

NAI 2005 Preliminary Meeting Program
4/7/05

Sunday April 10, 2005

Field Trips

Please see the Field Trips and Primers section of the website for detailed information

9:00 am – 3:00 pm	A New K-T Boundary in the Denver Basin Trip Leader: Kirk Johnson, Denver Museum of Nature and Science	Buses load at 8:45 am at the Millennium Hotel entrance
9:00 am – 1:00 pm	Field Trip: The Geology of the Front Range, Colorado Trip Leader: Alan Lester, University of Colorado	Buses load at 8:45 am at the Millennium Hotel entrance

Astrobiology Primer Sessions

1:00 pm – 2:20 pm	Astronomy Presented by: Nick Woolf, University of Arizona	Marriott Hotel – Montrachet Room
2:30 – 3:50 pm	Geology Presented by: Roger Buick, University of Washington and Christopher House, Pennsylvania State University	Marriott Hotel – Montrachet Room
4:00 – 5:20 pm	Biology Presented by: Leslie Orgel, Salk Institute and Lynn Rothschild, NASA Ames Research Center	Marriott Hotel – Montrachet Room

Other Sunday Events

12:00 pm – 7:00 pm	Meeting Registration	Millennium Hotel Lobby
1:00 – 5:00 pm	Focus Group Meetings	Marriott Hotel
3:00 pm	Cyber Café Opens	Millennium Hotel – Living Room
3:00 – 9:00 pm	Theme 1 & 2, NAI Team, International Partner and Focus Group posters set up for display in the Millennium and Century Rooms at the Millennium Hotel	
5:30 – 9:00 pm	Welcome/Icebreaker	Millennium Hotel – Grand Ballroom
9:00 pm	Poster Room Closed Cyber Café Closed	

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7:00 – 8:30 am	Breakfast Continue poster set up for Sessions 1 & 2	Pavilion Millennium Hotel - Millennium and Century Rooms
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	Cyber Café opens at 7:30 am	Millennium Hotel – Living Room
8:30 – 9:00 am	Conference Welcome Bruce Jakosky, PI for University of Colorado at Boulder NAI Team	Millennium Hotel – Grand Ballroom
	Steve Mojzsis, Program Chair, NAI 2005	
	Phil DeStefano, Interim Chancellor, University of Colorado System	
	Bruce Runnegar, Director, NASA Astrobiology Institute	

Session 1: Formation and Evolution of Planetary Systems

Session Chairs: Geoff Blake, Mike Meyer, T. Mark Harrison
Millennium Hotel – Grand Ballroom

9:00-9:45 am	Lead Talk: 1093: Formation and Evolution of Habitable Worlds T. Mark Harrison, RSES/ANU Michael Meyer, University of Arizona
9:45 – 10:30 am	Contributed Talks 974: Imaging Planet-Forming Disks: Space-born Coronagraphy and Ground-based Polarimetric Differential Imaging D. Apai 916: Effects of Shadowing and Illumination on Planet Formation H. Jang-Condell 975: Planetesimal Evolution and Terrestrial Planet Formation Z.E. Leinhardt, D.C. Richardson
10:30 – 11:00 am	Coffee Break – Pavillion Open Microphone for Discussion –Grand Ballroom

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11:00 am – 12:00 pm Contributed Talks

834: Impact-generated Hydrothermal Systems: Potential Sites for Pre-biotic Chemistry and Life on Early Earth and Mars

D. Kring, O. Abramov

797: Hydrogen Concentration in Pre-biotic Earth's Atmosphere: New Simulation Results and Discussion of Multi-Component Hydrodynamic Escape

F. Tian, O.B. Toon, A.A. Pavlov

1075: The Chemical Compositions and Habitability of Terrestrial Planets in the Universe

C. H. Lineweaver

901: Astrobiology's Impact On Science Education

E.G. Offerdahl, E.E. Prather, T.F. Slater

12:00 – 1:30 pm

Lunch – On own

Poster rooms open

Virus Focus Group Meeting – Bugaboo B Room, Marriott Hotel

Early Career Workshop – Montrachet Room, Marriott Hotel

Session 2: Extra-solar Planets

Session Chairs: Vikkie Meadows, Norman Sleep, Jim Kasting

Millennium Hotel – Grand Ballroom

1:30 – 2:15 pm

Lead Talk:

