



2010 International Conference on Integrative Landscape Modelling

Linking environmental, social and computer sciences

Montpellier, France, February 3rd-5th, 2010

INRA/Sup'Agro Campus 'la Gaillarde', 2 place Viala

<http://www.umar-lisah.fr/rtra-projects/landmod2010.html>

The 2010 international conference on integrative landscape modelling will gather leading scientists in each of the main disciplines dealing with ecosystems and landscape simulation and management, complex dynamic modelling and assessment of vulnerability, resilience and adaptation of agro- and eco-systems under human influence.

Keynote speakers

Richard ASPINALL, Macaulay Institute, Aberdeen, UK

Daniel AUCLAIR, Forest, Grassland and Freshwater Ecology Division (EFPA), INRA, Montpellier, France

Lluís BROTONS, Landscape Ecology Group, Technological Forestry Centre of Catalonia, Solsona, Spain

Christine FURST, Dresden University of Technology, Germany

Jacques GIGNOUX, Research Unit of Biogeochemistry and Ecology of Continental Areas, Ecole normale Supérieure, Paris, France

Volker GRIMM, Department of Ecological Modelling, Helmholtz Center for Environmental Research, Leipzig, Germany

Sandra LUQUE, Dynamics and management of mountain ecosystems, CEMAGREF, Grenoble, France

Dawn PARKER, School of planning, University of Waterloo, Canada

Tom A. VELDKAMP, International Institute for Geo-Information Science and Earth Observation (ITC), Enschede, The Netherlands

Peter VERBURG, Institute for Environmental Studies, University of Amsterdam, The Netherlands

Alexey A. VOINOV, International Institute for Geo-Information Science and Earth Observation (ITC), Enschede, The Netherlands

Marc VOLTZ, Laboratory of study of interactions among soils, agrosystems and hydrosystems, INRA Montpellier, France

Local organising committee

Jean-Christophe FABRE, Laboratory of study of interactions among soils, agrosystems and hydrosystems, INRA Montpellier, France

Marc JAEGER, Botany and computational plant architecture laboratory, Cirad Montpellier, France

Xavier LOUCHART, Laboratory of study of interactions among soils, agrosystems and hydrosystems, INRA Montpellier, France

Jean-Pierre MULLER, Renewable resources and environment management laboratory, Cirad Montpellier, France

Conference secretariat

LandMod2010

UMR LISAH - 2 place P. Viala

F-34060 Montpellier cedex 1 – France

Tel : +33 (0)4 99 61 21 60

Fax : +33 (0)4 67 63 26 14

Contact: broin@supagro.inra.fr



Provisional planning

Wednesday, February 3rd S1: Methodology and modelling tools and platforms	Thursday, February 4th S2: Modelling the biophysical components in landscapes	Friday, February 5th S3: Integrated socio-environmental modelling
09:00-09:45 Registration	09:00-09:30 Keynote S2a/1	09:00-09:30 Keynote S3a/1
09:45-10:15 Opening ceremony	09:30-10:00 Keynote S2a/2	09:30-10:50 Talks S3a
10:15-10:45 Introductory keynote	10:00-11:00 Talks S2a	
10:45-11:15 coffee break + posters S1	11:00-11:30 coffee break + posters S2	10:50-11:20 coffee break + posters S3
11:15-11:45 Keynote S1/1	11:30-12:00 Keynote S2b/1	11:20-11:50 Keynote S3b/1
11:45-13:30 Talks S1a	12:00-12:30 Keynote S2b/2	11:50-13:30 Talks S3b
	12:30-13:30 Talks S2b	
13:30-14:30 lunch break	13:30-14:30 lunch break	13:30-14:30 lunch break
14:30-15:00 Keynote S1/2	14:30-15:00 Keynote S2c/1	14:30-15:00 Keynote S3b/2
15:00-16:00 Talks S1b	15:00-16:00 Talks S2c	15:00-16:30 Round table S3
16:00-17:00 Round table S1	16:00-16:30 coffee break	
	16:30-17:00 Keynote S2c/2	
	17:00-18:30 Round table S2	
19:00-21:00 Visit		
	20:30-23:00 Gala dinner	



Programme

Wednesday, February 3rd

09:00-09:45

Registration

Chairperson: Jean-Pierre MÜLLER

09:45-10:15

Opening ceremony

- **Marcel DE RAISSAC**, Cirad
- **Frederik GARCIA**, INRA
- **Etienne LANDAIS**, Montpellier Sup'Agro
- **Oliver OLIVEROS**, Agropolis Foundation

10:15-10:45

Introductory keynote

- **Daniel AUCLAIR**, INRA

Forest and natural ecosystem managers in the landscape: multiscale modelling, challenges and opportunities

Session 1: Methodology and modelling tools and platforms

S1a) Methodology and tools for landscape modelling

10:45-11:15

Coffee break and poster session 1

Posters:

- **Lewis GILL**, University of Sheffield
A generative 3D landscape modelling system for real-time decision making
- **Patrick RIO**, INRA
Visualisation: a mediating tool in environmental modelling
- **Marc JAEGER**, Cirad
Web based tree and vegetation representation in VR environment applications and studies. An example hold on ChongMing Island
- **Suzanne FRANCK**, Dresden University of Technology
Chances and limits of using landscape metrics within the interactive planning tool "Pimp Your Landscape"
- **Joel DAROUSSIN**, INRA
3D soil layers reconstitution through landscape modelling and sparse soil measurements
- **Hugues BOUSSARD**, INRA
Layers dependencies specifications in the APILand simulation approach: an application to the coupling of a farm model and a carabid model

