
Ocean, Earth & Atmospheric Sciences
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EDUCATION

Academic Education

- 1990 BS: Geology-Paleontology
 Physics (Minor)
 University of Tübingen, Germany
- 1992 MS: Geology-Paleontology
 University of Tübingen, Germany
- 1996 PhD: Geomicrobiology with *summa cum laude*
 University of Oldenburg, Germany

Postdoctoral Appointments

- 1998-2000 Institute of Geology and Paleontology, University of Frankfurt/Main, Germany
- 2000-2001 Department of Organismic and Evolutionary Biology, Harvard University,
Cambridge, USA (working group A.H. Knoll).

Employments as Geologist in Industry and Federal Administration

- 1993 Company Gerdes, Norden, Germany: Engineering Geology
- 1994 State Administration Office of Environments, Aurich, Landesamt
Niedersachsen, Germany: Environmental Geology

Appointments at Old Dominion University, Norfolk, Virginia, USA

- 2001 Assistant Professor
Department of Ocean, Earth & Atmospheric Sciences
- 2007 Associate Professor
Department of Ocean, Earth & Atmospheric Sciences

TEACHING

- as Teaching Assistant, University of Tübingen, Germany:

1. 300-level *Marine Invertebrates*
2. 400/500-level *Cephalopods and Biostratigraphy*
3. 300-level *Mineralogy*

- as Postdoc, University of Frankfurt, Germany:

4. 400/500-level *Seminar on Biosedimentology* (in English language)
5. 400/500-level *Paleoclimate*
6. 300-level *General Paleontology*

- as Assistant Professor, Old Dominion University, Norfolk, VA, USA:

7. 410 *Geological Survey*
8. 441/442 *Field Studies*
9. 603 *Geobiology and Biosedimentology*
10. 303 *Paleontology of Invertebrates*

Intern undergraduate students:

John Higgins, Himanshu Kesker, Chris Render, Jackson Cordial, Nicole Bach,
and Stacy McCord

Graduate Students (current)

Dina Bower (PhD); Carrie Snyder; Shavonne Miles (MS)

PUBLISHED BOOKS AND PAPERS (peer-reviewed)

Journals

Noffke, N., Beukes, N., Hazen, R., & Swift, D. (in revision): Exceptionally preserved microbial mats of Meso-Archean age: the Sinqueni Formation, Pongola Supergroup, South Africa. – *Geobiology*.

Noffke, N. & Paterson, D. (in revision): Turbulent life style: the interaction of benthic cyanobacteria with the physical sediment dynamics in siliciclastic tidal settings.- *Geobiology*.

Noffke, N. (2007): Microbially induced sedimentary structures in Archean sandstones: a new window into early life. *Gondwana Research*, v. 11, [in press]. *

Noffke, N., Beukes, N., & Hazen, R. (2006a): Microbially induced sedimentary structures in the 2.9 Ga old Brixton Formation, Witwatersrand Supergroup, South Africa. *Precambrian Research*, 146, p. 35-44.

Noffke, N., Hazen, R., Eriksson, K., & Simpson, E. (2006b): A new window into early life: Microbial mats in a siliciclastic early Archean tidal flat (3.2 Ga Moodies Group, South Africa). *Geology*, 34, p. 253-256.

Draganits, E. & Noffke, N. (2004): Siliciclastic, domed Stromatolites from the Lower Devonian Muth Formation, NW Himalaya. *Journal of Sedimentary Research*- 74, 2, 191-202.

Noffke, N., Hazen, R. & Nhleko, N. (2003b): Earth's Earliest Microbial Mats in a Siliciclastic Marine Environment (Mozaan Group, 2.9 Ga, South Africa). *Geology*, v. 31, no. 6, p. 673-676.

Noffke, N. (2003): The concept of geobiological studies: the example of microbially induced sedimentary structures in physical depositional systems. *Palaios* 17, i-iii. *

Noffke, N., Gerdes, G., & Klenke, Th. (2003a): Benthic cyanobacteria and their influence on the sedimentary dynamics of peritidal depositional systems (siliciclastic, evaporitic salty and evaporitic carbonatic).- *Earth Science Review*, 62/1-2, 163-176.

