



The Abdus Salam  
International Centre for Theoretical Physics



*Workshop on "Theoretical Ecology and Global Change"*  
March 2 - 13, 2009

(tel: +39 040 2240227, fax: +39 040 2240558 e-mail: [iannitti@ictp.it](mailto:iannitti@ictp.it))

Venue: ICTP Leonardo Building - Main Lecture Hall

activity web page: <http://users.ictp.it/~smr2022/>

Organizers: *G.A. Canziani* (U. Nac. del Centro, Tandil, Argentina), *G.A. De Leo* (U. di Parma, Italy),  
*A.P. Dobson* (Princeton U., USA), *M. Pascual* (U. Michigan, USA), *F. Giorgi* (ICTP)

**Week 1 (see pages 3 & 4 for titles) REVISED MARCH 10**

Monday 2	Tuesday 3	Wednesday 4	Thursday 5	Friday 6
9:00 - 10:30 Registration & Welcome	9:00 L. Buckley 2	9:00 M. Pascual 2	9:00 S. Allesina 2	9:00 J. Bascompte 2
10:30 - 10:45 Coffee Break	10:00 P. Moorcroft 2	10:00 S. Allesina 1	10:00 J. Bascompte 1	10:00 M.-J. Hernandez 2
10:45 F. Giorgi:	11:00 Discussion & Break	11:00 Discussion & Break	11:00 Discussion & Break	11:00 Discussion & Break
11:45 L. Buckley	11:30 M. Pascual 1	11:30 Participant Presentations (2 talks)	11:30 G. Canziani 1	11:30 G. Canziani 2
12:30 - 14:00 LUNCH	12:30 - 14:00 LUNCH	12:30 - 14:00 LUNCH	12:30 - 14:00 LUNCH	12:30 - 14:00 LUNCH
14:00 P. Moorcroft:	14:00 J. Dunne 1	14:00 J. Dunne 2	14:00 M.-J. Hernandez 1	14:00 E. Bertuzzo
15:00 Introduction to Core Groups	15:00 Core Groups discussions	15:00 Core Groups discussions	15:00 Core Groups discussions	15:00 Participant Presentations (2 talks)
15:45 Coffee Break	15:45 Coffee Break	15:45 Coffee Break	15:45 Coffee Break	15:45 Coffee Break
16:00 Climate Lab L. Buckley	16:00 Climate Lab P. Moorcroft	16:00 Food web Lab 1 J. Dunne	16:00 Food web Lab 2 S. Allesina	16:00 Core Groups Reports

**WEEK 2**  
(see pages 3 & 4 for titles)

Monday 9	Tuesday 10	Wednesday 11	Thursday 12	Friday 13
9:00 A. Dobson 1	9:00 M.-J. Hernandez 3	9:00 R. Hilborn 3	9:00 A. Dobson 2	9:00 - 10:00 Participant talks (6)
10:00 J. - P. Rodriguez 1	10:00 J. - P. Rodriguez 2	10:00 Participant talks (2)	10:00 Participant talks (2)	
11:00 Discussion & Break	11:00 Discussion & Break	11:00 Discussion & Break	11:00 Discussion & Break	11:00 Discussion & Break
11:30 G. De Leo 1	11:30 R. Hilborn 2	11:30 L. Boitani 1	11:30 G. Canziani 2	11:30 Presentation of Core Groups results
12:30 - 14:00 LUNCH	12:30 - 14:00 LUNCH	12:30 - 14:00 LUNCH	12:30 - 14:00 LUNCH	12:30 - 14:00 LUNCH
14:00 R. Hilborn 1	14:00 G. De Leo 2	14:00 L. Boitani 2	14:00 Core Groups preparation of presentations	14:00 - 16:00 Presentation of Core Groups results
15:00 Core Groups discussions	15:00 Core Groups discussions	15:00 Core Groups discussions	15:00 LAB B. Bolker 4	16:00 Coffee Break
16:00 Coffee Break	16:00 Coffee Break	16:00 Coffee Break	16:00 Coffee Break	
16:15 LAB B. Bolker 1	16:15 LAB B. Bolker 2	16:15 LAB B. Bolker 3	16:15 LAB B. Bolker 5	16:15 Conclusions and certificates