1096: How Common Are Habitable Planets in the Galaxy? Connecting Biochemistry, Astrophysics, and Geophysics

Norman Sleep, Stanford University

Jim Kasting, Pennsylvania State University

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2:15 – 4:00 pm	Contributed Talks	
	1109: First Light from an Extrasolar Planet and Implications for Astrobiology L. J. Richardson, S. Seager, J. Harrington, D. Deming	
	810: Habitable Planets and Water Delivery in Binary Star Systems N. Haghighipour	
	786: The Spectrum of a Living Terrestrial Planet: Earthshine Observations and Insights for NASA's TPF Mission M. C. Turnbull et al.	
	1023: Detectability of Planetary Surface Biosignatures: Modeled and Measured Disk-Averaged Spectra of the Earth G. Tinetti	
	991: Biomarkers on Earth-like Planets Around M Dwarfs A. Segura	
	883: Extrasolar Planets: Worlds of Opportunity for Education and Public Outreach D. Daou et al.	
	940: DARWIN and the Search for Life L. Kaltenegger, M. Fidlund, W.A. Traub	
4:00 – 6:00 pm	Poster Session: Theme 1 & 2 Posters (Be with your poster – even numbers 1 st half, odd numbers 2 nd half) <ul style="list-style-type: none">o Theme 1 Poster Chairs: John Armstrong, John Bally, Don DePaoloo Theme 2 Poster Chairs: Rocco Mancinelli, Andreas Teske, Steve Mojzsis E/PO and IT Demonstrations	Millennium Hotel - Millennium and Century Room
6:00 – 8:00 pm	Graduate Student/Postdoctoral Mixer	Marriott Hotel – Montrachet Room
9:00 pm	Poster Rooms Closed Cyber Café Closed	

Tuesday, April 12, 2005

7:00 – 8:45 am	Breakfast Poster set up for Sessions 3 & 4 Cyber Café opens at 7:30 am	Pavilion Millennium Hotel - Millennium and Century Rooms Millennium Hotel – Living Room
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Tuesday, April 12, 2005

Session 3: Origins of Life

Session Chairs: Jim Cowen, Norm Pace

Millennium Hotel – Grand Ballroom

8:45 – 9:30 am	Lead Talk: 1101: How Do Biological Systems Originate? Speaker: Norman Pace, University of Colorado, Boulder	
9:30 – 10:30 am	Contributed Talks 922: Composition and Structure of the Meteoritic Macromolecule: A Source of Complex Organics on the Early Earth C.M. O'D Alexander 673: Concentration and Variability of the AIB Amino Acid in Polar Micrometeorites: Implications for the Exogenous Delivery of Amino Acids to the Primitive Earth G. Matrajt et al. 630: Meteoritic Phosphides as a Source of Prebiotic, Reactive Phosphorus M.A. Pasek, J. P. Dworkin, D. Lauretta 913: It's Only a Theory: American Attitudes About Evolution E. DeVore	
10:30 – 11:00 am	Break Open Microphone for Discussion	Pavilion Grand Ballroom
11:00 am – 12:00 pm	Contributed Talks 520: The Formation of Glycerol Monodecanoate by a Dehydration/Condensation Reaction Increasing the Chemical Complexity of Amphiphiles on the Early Earth C.L. Apel, D. W. Deamer 568: Mechanism for the Association of Amino Acids with their Codons and the Origin of the Genetic Code S.D. Copley, H.J. Morowitz 655: RNA as Self-replicating Genetic Material P. Sazani, J.W. Szostak 1018: An Alternative Genetic System for Complex Alien Life Forms A.M. Sismour et al.	
12:00 – 1:30 pm	Lunch – On own Poster Rooms Open Evolutionary Genomics Focus Group Meeting	Marriott Hotel – Bugaboo B room

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Session 4: Future Technologies, Exploration and Societal Issues

