

## Backgrounds

### Dr. Corien Bakermans, Michigan State University



Dr. Corien Bakermans is an NRC postdoctoral research associate at the Center for Genomic and Evolutionary Studies on Microbial Life at Low Temperatures. There, she studies cold-adapted microorganisms isolated from Siberian permafrost to discover how microorganisms are able to survive and actively grow at temperatures below 0°C. Corien began the study of cold-adapted microorganisms in 2001 during her first postdoctoral appointment with Dr. Ken Nealson at the University of Southern California and the NASA Jet Propulsion Laboratory. Corien was awarded a PhD in microbiology from Cornell University in January, 2001. Her doctoral thesis focused on the bioremediation of environmental pollutants at a contaminated groundwater site; emphasized *in situ* analysis of diversity, gene expression, and pollutant degradation; and was supported by an EPA STAR Fellowship. She received a BS in both biochemistry and civil engineering from Worcester Polytechnic Institute in May, 1994. Corien's research aims to expand knowledge about the limitations of terrestrial life which will be important in planning for further exploration of the moon, Mars, and other objects in the solar system.

### Kate Becker, University of Colorado



Kate Becker assists with LASP's education and public outreach programs. She graduated from Cornell University in 2005 with an M.S. in astronomy. While at Cornell, Kate was a science writer intern for the Cornell News Service and was active with outreach programs including the award-winning *Ask an Astronomer* website. Before coming to LASP, Kate worked in the government affairs office of the University Corporation for Atmospheric Research and held an internship with the House Science Committee in Washington, D.C. Kate is also an occasional host of the science news radio program *How on Earth* on KGNU, Boulder's community radio station.

### Dr. Emily CoBabe-Ammann, University of Colorado



Emily CoBabe-Ammann is the E/PO lead for CU's Laboratory for Atmospheric and Space Physics (LASP). She is the E/PO lead for CU's Center for Astrobiology, as well as several mission/instrument programs currently underway at LASP. She has developed E/PO program in space physics (including a new planetarium show, teacher's workshop, virtual educational community, distance learning products, and lessons), as well as for solar system education. She is the E/PO lead for the Electronic Geophysical Year (*eGY*), one of the IGY anniversary years, where the programs focus is on virtual education. In addition, her program supports community-based outreach projects in atmospheric science and climate change, space science workshops for journalists, undergraduate research programs with an emphasis on hands-on learning, and a variety of both formal and informal K-12 space science education experiences. She received her Ph.D. in Earth and Planetary Sciences from Harvard University in 1991, where she studied the evolutionary history of chemosynthetic organisms.

**Dr. David Des Marais, NASA Ames Research Center**



David Des Marais received a Ph.D. in Geochemistry from Indiana University in 1974. His long-term research interests have been the biogeochemical carbon cycle and the early evolution of Earth and its biosphere. His areas of specialization have included the stable isotope geochemistry of carbon in lunar samples, meteorites and oceanic basalts, the biogeochemistry of microbial communities in hypersaline environments, and the biogeochemistry of ancient (Precambrian) carbonates and organic matter. He serves on the editorial boards of the journals Astrobiology and Geobiology. He is the principal investigator of the Ames Research Center team of the NASA Astrobiology Institute. He serves on the Science Operations Working Group of the Mars Exploration

Rover 2003 mission. He is a member of both the CRISM instrument team of the 2005 Mars Reconnaissance Orbiter mission and the CHEMIN team of the 2009 Mars Science Laboratory mission. He is a Fellow of the Geochemical Society, the European Association of Geochemistry, the International Society for the Study of the Origins of Life, and the California Academy of Sciences.

