RDA 15th Plenary - Virtual Session
April 2020

FAIRISLAND

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Tetiaroa Society

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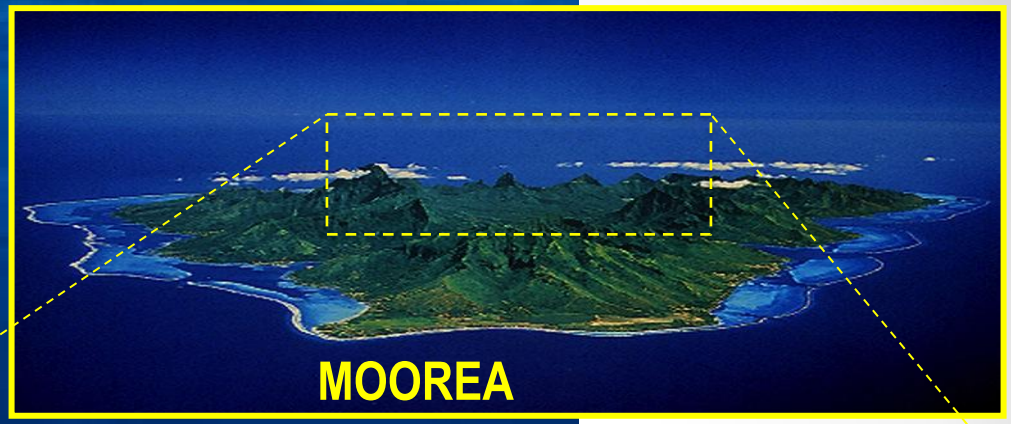
No man is an island… but we all live on one



ECOSTATION

French Polynesia (5M Km²)

Berkeley UNIVERSITY OF CALIFORNIA UCSB UCLA UC SANTA CRUZ CSUN.

Gump South Pacific Research Station

Moorea, French Polynesia

Established 1985

MOOREA CORAL REEF LTER

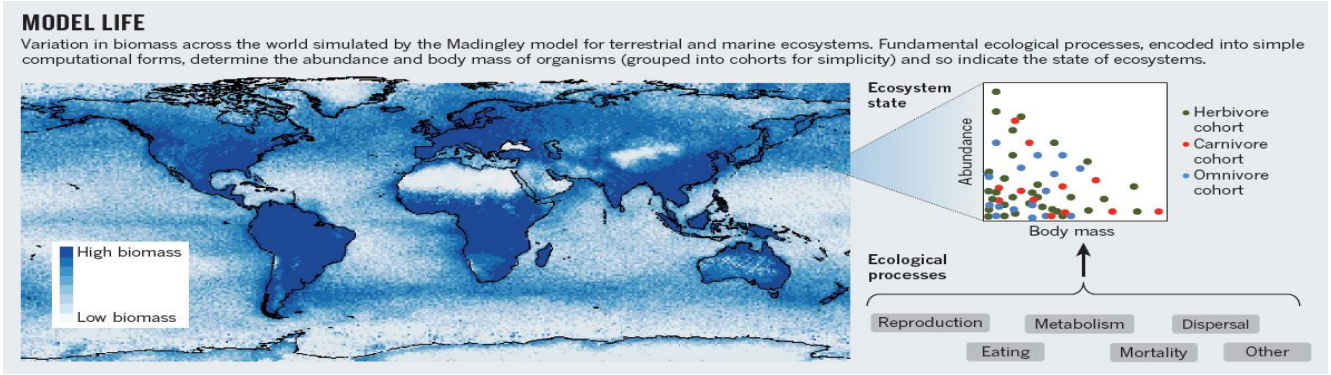
Member of the NSF Long Term Ecological Research Network