Noffke, N., Knoll, A.H. & Grotzinger, J. (2002a): Sedimentary Controls on the Formation and Preservation of Microbial Mats in Siliciclastic Deposits: A Case Study from the Upper Neoproterozoic Nama Group, Namibia. -*Palaios*, 17, 1-12.

Noffke, N., Gerdes, G., Klenke, Th. & Krumbein, W.E. (2002b) Classification of primary microbially induced sedimentary structures - reply. *Journal of Sedimentary Research*, 72, 4, p. 589-590.

Noffke, N., Gerdes, G., Klenke, Th. & Krumbein, W.E. (2001b) Microbially induced sedimentary structures – a new category within the classification of primary sedimentary structures. *Journal of Sedimentary Research*, v. 71, 5, 649-656.

Noffke, N., Gerdes, G., Klenke, Th. & Krumbein, W.E. (2001a) Microbially induced sedimentary structures indicating climatological, hydrological and depositional conditions within Recent and Pleistocene coastal facies zones (southern Tunisia). *Facies*, v. 44, p. 23-30.

Noffke, N. (2000): Extensive microbial mats and their influences on the erosional and depositional dynamics of a siliciclastic cold water environment (Lower Arenigian, Montagne Noire, France). *Sedimentary Geology*, 136, 207-215.

Gerdes, G., Noffke, N., Klenke, Th. & Krumbein, W.E. (2000b): Microbial signatures in peritidal sediments – A catalogue. *Sedimentology*, 47, pp. 279-308.

Noffke, N. (1999): Erosional remnants and pockets evolving from biotic-physical interactions in a Recent lower supratidal environment. *Sedimentary Geology*, 123, 175-181.

Noffke, N. & Krumbein, W.E. (1999): A quantitative approach to sedimentary surface structures contoured by the interplay of microbial colonization and physical dynamics. *Sedimentology*, 46, 417-426.

Reineck, H.E., Gerdes, G. & Noffke, N. (1999): Physikalische Kräfte, die Rippelmarkenfelder erhalten, ehe sie versteinern. *Natur u. Museum*, 125, 169-176.

Noffke, N. (1998): Multidirected ripple marks arising from bacterial stabilization counteracting physical rework in modern sandy deposits (Mellum Island, southern North Sea). *Geology*, 26, 10, 879-882.

Noffke, N., Gerdes, G., Klenke, Th. & Krumbein, W.E. (1997a): A microscopic sedimentary succession indicating the presence of microbial mats in siliciclastic tidal flats. *Sedimentary Geology*, 110, 1-6.

Noffke, N., Gerdes, G., Klenke, Th. & Krumbein, W.E. (1997b): Biofilm impact on sedimentary structures in siliciclastic tidal flats. *Cour. Forsch.-Inst. Senckenberg*, 201, 297-305.

Noffke, N., Gerdes, G., Klenke, Th. & Krumbein, W.E. (1996): Microbially induced sedimentary structures - examples from modern sediments of siliciclastic tidal flats. *Zbl. Geol. Paläont.* Teil I, 1995, H.1/2, 307-316.

Noffke, N. & Nitsch, E. (1994): Sedimentology of Lower Ordovician clastic shelf deposits, Montagne Noire (France). *Géologie de la France*, 4, 3-9.

Chapters in Books

Noffke, N. (2006): Microbially induced sedimentary structures (MISS) of Early and Middle Archean ages – Pongola Supergroup, Witwatersrand Supergroup, Moodies Group (South Africa).- in: Eriksson et al. (eds.): *Atlas of mat-related sedimentary structures*. Elsevier, Amsterdam [in press].

Noffke, N. (2005): Geobiology – a holistic scientific discipline.- in: Noffke, N. (Ed.): *Geobiology: Objectives, Concepts and Perspectives*. - *Palaeoclimatology, Palaeoceanography, Palaeoecology*; Elsevier, p. 1-2.

Noffke, N. (2003c): Epibenthic cyanobacterial communities counteracting sedimentary processes within siliciclastic depositional systems (present and past). - in: *Biofilms through space and time*. Ed. by Paterson, D., Zavarzin, G. & Krumbein, W. E., Congress Proceedings, Kluwer Academic Publishers, p. 265-280.