**Prof. Steven D'Hondt, University of Rhode Island**



Steven D'Hondt is a Professor of Oceanography at the University of Rhode Island. He is also Principal Investigator of the NASA Astrobiology Institute URI Team, which is focused on the study of subsurface life, its biogeochemical consequences, and its relevance to the search for life on other planets. D'Hondt is experienced in the study of habitability and life in extreme environments. He was the lead proponent and Co-Chief Scientist of the first ocean drilling expedition to focus principally on exploration of Earth's subsurface life (Ocean Drilling Program Leg 201, 2002). He is the director of a new NSF-funded mobile field laboratory for study of subsurface life.

**Dr. Tom McCollom, University of Colorado**



Dr. Tom McCollom is a research scientist in the Laboratory for Atmospheric and Space Physics and the Center for Astrobiology at the University of Colorado, Boulder. Dr. McCollom studies the geochemistry of submarine hydrothermal vents and the interaction of microorganisms with hydrothermal fluids and rocks in seafloor environments. Currently, this research is focused on investigating the origin of organic compounds in hydrothermal fluids, including both biologic and non-biologic pathways, the geomicrobiology of iron-oxidizing bacteria, and modern hydrothermal systems as analogs to potentially habitable environments on the early Earth, Mars, and Europa. Dr. McCollom's research encompasses a combination of

laboratory experimentation, geochemical modeling, and field work at deep-sea hydrothermal systems.

**Prof. Norman Pace, University of Colorado**



Dr. Norman Pace is Professor of Molecular, Cellular and Developmental Biology at the University of Colorado, Boulder. Pace works in two scientific arenas, nucleic acid structure and processing on one hand and microbial ecology on the other. His laboratory has led the field in the development and use of molecular tools to study microbial ecosystems. This work has led to the discovery of many novel organisms and an understanding of unusual symbioses. The results, from high-temperature environments to human disease, have expanded substantially the known diversity of microbial life in the environment. Pace is a member of the National Academy of Sciences; and he is a Fellow of the American Association for the Advancement of Science, the American Academy of Microbiology, and the American Academy of Arts and Sciences. He has received a number of awards, including the 2001 Selman A. Waksman Award for Distinguished Contributions in Microbiology from the National Academy of Sciences.

**Prof. Anna-Louise Reysenbach, Portland State University**



Anna-Louise Reysenbach is a microbial ecologist who teaches at Portland State University, Oregon. Her research focuses on the diversity, ecology and functional genomics of microorganisms from high temperature environments. Over the past decade, her work has taken her to the thermal springs of Yellowstone National Park, Kamchatka, Iceland, New Zealand, and the Azores, and in research submersibles (Alvin, Nautile, Shinkai 6500) to the deep-sea hydrothermal vents along the mid-oceanic ridges and backarc basins. Together with Tom McCollom, she recently returned from a discovery expedition to new deep-sea vents off the coasts of Tonga and Fiji. She serves on National Research Council's Space Studies board, is subject editor for the journal *Geobiology* and serves on the steering committee for the NSF-RIDGE 2000 program. Her research is funded by NSF and NASA. Each year, Dr Reysenbach teaches a course on Yellowstone's microbes to the public. Website: [alrllab.pdx.edu](http://alrllab.pdx.edu), email: [reysenbacha@pdx.edu](mailto:reysenbacha@pdx.edu).

**Catherine Tsairides, NASA Ames Research Center**



Catherine J. Tsairides is currently, Education and Public Outreach Director for the NASA Astrobiology Team. She is also Lead - Co-Investigator, on the Linking Our Origins To Our Future research proposal, Director of the Yellowstone National Park, California Academy of Sciences, and New York Hall of Science partnerships to develop new regional workshops, activities, exhibits, and other products for the public bringing astrobiology to the national and international public. She coordinated and managed the NASA Ames content development and review teams with TERC to develop the published year-long Astrobiology High School Curriculum and teamed with NAI leads to create the "Aliens of the Deep" Educator Guide. She has a strong background in education and management having been an elementary school principal, district mathematics curriculum specialist, university adjunct professor, student teaching supervisor, and National consultant for McGraw Publishing Company.