LTER NETWORK

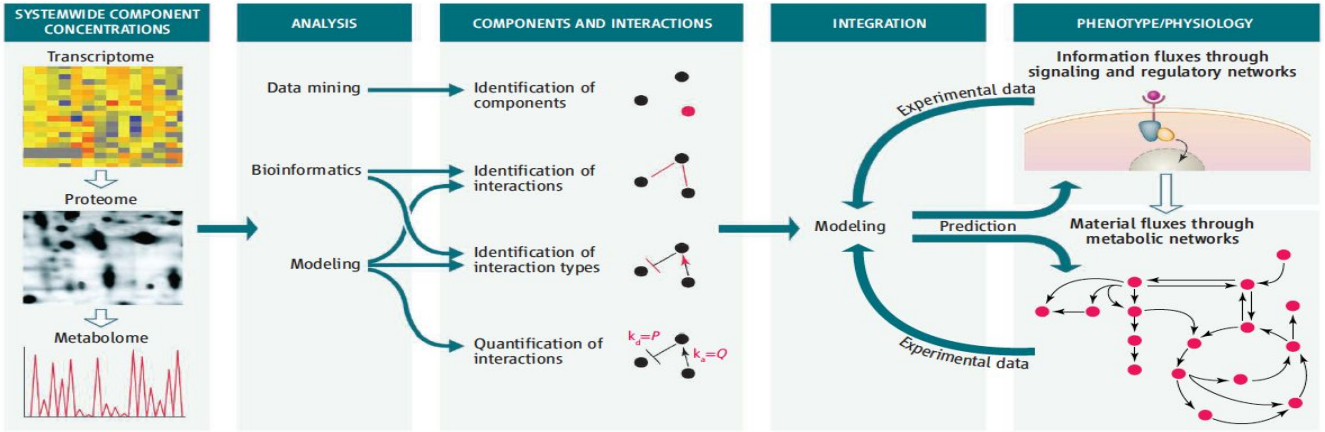
> 2000 researchers at 28 sites who apply long-term observation, experiments, and modeling to understand how ecological systems function

MOOREA CORAL REEF
LONG TERM ECOLOGICAL RESEARCH

Established 2004 at Gump Station



Purves et al. Ecosystems: Time to model all life on Earth. *Nature* 2013, **493**:295–7.



Sauer et al. (2007) Getting Closer to the Whole Picture. *Science* **316**:550–551

PLANET DOWN

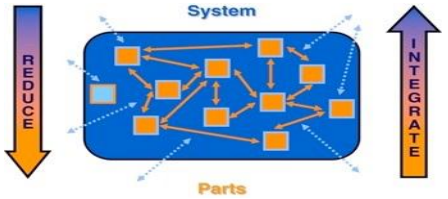
GENOME UP

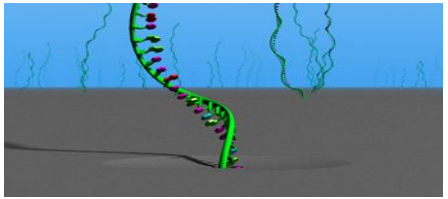
Earth Avatar

Systems Ecology: Modeling the Planet

A complex problem

MODEL SYSTEM



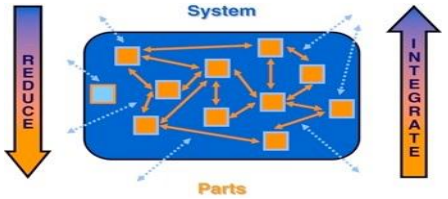


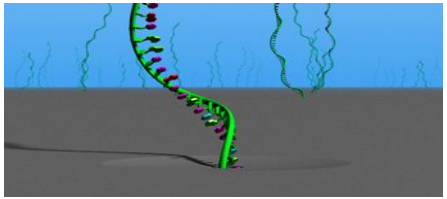
Island Avatar

Systems Ecology: Modeling Islands

Scientifically tractable

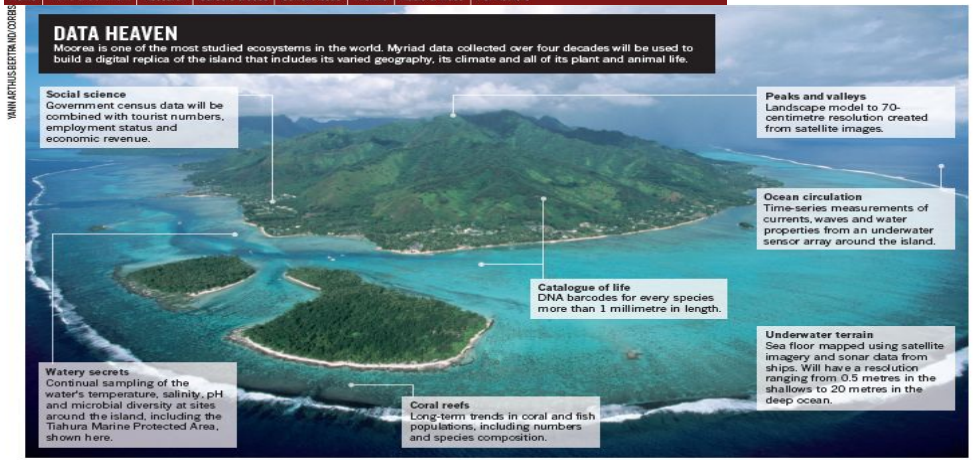
MODEL SYSTEM





Cressey (2015) Tropical paradise inspires virtual ecology lab. *Nature* **517**:255–256.

nature International weekly journal of science



ENVIRONMENT

Tropical paradise inspires virtual ecology lab

Digital version of Moorea will provide a way to experiment with an entire ecosystem.