Noffke, N.: (2003b) Bacteria in sediments. - Middleton, C. (Ed.): *Encyclopedia of sediments and sedimentary rocks*. p. 37- 39.

Noffke, N.: (2003a) Microbially induced sedimentary structures: formation and application to sedimentology. - Middleton, C. (Ed.): *Encyclopedia of sediments and sedimentary rocks*. p. 439-441.

Gerdes, G., Krumbein, W.E., Noffke, N. (2000a): Evaporite Microbial Sediments.- in: Riding, R. & Awramik, S. M. (Eds.): *Microbial sediments*, Springer, Berlin, Heidelberg, p. 196-208.

Edited Books

Noffke, N., Paterson, D. & Konhauser, K. (in preparation): An actualistic perspective: Biotic-physical interaction of benthic microorganisms and the significance for the biological evolution of Earth. *Geobiology* Special Issue

Noffke, N. (in preparation): Microbial mats, stromatolites and MISS. *Earth Science Review*

Noffke, N. (Editor) (2005): *Geobiology: Objectives, Concepts and Perspectives*. Special Issue *Palaeoclimatology, Palaeoceanography, Palaeoecology*; Elsevier, 198 p.

PRESEARCH PAPERS PRESENTED AT PROFESSIONAL MEETINGS

Invited Keynote Talks

Noffke, N. (2006): A different perspective on early life: mat-related sedimentary structures from siliciclastic tidal flats of Archean ages – Pardee Keynote Symposium on Early Earth, GSA Philadelphia.

Noffke, N. (2005): Microbially induced sedimentary structures as sequence stratigraphic tools in siliciclastic deposits.- Topical Session in honour of Don Swift's 70th birthday; GSA Salt Lake City.

Noffke, N. (2004): 'Microbially induced sedimentary structures – MISS' and the survivor species concept. – in: Soja, C. & Riding, R. : Adversity, advantages, opportunities: Phanerozoic stromatolites as 'survivor' vs. 'disaster' taxa. – Pardee Keynote Symposium. GSA Denver.

Noffke, N.: (2003b): Microbially Induced Sedimentary Structures Indicating Climatological Conditions and Sedimentary Dynamics in Recent and Pleistocene Coastal Sabkhas of Tunisia. Invited paper symposium on Sabkha Environments (Wood, E. et al.)– GSA Seattle.

Noffke, N.: (2003a): Microbially induced sedimentary structures – a new window for the understanding of life and life conditions in the Precambrian. Invited paper symposium on Precambrian Life (Bottjer, D. & Schopf, W.) – GSA Seattle.

Noffke, N. (2002b): Geobiologie: Fragen, Konzept und Perspektiven. Treffen gefoerderter Nachwuchswissenschaftler Deutsche Akademie der Naturwissenschaften Leopoldina, Halle/Saale.

Noffke, N. (2001b): Biosedimentology of siliciclastic depositional systems. In: Noffke, N. & Knoll, A.H.: Pardee Keynote Symposium "Geobiology: its application to sedimentary geology" at GSA Annual Meeting Boston 2001.

Krumbein, W.E., Gorbushina, A., Noffke, N. (2001): On the geomicrobiology of evaporites – a geophysiological outlook on planetary evolution- in: Symposium on Evaporite Sediments; GSA Meeting Boston 2001; Division SEPM

Abstracts of presentations

Noffke, N., Bower, D., Hazen, M. R., & Cabrol, N. (2007): MISS on Mars – Biosignatures in sandy deposits on Earth and beyond. – AAPG Annual Meeting Long Beach, California.

Noffke, N., Beukes, N., & Gutzmer, J. (2004): The significance of 'microbially induced sedimentary structures – MISS' for the sequence stratigraphy of siliciclastic deposits of the 2.9 Ga old Witwatersrand Supergroup, South Africa.- GSA Denver.

Bower, D. & Noffke, N. (2004): Investigations by Confocal Scanning Laser Microscopy on modern microbial mats, and comparison with 2.9 Ga old bacterial textures from the Pongola Supergroup, South Africa. – GSA Denver.