- 1.- Mercedes Pascual
- 2.- Andy Dobson
- 3.- Giulio De Leo
- 4.- Graciela Canziani
- 5.- Jordi Bascompte
- 6.- Jennifer Dunne
- 7.- Stefano Allesina

- 8.- Lauren Buckley
- 9.- Paul Moorcroft
- 10.- Ben Bolker
- 11.- Jon-Paul Rodriguez
- 12.- Maria-Josefina Hernandez
- 13.- Ray Hilborn
- 14.- Luigi Boitani
- 15.- E. Bertuzzo

## **Titles for the Program**

### **Monday 2**

**Filippo Giorgi:** Climate Change

**Lauren Buckley:** Theoretical models of species' ranges and range dynamics

**Paul Moorcroft:** Scaling from plant-level responses into ecosystem-level consequences

(i) Modeling species interactions

(ii) Incorporating vegetation heterogeneity: age structure and size structure

(iii) Representing plant functional diversity.

### **Tuesday 3**

**Lauren Buckley:** Applying range models to predict responses to climate change.

**Paul Moorcroft:** The ecosystem-level consequences of vegetation heterogeneity

(i) Developing a predictive science of the biosphere

(ii) Non-linear ecosystem responses

**Mercedes Pascual :** Climate variability and population cycles in the dynamics of infectious diseases

**Jennifer Dunne:** Food web network structure: data, models, and inference

### **Wednesday 4**

**Mercedes Pascual:** Infectious diseases and non-stationary environments: climate change and pathogen evolution.

**Jennifer Dunne:** Dynamical modeling of complex food webs

**Stefano Allesina** Robustness of ecological networks (i.e. effects of extinctions on network structure)

### **Thursday 5**

**Stefano Allesina:** Stability of ecological systems (i.e. linear stability, qualitative stability etc.)

**Jordi Bascompte:** Mutualistic Networks

**Graciela Canziani:** Parasites, climate, and fuzzy logic models

**Maria Josefina (Chepina) Hernández::** The Dynamics of Variable or Conditional Population Interactions: Nature and Models.

### **Friday 6**

**Jordi Bascompte:** Food web structure and network motifs (or Spatial networks of genetic variability).

**Maria Josefina (Chepina) Hernández::** The Dynamics of Variable or Conditional Population Interactions: Models in Nature.

**Graciela Canziani:** The trophic state of shallow lakes, remote sensors and ANN.

**E. Bertuzzo:** Cholera dynamics in a river network

## ***WEEK 2***

### **Monday 9**

**Andy Dobson:** Climate change, land-use change and declines in ecosystem services

**Jon-Paul Rodríguez:** The Neotropical Biodiversity Mapping Initiative (NeoMaps).

**Giulio De Leo:** The state of marine resources

**Ray Hilborn:** Application areas fisheries and marine ecosystems

### **Tuesday 10**

**Maria Josefina (Chepina) Hernández:** The Dynamics of Variable or Conditional Population Interactions in Space. Discussion on the characterization of population interactions.

**Jon-Paul Rodríguez:** Quantitative criteria for the assessment of ecosystem extinction risk.

**Ray Hilborn:** Wildlife, especially East African parks management, protected areas.

**Giulio De Leo:** When size matters: Trade-offs, non-linearities and surprises in the management of size-structured populations.

### **Wednesday 11**

**Ray Hilborn:** Contrasting marine and terrestrial conservation: similarities and differences

**Luigi Boitani:** Where is the species ? Representing species on a map

### **Thursday 12**

**Andy Dobson:** Food-webs for East African savanna ecosystems: long-term changes and modifications of ecosystem services

**Graciela Canziani:** Past, present and future of a neotropical wetland ecosystem. Tools for analyzing changes.