Davies *et al. GigaScience* (2016) 5:14
DOI 10.1186/s13742-016-0118-5

GigaScience

COMMENTARY Open Access

Simulating social-ecological systems: the Island Digital Ecosystem Avatars (IDEA) consortium

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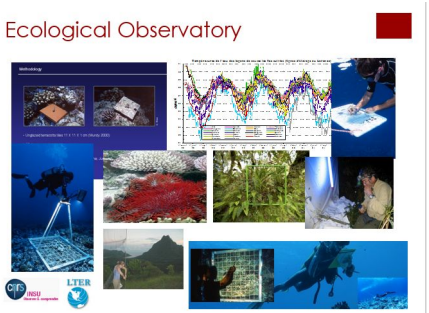
Abstract

Systems biology promises to revolutionize medicine, yet human wellbeing is also inherently linked to healthy societies and environments (sustainability). The IDEA Consortium is a systems ecology open science initiative to conduct the basic scientific research needed to build use-oriented simulations (avatars) of entire social-ecological systems. Islands are the most scientifically tractable places for these studies and we begin with one of the best known: Moorea, French Polynesia. The Moorea IDEA will be a sustainability simulator modeling links and feedbacks between climate, environment, biodiversity, and human activities across a coupled marine–terrestrial landscape. As a model system, the resulting knowledge and tools will improve our ability to predict human and natural change on Moorea and elsewhere at scales relevant to management/conservation actions.

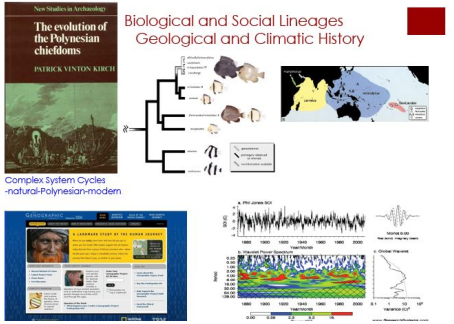
Keywords: Computational ecology, Biodiversity, Genomics, Biocode, Earth observations, Social-ecological system, Ecosystem dynamics, Climate change scenarios, Predictive modeling

Environmental Observatory

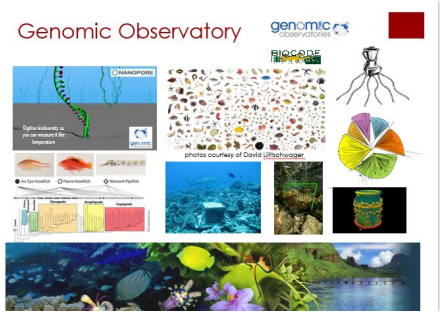
Ecological Observatory



Biological and Social Lineages Geological and Climatic History

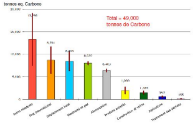


Genomic Observatory



Socio-Economic Observatory

Bilan Carbone 2009 de l'Ile de Moorea (sans "avion visiteurs")

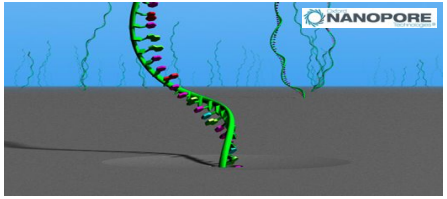


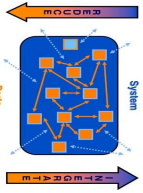
Dépense énergétique globale de l'île de Moorea =
~ 20 millions de litres de pétrole importés par an
=
~ 1,3 milliards de francs CFP ~$15 million dépensés par an

Integration Challenge

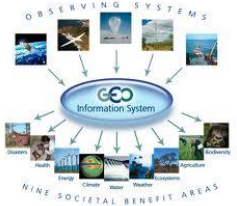
genomic gsc STANDARDS consortium

genomic observatories





GEO GROUP ON EARTH OBSERVATIONS



TETIAROA
SOCIETY
SUSTAINABILITY IN ACTION

The FAIR Island Project

Develop the **optimal data policies** and **technical infrastructure necessary** to create an environment where all data and knowledge collected on the Tetiaroa field station is curated and made **openly available as quickly as possible**.