Session Chairs: Lisa Brown, Dan Werthimer

Millennium Hotel – Grand Ballroom

1:30 – 2:15 pm	Lead Talk: 1098: SETI, the Fermi Paradox, and the Future of our Civilization Speaker: Dan Werthimer, University of California, Berkeley	
2:15 – 4:00 pm	Contributed Talks 651: Advanced Concepts for Life Beyond Earth D.E. Jennings, R. Turner, R. M. Cassanova 777: Hindcasting Ecosystems: Exploring Links Between Astrobiology and Earth Science H.L. D'Antoni, J. W. Skiles 613: The Cyborg Astrobiologist: Algorithm Development for Autonomous Planetary (Sub)surface Exploration P.C. McGuire et al. 778: Planetary Protection Challenges in Visionary Exploration J.D. Rummel 791: Astrobiology penetrates the public Consciousness: Mission Accomplished? K. Wilmoth 837: Entropy Production and Life R. Lorenz 948: Astrobiology and the Sacred T. Olien	
4:00 – 6:00 pm	Poster Session: Theme 3 & 4 Posters (Be with your poster – even numbers 1 st half, odd numbers 2 nd half) <ul style="list-style-type: none">○ Theme 3 Poster Chairs: Mike Yarus, Eric Roden, Jason Dworkin○ Theme 4 Poster Chairs: Emily CoBabe-Ammann, David Morrison, Susan Pfiffner, Lori Marino E/PO and IT Demonstrations	Millennium Hotel - Millennium and Century Room
7:00 – 9:00 pm	Conference Banquet	Millennium Grand Ballroom
9:00 pm	Poster Room Closed Cyber Café Closed	

Wednesday, April 13, 2005

7:00 – 8:45 am	Breakfast Poster set up for Sessions 5, 6 & 7	Pavilion Millennium Hotel - Millennium and
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Wednesday, April 13, 2005

Cyber Café opens at 7:30 am

Century Rooms
Millennium Hotel –
Living Room

Session 5: Evolution of Life

Session Chairs: Steve D'Hondt, James Scott

Millennium Hotel – Grand Ballroom

8:45 – 9:30 am

Lead Talk:

1099: How does Life Interact with its Environment?

Speaker: Steven D'Hondt, University of Rhode Island

9:30 – 10:30 am

Contributed Talks

859: A Timetree of Early Life on Earth

S.B. Hedges, J. E. Blair, F. U. Battistuzzi

781: Emergence of the First Oxygenic Phototroph on Earth:
Effect of Carbonate Equilibria on the Microbial Oxidation of
Manganese

J. Dasgupta et al.

915: Large Accumulations of Sulfide-rich Organic Oozes in
Archean Seas

H. Ohmoto et al.

733: Metal Limitation of Cyanobacterial Nitrogen Fixation on the
Early Earth

A.L. Zerkle, R. P. Cox, C. H. House, D. E. Canfield

10:30 – 11:00 am

Break

Open Microphone for Discussion

Pavilion

Grand Ballroom

11:00 am – 12:00 pm

Contributed Talks

833: Iron Isotope Constraints on the Archean and Paleoproterozoic
Ocean Redox State

O. Rouxel, A. Bekker, K. Edwards

1000: Low Atmospheric pO₂ in the Aftermath of the Oldest
Paleoproterozoic Glaciation

A. Bekker, S. Ono, D. Rumble

838: Imagining Deep-Subsurface Life: An Interactive DVD
Tool for High School Teaching and Museum Demonstration

R. Droppo et al.

1020: Resurrecting Ancient Life Forms. Yeast, Fruits,
Mammals, and the Extinction of Dinosaurs

S. A. Benner et al.

12:00 – 1:30 pm

Lunch – On own

Poster Rooms Open

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Astrobiotechnology Focus Group Meeting	Marriott Hotel – Bugaboo B Room
Early Earth Focus Group Meeting	Marriott Hotel – Bugaboo A room
Astrobiology Field Labs	Marriott Hotel – Montrachet Room

Session 6: Tracing Life

Session Chairs: Tori Hoehler, Marilyn Fogel

Millennium Hotel – Grand Ballroom

1:30 – 2:15 pm

Lead Talk:

1100: Distinguishing True Biology from Nonbiological Look-Alikes

Speaker: Marilyn Fogel, Carnegie Institution of Washington

2:15 – 4:00 pm

Contributed Talks

893: Compound Specific Hydrogen and Carbon Isotopes as a Tool to Distinguish Abiogenic from Biogenic Hydrocarbons

J. P. Telling, G. Lacrampe-Couloume, B. Sherwood Lollar,

631: Tapping the Late Archean Molecular Fossil Record: New Evidence for Fossil Syngenicity and Ecological Implications

J. Eigenbrode, K. H. Freeman, R. E. Summons, R.E.

528: Three Dimensional Optical and Chemical Imagery of Precambrian Microscopic Fossils

J. W. Schopf, A. B. Kudryavtsev, A. Tripathi, A.

938: Molecular Biosignatures from the NAI Archean Biosphere Drilling Project

J. R. Waldbauer et al.

762: Fe Isotope Biosignatures in the Terrestrial Archean to Phanerozoic Rock Record

C. M. Johnson, B. L. Beard

839: The Isotopic Effects of Electron Transfer: An Explanation for Fe Isotope Fractionation in Nature

A. Kavner et al.

728: Astrobiology Outreach Education in Yellowstone National Park

T. M. Hoehler et al.

4:00 – 5:30 pm

Poster Session: Theme 5, 6 & 7 Posters
(Be with your poster – even numbers 1st half,
odd numbers 2nd half)

- Theme 5 poster chairs: David Lubman, Stefan Sievert, David Smith
- Theme 6 poster chairs: Ed Schauble, Fred Brockman, Steve Mojzsis

E/PO and IT Demonstrations

Millennium Hotel –
Millennium and
Century Room

5:30 – 6:30 pm

Arctic Drilling

Millennium Hotel –

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7:00 pm – 10:00 pm	Special Event: Public Symposium- Astrobiology and Cosmology, Science and Religion: Our Place in the Universe	Grand Ballroom Macky Auditorium – CU Boulder Campus
9:00 pm	Poster Room Closed Cyber Café Closed	

Thursday, April 14, 2005

7:00 – 8:45 am	Breakfast Take down posters Cyber Café opens at 7:30 am	Pavilion Millennium Hotel – Living Room
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Session 7: Evolution in the Solar System

Session Chairs: Robert Pappalardo, Mitch Sogin
Millennium Hotel – Grand Ballroom

8:45 – 9:30 am	Lead Talk: 1089: Did (Does) Life Exist Elsewhere in the Solar System? Speaker: Mitch Sogin, Marine Biological Laboratory	
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9:30 – 10:30 am	Contributed Talks 984: Detection and Mapping of Methane and Water on Mars: Evidence for Intense Local Enhancements in Methane M. J. Mumma et al. 626: Mineral Deposits on Mars Revealed with the OMEGA Visible-infrared Imaging Spectrometer and Their Implications for Astrobiology A. Gendrin et al. 624: Río Tinto Subsurface Habitats of Chemolithotrophic Cryptic Communities, a Terrestrial Analog of Underground Habitats in Mars D. Fernandez-Remolar et al 788: Terrestrial analogues for extraterrestrial life I. N. Reid et al.	
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10:30 – 10:45 am	Break Open Microphone for Discussion Take down posters	Pavilion Grand Ballroom
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10:45 am – 11:45 am	Contributed Talks 584: The Phoenix Mars Mission's Education and Public Outreach Program Focus on Astrobiology Themes D. Lombardi 1056: Hydrothermal Systems in Europa's Seafloor	Millennium Hotel – Grand Ballroom
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S. Vance, J. Harnmeijer, J. M. Brown

1014: Modular Assays for Solar System
Exploration (MASSE) - An Overview on
behalf of the MASSE team
A. Steele

835: Liquid Water-Ammonia Habitats on
Titan from the Release of Biothermal Energy
D. Grinspoon, D. Schulze-Makuch

11:45 am – 12:45 pm	Special Talk: <i>Latest News from Titan</i> Jonathan Lunine (University of Arizona)	Millennium Hotel – Grand Ballroom
12:45 pm – 1:00 pm	Presentation of the Student Poster Competition Award Cyber Café closes at 12:00 pm	Millennium Hotel – Grand Ballroom
	Conference Adjourns	