- Bower, D. & Noffke, N. (2004): Microbial mats in coastal habitats of the moderate climate zone - a case study from Fishermans Island, Virginia. – NE GSA-meeting, Washington, DC.
- Draganits, E. & Noffke, N. (2003): Siliciclastic stromatolites and associated microbially induced sedimentary structures in Lower Devonian barrier-island quartzites (NW Himalayas): formation and depositional environment. – IAS meeting 2003.
- Noffke, N.: (2003a): Microbially induced sedimentary structures – a new window for the understanding of life and life conditions in the Precambrian. Invited paper symposium on Precambrian Life (Bottjer, D. & Schopf, W.) – GSA Seattle.
- Noffke, N. (2002a): Microbially Induced Sedimentary Structures (MISS) as paleoclimate indicators. In: Symposium Modern and ancient tidal flats reflecting environmental and climate changes for past and future (Noffke, N.). GSA Meeting Denver.
- Noffke, N. (2001b): Biosedimentology of siliciclastic depositional systems. In: Noffke, N. & Knoll, A.H.: Pardee Keynote Symposium “Geobiology: its application to sedimentary geology” at GSA Annual Meeting Boston 2001.
- Noffke, N. (2001a): Microbially Induced Sedimentary Structures – a new category within the classification of primary sedimentary structures-in: Symposium: Dynamics of Sediments and Sedimentary Environments GSA Meeting Boston 2001; SEPM
- Krumbein, W.E., Gorbushina, A., Noffke, N. (2001): On the geomicrobiology of evaporites – a geophysiological outlook on planetary evolution- in: Symposium on Evaporite Sediments; GSA Meeting Boston 2001; Division SEPM
- Noffke, N. & Knoll, A.H. (2001): Sedimentary Parameters controlling occurrence and preservation of microbial mats in siliciclastic depositional systems. NASA Astrobiological Institute; Carnegie Institution; Washington, DC.
- Noffke, N., Knoll, A.H. & Krumbein, W. E. (2001): Microbially induced sedimentary structures: a key to understand biotic-physical processes in siliciclastic depositional environments, AAMS Oldenburg, 2001.
- Noffke, N. (2001): Epibenthic cyanobacterial communities in the context of sedimentary processes within siliciclastic depositional systems (present and past). Microbial Mat Meeting II Hanse-Institut, Oldenburg 2001.
- Noffke, N. (2000): Microbially induced sedimentary structures – a new category within the classification of primary depositional phenomena. GSA Meeting 2000 Reno.
- Noffke, N. (1999e): Ancient microbial mats and their influence upon the depositional system (Lower Arenigian, Montagne Noire, France). GSA-Meeting Denver 1999.
- Noffke, N. (1999d): Extensive microbial mats in the Lower Arenigian (Ordovician) of the Montagne Noire, France. Association of Sedimentology (IAS), Copenhagen 1999.
- Noffke, N. (1999c): Significance of benthic cyanobacteria for the sedimentology of siliciclastic shallow-marine sediments. International Association of Sedimentology (IAS), Copenhagen 1999.

Noffke, N. (1999b): Microbial mat systems in Ordovician siliciclastics, Montagne Noire, France. "Sediment '99", Bremen.

Noffke, N. (1999a): Die Bedeutung benthischer Prokaryonten für die Allgemeine Sedimentologie der Siliziklastika. "Sediment '99", Bremen.

Noffke, N. (1998b): Das Untere Arenig der Synform von Roquebrun, Montagen Noire, Frankreich. "Sediment 98", Erlangen 1998.

Noffke, N. (1998a): Environmental requirements for microbial mat formation in Recent tidal systems. "Sediment 98", Erlangen 1998.

Noffke, N., Gerdes, G., Klenke, Th. & Krumbein, W.E. (1997b): A microscopic sedimentary succession indicating the presence of microbial mats in siliciclastic tidal flats. "Sediment 97" Köln 1997.

Noffke, N., Gerdes, G., Klenke, Th. & Krumbein, W.E. (1997a): Oberflächenmuster in biostabilisierten Wattsedimenten. "Sediment 97", Köln 1997.

