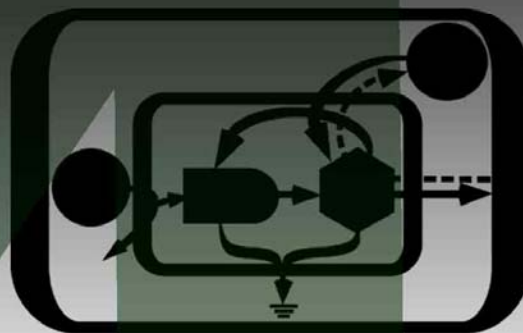


*Theory, Applications
and Methodologies*



Emergy Synthesis

*Fourth Biennial
Emergy Research Conference*

January 19-21, 2006

*Room 282
J. Wayne Reitz Union*

*Sponsored by:
Center for Environmental Policy, University of Florida
with support from BoCC and Alachua County Tourist Development Tax Grant.*



Thursday, January 19, 2006

8:00 Registration

8:25 – 8:30 Opening Remarks: Emergy Synthesis 4 – Mark Brown

8:30 - 10: 35 Session 1 ~ Advances in Methodology 1

A New Landscape Development Index (LDI) Based on Aerial Empower Density

Mark Brown and M. Benjamin Vivas

Emergy Life Cycle Assessment within a Zero-Emission Framework

Sergio Ulgiati, Silvia Bargigli, and Marco Raugei

Aspects on the Applicability of the Landscape Development Intensity in Different Geographic Settings: Eastern Arkansas and Florida

M. Benjamin Vivas

"Tropical" Emergy and Disorder

Dennis Collins

Emergy Analysis as the First Ordinal Theory of Complex Systems

Corrado Giannantoni

10:35 - 11:05 Break

11:05 - 12:45 Session 2 ~ Emergy and Ecosystems

Ecosystem Function and Emergy Indices: Comparison and Coincidence

Jana Babič

Emergy Analysis of Two Watersheds in the Mobile Bay National Estuary Program's Area

Eldon C. Blancher II

Emergy Evaluation of Six Mile Cypress Watershed

John Murray

Active Protection of Halophytes. Assessment of The Human Intervention Range Using the Emergy Analysis and Indicators of Sustainable Development.

Andrzej Nienartowicz

12:45 - 1:45 Lunch

1:45 - 3:50 Session 3 ~ Emergy and Economics

Creation of a Global Emergy Database for Standardized National Emergy Synthesis

Sharlynn Sweeney, Matt Cohen, Danielle King, and Mark Brown

The Relationship between Emergy and Economic Value

Daniel E. Campbell and Tingting Cai

Emergy and Economy of Citrus Production in a Belizean Watershed

Pat Kangas

The Costs and Benefits of Restoring Streams Affected by AMD: Emergy-based Valuation and Liability Assessment

Tingting Cai, T.W. Olsen, and Daniel E. Campbell

Emergy, Economics and the Use of the Emergy/Money Ratio

Federico M. Pulselli, Antonio C.I. Pizzigallo, and Nadia Marchettini

3:50 - 4:20 Break

4:20 - 6:30 Poster Session 1 ~ Agricultural, Urban, and National Systems

Emergy Analysis of Nations. Lessons Learned from Historical Series.

Pedro Luis Lomas, Catia Cialani, and Sergio Ulgiati

Comparative Assessment of Emergy Time Series for the Sahel

Matthew Cohen, Sharlynn Sweeney, and Mark T. Brown

Emergy Analysis of Israel and Palestine

Elliott Campbell, Dan Campbell, and Stan Cobb

Emergy-based Sustainability of the Peruvian economy

Raul Siche and **Enrique Ortega**

Environment and Complexity of the Urban Ecosystem of Rome. An Emergy Synthesis.

Marco Ascione, Francesco Cherubini, Luigi Campanella, and Sergio Ulgiati

Geographical Information Systems and Emergy Synthesis to improve waste management processes: The case study of Potenza, Southern Italy

Pier Paolo Franzese, G. F. Russo, and Sergio Ulgiati

Emergy Carrying Capacity of an Uninhabited Island in the Southwestern Coast of Korea

Daeseok Kang, Jungho Nam, Sukmo Lee, Yonghyun Chung, and Kijun Sung

Evaluation of Tourism in the Okavango Delta in Botswana Using Environmental Accounting

May Lehmensiek

Emergy Based Decision Support to Increase Sustainability in Rural Development: Optimizing the Production of Irrigated Crops

Martin Beermann

Emergy Evaluation of an Organic Coffee Production and Processing System in Mato Grosso Do Sul, Brazil

Vito Comar and Olácio Mamoru Komori

Hidden Value in the Steers of Argentina's Pampas

Gloria Rótolo, Torbjörn Rydberg, Geir Lieblein, and Charles Francis

Environmental accounting of ethanol production from switchgrass (*Panicum virgatum*) in the U.S. using emergy evaluation

