

ISSI ASTROBIOLOGY WORKSHOP “STRATEGIES OF LIFE DETECTION”

MONDAY, 24. April 2006

0845-0915 Introduction to the Workshop

0915-1000 [ANTONIO LAZCANO](#), University of Mexico, MEX:
Towards a Definition of Life

COFFEE BREAK

FUNDAMENTALS OF LIFE

Chair(s): Roger Summons & Jeffrey Bada

1030-1100 [CHRIS MCKAY](#), NASA Ames Research Center, USA:
What is Life and How Do We Search for It on Mars and Europa

1100-1130 [PETER GOGARTEN](#), University of Connecticut, USA:
Is there a “Tree of Life”?

1130-1215 Discussion

LUNCH BREAK

PLANETARY HABITABILITY: WHERE TO SEARCH?

Chair(s): Jeffrey Bada & Roger Summons

1345-1415 [NICOLAS PRANTZOS](#), Paris Observatory, F:
The Galactic Habitable Zone

1415-1445 [MARGARET TURNBULL](#), Carnegie Institution of
Washington, USA:
Searching for Simple and Complex Life Among Nearby Stars

1445-1515 Discussion

COFFEE BREAK

1545-1615 [FRANCOIS FORGET](#), Institute Pierre Simon Laplace,
Paris, F:
Climate and Habitability on Early Mars

1615-1645 [FRANCOIS RAULIN](#), LISA, Paris, F:
Astrobiology and Habitability of Titan

1645-1715 Discussion

TUESDAY, 25. April 2006

*LIFE SIGNATURES & DETECTION METHODOLOGIES IN THE
SEARCH FOR TRACES OF LIFE ON EARTH AND ELSEWHERE*

Morphological Signatures, *Chairs: Emmanuelle Javaux & Minik Rosing*

0845-0915 [EMMANUELLE JAVAUX](#), University of Liège, B:
Criteria for Biogenicity of Morphological Signatures

0915-0945 [WLADY ALTERMANN](#), University of Munich, D:
*Preservation of Precambrian Cellular Structures and
Microbial Mats*

0945-1015 Discussion

COFFEE BREAK

1045-1115 [WOLFGANG KRUMBEIN](#), Oldenburg, D:
Biosedimentary Structures

1115-1145 [FRANCES WESTALL](#), CNRS, Orleans, F:
Biomaterials in Terrestrial and Extraterrestrial Materials

1145-1215 Discussion

LUNCH BREAK (Working lunch for the conveners).

Molecular Signatures, *Chairs: Oliver Botta & Emmanuelle Javaux*

1345-1415 MARK SEPHTON, Imperial College, U.K.:
“Characterization of extraterrestrial organic matter”

1415-1445 [ROGER SUMMONS](#), MIT, USA:
Molecular Biosignatures

1445-1515 Discussion

COFFEE BREAK

1545-1615 [JENNIFER EIGENBRODE](#), Carnegie Institution of
Washington, USA:
Molecular Fossils from the Early Earth

1615-1645 [LAURENCE BARRON](#), University of Glasgow, U.K.:
Chirality and Life

1645-1715 Discussion

WEDNESDAY, 26. April 2006

*LIFE SIGNATURES & DETECTION METHODOLOGIES IN THE
SEARCH FOR TRACES OF LIFE ON EARTH AND ELSEWHERE
(contd.)*

Isotopic Signatures, *Chairs: Minik Rosing & Oliver Botta*

0845-0915 [DAVID CATLING](#), University of Bristol, UK:
*The Biogeochemistry of Earth's Atmosphere: Bulk and
Isotopic Composition*

0915-0945 [SHUHEI ONO](#), Carnegie Institution, Washington, USA:
Multiple-Sulfur Isotope Biosignatures

0945-1015 [MARK VAN ZUILEN](#), Institut de Physique du Globe de
Paris, France:
Abiotic vs. Biotic Isotope Signatures

1015-1045 Discussion

EXCURSION

Program:

- Bus ride to Basel
- Visit to the Museum Jean Tinguely
- Dinner in an oldtimer streetcar
- Return to Bern by bus at ca. 9.30 pm

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THURSDAY, 27. April 2006

IN-SITU INSTRUMENTATION TO SEARCH FOR LIFE IN THE SOLAR SYSTEM

Chair(s): Javier Gomez-Elvira & Gerhard Kminek

0845-0915 [ANDREW SCHUERGER](#), University of Florida, USA:
Viking Biology Experiments: Lessons Learned and the Role of Ecology in Future Mars Life Detection Experiments

0915-0945 [BEDA HOFMANN](#), Natural History Museum, Bern, CH:
Microscopic and Macroscopic Characteristics of Morphological Biosignatures from Subsurface Environments

0945-1015 Discussion

COFFEE BREAK

1045-1115 [JURGEN POPP](#), University of Jena, D:
Using Raman Spectroscopy for Life Detection

1115-1145 [VICTOR PARRO](#), Centro de Astrobiologia, Madrid, E:
Protein Microarrays for Organic Detection

1145-1215 Discussion

LUNCH BREAK

1345-1425 [PASCALE EHRENFREUND](#), Leiden University, NL:
Mars Organic Detector UREY on ExoMars

1425-1505 [PAUL MAHAFFY](#), NASA GSFC, Greenbelt, USA:
Development of Analytical Protocols for Organics and Isotopes Analysis on the 2009 Mars Science Laboratory

1505-1530 Discussion

COFFEE BREAK

1600-1630 [GERHARD KMINEK](#), ESA ESTEC, Noordwijk, NL:
Life Detection Instruments from Planetary Protection Perspective

1630-1715 Discussion: The FUTURE OF IN-SITU LIFE DETECTION INSTRUMENTS”

ISSI ASTROBIOLOGY WORKSHOP “STRATEGIES OF LIFE DETECTION”

FRIDAY, 28. April 2006

REMOTE LIFE DETECTION STRATEGIES FOR PLANETS

Chairs: Franck Selsis & Malcolm Fridlund

0845-0915 [THIERRY FOUCHET](#) & [THERESE ENCRENAZ](#)
Observatory of Paris, F:
Spectroscopy of the Planets in the Solar System

0915-0945 [LUC ARNOLD](#), Observatory Haute Provence, F:
*Earthshine Observations of Vegetation and Implication
for Life Detection on Other Planets*

0945-1015 Discussion

COFFEE BREAK

1045-1115 [ALEXANDER PAVLOV](#), University of Arizona, USA:
Methane Runaway in the Early Atmosphere

1115-1145 [THERESE ENCRENAZ](#), Observatory of Paris, F:
Methane on Mars: Observations and Implications

1145-1215 Discussion

LUNCH BREAK

1345-1415 [STEPHANE UDRY](#) (given by CHRISTOPHE LOVIS)
Geneva Observatory, CH:
An overview of extrasolar planetary systems

1415-1445 [ANDREAS QUIRRENBACH](#), Leiden Observatory, NL:
*Methods and instrumentation for the search for
terrestrial exoplanets*

1445-1515 Discussion

COFFEE BREAK

1545-1615 [SARA SEAGER](#), Carnegie Institution of Washington,
USA:
*Spectroscopy of Extrasolar Planets: From Hot Jupiters
to Hot Earths and Beyond*

1615-1645 [MALCOLM FRIDLUND](#), ESA ESTEC, Noordwijk, NL:
Future Space Missions to Search for Terrestrial Planets

1645-1715 Discussion

1715-1730 Final Remarks/End of the Workshop