UC3

FAIR ISLAND

CDL
California Digital Library

Project Goals

Testing the effectiveness of optimized RDM/Open Science Policies.

Demonstrate the capabilities of machine-actionable data management plans (maDMPs) in a bounded, incubated, monitored working research environment and analyse the downstream effects of these policies in the resulting release of data.

UC3

FAIRISLAND

University of California
CDL
California Digital Library

Key areas of work

Establishing FAIR-compliant Data Policies

Developing Machine-Actionable Data Management Plans

Integrating with External Systems

Expanding the FAIR Island Model

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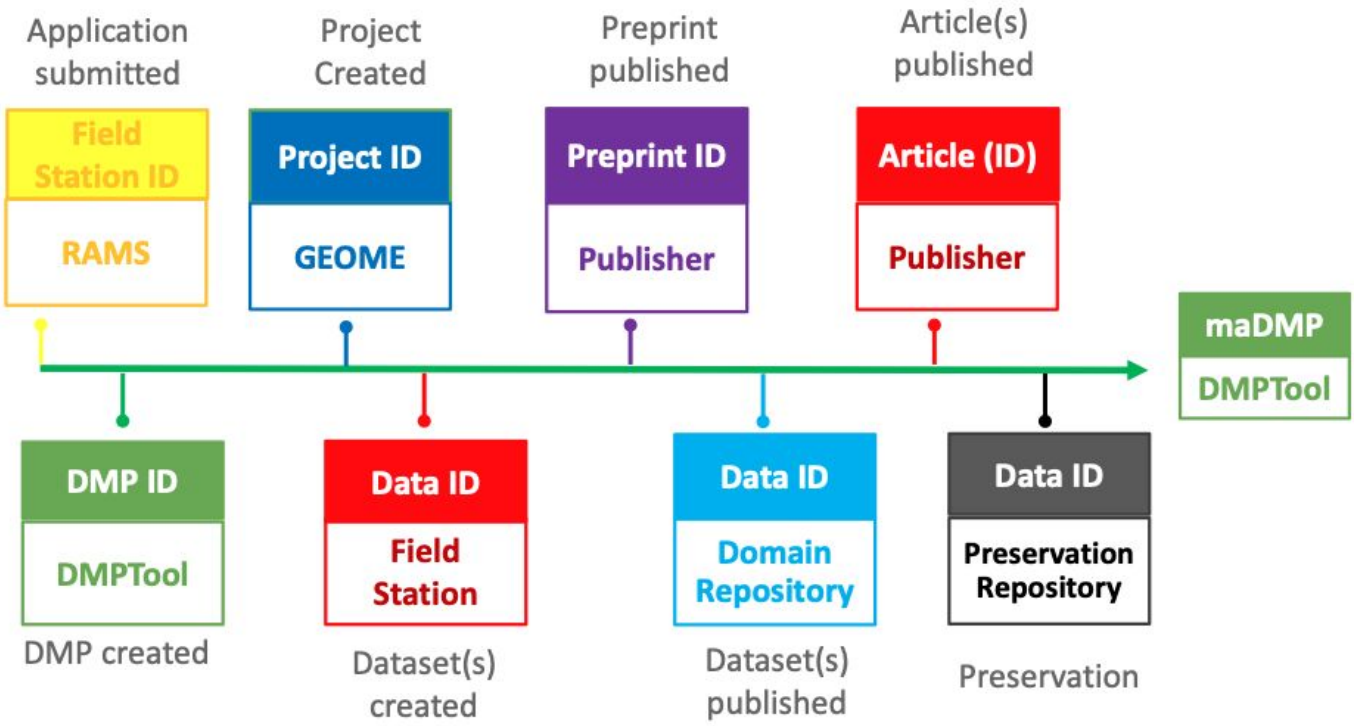
California Digital Library



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CDL
California Digital Library

JoinUs!

We're hiring: Research Data Management Advisor

Share your thoughts with us about optimal data policies

www.fairisland.org

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Thank you!

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