Noffke, N., Gerdes, G., Klenke, Th. & Krumbein, W.E. (1996b): Mikrobiell induzierte Sedimentstrukturen - rezente und fossile Beispiele aus dem Küstenraum Südtunesiens. "Sediment 96", Wien 1996.

Noffke, N., Gerdes, G., Klenke, Th. & Krumbein, W.E. (1996a): Degree of microbial impact on sediment dynamics of the tidal flats of Mellum Island, North Sea. "Sediment 96", Wien 1996.

Noffke, N., Gerdes, G., Klenke, Th. & Krumbein, W.E. (1995b): Mikrobiell induzierte Sedimentstrukturen – Beispiele aus den Wattsedimenten der Insel Mellum. "Sediment 95", Freiberg 1995.

Noffke, N., Gerdes, G., Klenke, Th. & Krumbein, W.E. (1995a): M.I.S.S. Microbially induced sedimentary structures. "Sediment 95", Freiberg 1995.

Organization of Keynote and Topical Sessions at professional meetings

Noffke, N. (2005): Reading the Record of the rocks: Resolving the Tectonic and Eustatic Signals in Stratigraphic successions. – Topical Session in honour of Don Swift's 70th birthday; GSA Meeting Salt Lake City.

Noffke, N. (2002): Topical Session: Modern and ancient tidal flats reflecting environmental and climate changes for past and future. GSA Meeting Denver.

Noffke, N. & Knoll, A.H. (2001): Pardee Keynote Symposium "Geobiology: its application to sedimentary geology" at GSA Meeting Boston 2001.

FACULTY DEVELOPMENT

In order to get familiar with the academic system of the USA, I attended the following workshops:

- 2002 **Early Career Faculty**, NAGT (National Association of Geoscience Teachers) NSF-sponsored; Williamsburg, College of William & Mary; 5 days
Polar Research, NSF-workshop, National Science Foundation, Washington, DC; 2 days
- 2003 **Grant Proposal Writing**, NSF-sponsored workshop, Seattle, WA; 1 day
- 2005 **Grant Proposal Writing**, ODU-sponsored workshop, on campus; 1 day

AWARDS

- James Lee Wilson Award for Marine Geology, Society for Sedimentary Geologists SEPM 2007
- Fellow of the Geological Society of America

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Geological Society of America GSA
American Geophysical Union AGU
The Geological Society of Washington, DC
Society of Sedimentary Geologists SEPM
National Association of Geoscience Teachers NAGT
American Association of the Advancement of Science AAAS

PROFESSIONAL SERVICE

NASA

- Associated Member of NASA Astrobiology Institute: Johnson Space Center in Houston TX (Spring 2003)
- Associated Member of NASA Astrobiology Institute: Carnegie Institution of Washington, DC (Spring 2003 to recent)
- Member of NASA Astrobiology Science Steering Committee for the Exploration of Mars: 2002-2003; Mars missions 2009 and 2011

National Science Foundation, NSF

- Reviewer for the NSF-programs
 - Geomicrobiology
 - Geology and Paleontology
 - Geobiology and the Carbon Cycle
 - Microbial Processes and Biocomplexity
 - Microbial Observatories and Microbial Interactions and Processes Program
 - Marine Geology and Geophysics Program

Volkswagen-Stiftung Germany

- Reviewer for Geomicrobiology Program

Petroleum Research Fund, PRF

- Reviewer for the Geoscience Program

National Environmental Research Council, NERC

- Reviewer for the Marine Microorganisms Program

Reviewer for Scientific Journals

- Geological Society of America Bulletin
- Sedimentary Geology
- Sedimentology
- Economic Geology
- Palaios
- Precambrian Research

Editorial Work

- Guest Editor for *Earth Science Review*, Section Geobiology
- Guest Editor for *Paleoceanography*, *Paleoclimatology*, *Paleoecology*
- Guest Editor, Section Biogeophysics, *Geobiology*
- Associate Editor for *Journal of Sedimentary Research*

Vice Chair for the GSA Division Geobiology and Geomicrobiology 2007-2009