Erika Felix and David Tilley

Emergy Analysis of the Brazillian FCOJ Chain

Consuelo de Lima Fernandez Pereira and **Enrique Ortega**

6:30 – 8:30 Open House hosted by Center for Environmental Policy – Phelps Lab

Friday, January 20, 2006

8:30 - 10:35 Session 4 ~ Advances in Methodology 2

Comparing the Earth's Minerals Wealth from the Point of View of Emergy and Exergetic Cost

Amaya Martinez and A. Valero

Soil, Water, Fish and Forests: Quantifying Diffuse Degradation of Natural Capital in Global Emergy Accounting

Matthew Cohen, Sharlynn Sweeney, Danielle King, and Mark T. Brown

Exploring the Concept of Geopotential and Chemical Potential Energy Interactions in Watersheds

Maria Silvia Romitelli

Evaluating the Life Cycle Aspects of Emerging Technologies - How Can Emergy Analysis Help?

Bhavik Bakshi, Vikas Khanna, and Yi Zhang

What is Info?

Enrique Ortega

10:35 - 11:05 Break

11:05 - 12: 45 Session 5 ~ Human-Dominated Systems

Urbanization and Socioeconomic Metabolism in Taipei Area

Shu-Li Huang and Chia-Wen Chen

Sustainable Use of Treated Wastewater in Georgia: Emergy Evaluation of Alternative Uses for Wastewater

Glen Behrend

Using the Values of Internal Emergy Flows for Emergy Accounting in Complex Systems

Otávio Cavalett and Enrique Ortega

A Dynamic Model Approach to the Emergy Evaluation: The Case Study of a Mediterranean Fish Farm System

Paolo Vassallo and Mauro Fabiano

12:45 - 1:45 Lunch

1:45 - 3:50 Session 6 ~ Energy, Power, and Technology

Technological Improvement and Innovation in Photovoltaics - New Emergy Calculations

Marco Raugei, Silvia Bargigli, and Sergio Ulgiati

The Evaluation of Environmental Inputs of Conventional Versus Bio-Solar Homes

Vorasun Buranakarn

Compared Analysis of Different Hydrogen Technologies

Roberto Ridolfi, P. Fiorini, R.M. Pulselli, E. Sciubba, and E.Tiezzi

Improved Performance of Molten Carbonate Fuel Cells due to Innovative Ceramic Materials. An Emergy Analysis.

Silvia Bargigli, Angelo Moreno, Marco Raugei, Arturo Torazza, and Sergio Ulgiati

Towards a Folio on Fuels

Simone Bastianoni, D. Campbell, F. M. Pulselli, and R. Ridolfi

3:50 - 4:20 Break

4:20 – 6:00 Poster Session 2 ~ Methodological Aspects

Computing the Specific Emergy of Crustal Elements

Matthew Cohen, Sharlynn Sweeney, and Mark T. Brown

A Sensitivity Analysis of Emergy Accounting Estimates

Tingting Cai and T.W. Olsen

Partial least squares regression for co-product allocation in emergy-based environmental accounting

David Tilley

Emergy Analysis and the Eigenvalue Method for Solving Transformities using Microsoft Excel

Wade Thompson, Eldon C. Blancher, and **Manish Misra**

“Nested Emergy Analyses”: Moving Ahead from the Spreadsheet Platform

Silvia Bargigli, Marco Raugei, and Sergio Ulgiati

Comparative Analysis of Indicators of Wellbeing and Using Environmental Accounting

Danielle King, Matt Cohen, Mark Brown, and Sharlynn Sweeney

Emergy Evaluation and Ecological Footprint Analysis for Regional Environmental Sustainability Assessment: A Comparison.

Valentina Niccolucci, Riccardo M. Pulselli, and **Simone Bastianoni**

Emergy to Money Ratios for 488 Sectors of the U.S. Economy and their Use for Life Cycle Assessment

Nandan Ukidwe and Bhavik Bakshi

Emergy Evaluation of the Optimum Number of Stories of New Apartment Buildings

Jung-Hyuk Im

7:00 – 9:30 Open House – Betty Odum’s House

Saturday, January 21, 2006

MEET IN NEB 102

9:00 – 10:40 Session 7 ~ Emergy and Future Prosperity

Farming in a Prosperous Way Down - Emergy Analysis of Styles of Farming

Wijnandm Boonstra and **Torbjörn Rydberg**

Pulsing and Cultural Evolution in China

Tom Abel

A Model of the Sustainable Corporation of the Future: A Case Study of Interface Corporation

Don Adolphson and Eldon Franz

Energy, Environment, and Prosperity: Now and in the Future

Dan Campbell

10:40 - 12:30 Discussion Session

7:00 – 00:00 Party at Mark Brown and Carol Binello’s House