Chairperson: Christine FÜRST

11:15-11:45

Keynote speaker

- **Volker GRIMM**, Helmholtz Centre for Environmental Research
Designing and validating agent-based models: two sides of the same coin

-
- 11:45-13:30** **Selected talks**
- **Geoffrey HENEBRY**, South Dakota State University
Land surface phenology as an integrative diagnostic for landscape modelling
 - **EI Ghali LAZRAK**, INRA
Time-space dependencies in land-use successions at agricultural landscape scales
 - **Danny LO-SEEN**, Cirad
Toward the simulation of the Amazon-influenced mangrove-fringed coasts dynamics using Ocelet
 - **Florence LE BER**, ENGEES
Modelling neutral agricultural landscapes with tessellation methods : the GenExp-LandSiTes software - Application to simulation of gene flow
 - **Jean-Stéphane BAILLY**, AgroParisTech
Semi-virtual simulations of agricultural and land management practices in Languedoc Vineyards: a way to deal with incomplete knowledge of spatial distributions in landscapes
- 13:30-14:30** **Lunch break**

S1b) Modelling platforms

- Chairperson:** Jean-Pierre MÜLLER
- 14:30-15:00** **Keynote speaker**
- **Alexey VOINOV**, ITC
Model Integration in Socio-Environmental Modeling: Participatory, Multidisciplinary, Community, and other Kinds of Modeling
- 15:00-16:00** **Selected talks**
- **Jean-Christophe FABRE**, INRA
OpenFLUID : a software environment for modelling fluxes in landscapes
 - **Olivier BARRETEAU**, CEMAGREF
A generic model of interdependences between agents and water
 - **Carsten MAROHN**, University of Hohenheim
Integrated land use modelling in an interdisciplinary project: The LUCIA framework
- 16:00-17:00** **Round-table "Methodology and modelling tools and platforms"**
- Chairperson: **Jean-Pierre MÜLLER**, Cirad
- **Frederik GARCIA**, INRA
 - **Volker GRIMM**, Helmholtz Centre for Environmental Research
 - **Dawn PARKER**, University of Waterloo
 - **Alexey VOINOV**, ITC
- 19:00-20:30** Guided tour of the city centre, meeting at 19:00 at the tourism office

Thursday, February 4th

Session 2: Modelling the biophysical components of landscapes

S2a) Modelling fluxes in landscapes

Chairperson: Jacques GIGNOUX

09:00-09:30

Keynote speaker

- **Marc VOLTZ**, INRA

Modelling water, energy and associated mass fluxes in managed landscapes: current issues and gaps

09:30-10:00

Keynote speaker

- **Tom VELDKAMP**, ITC

Modelling the interactions between land management and landscape processes

10:00-11:00

Selected talks

- **Roger MOUSSA**, INRA

Assessing of the impact of man-made structures on the hydrological behaviour of farmed catchments by distributed hydrological modelling

- **Carsten LORZ**, Dresden University of Technology

Sediment generation and sediment management for the Federal District of Brasilia, Brazil

- **Bora LEE**, University of Bayreuth

Landscape level carbon and water balances and agricultural production in mountainous terrain of the Haean basin, South Korea

11:00-11:30

Coffee break and poster session 2

Posters:

- **Marie GUILLOT**, INRA

Study of two forested watersheds in Les Landes region: changes in carbon and water budgets over time and impacts of two consecutive storms

- **Ajit GOVIND**, INRA

Effect of Canopy Architecture on Carbon and Water Fluxes: A Numerical Experiment

- **Mickael HENRY**, INRA

Modelling landscape variation in species richness: a multi-scale approach

- **Thomas CURT**, CEMAGREF

Optimising the landscape patterning of fuel treatment of road corridors to reduce fire hazard

- **Vincent LE CHEVALIER**, Ecole Centrale de Paris

Bottom-up approach of landscape simulation leading to a generic synchronisation formalism and competition model

S2b) Modelling biodiversity in landscapes

Chairperson: Sandra LUQUE

- 11:30-12:00** **Keynote speaker**
- **Richard ASPINALL**, Macaulay Land Use Research Institute
Modelling biodiversity in landscapes: habitat modelling
- 12:00-12:30** **Keynote speaker**
- **Luis BROTONS**, Technological Forestry Centre of Catalonia
Predicting species distribution responses in Mediterranean dynamic landscapes in a context of global change: modelling challenges and the way forward
- 12:30-13:30** **Selected talks**
- **Christophe LETT**, IRD
Towards landscape modelling of marine reserves
 - **Cédric GAUCHEREL**, INRA
A multidisciplinary modelling approach to understand the effects of landscape dynamics on biodiversity
 - **Samuel DECOU**, CEMAGREF
*Connectivity and landscape patterns in human dominated landscape: a case study with the common frog *Rana temporaria**
- 13:30-14:30** **Lunch break**

S2c) Modelling forest and natural ecosystems

Chairperson: Richard ASPINALL

- 14:30-15:00** **Keynote speaker**
- **Sandra LUQUE**, CEMAGREF
A landscape approach to sustainable forest management and habitat quality modelling
- 15:00-16:00** **Selected talks**
- **Eric MAILLÉ**, CEMAGREF
Modelling forest fire risk change related to land cover change: an integrative approach
 - **Khader KHADRAOUI**, INRA
Computational modelling for forest dynamics with Markov model individual-centred
 - **Guerric LE MAIRE**, Cirad
Spatial and temporal variability of the carbon budget of tropical eucalyptus plantations assessed using ecosystem modelling and remote-sensing
- 16:00-16:30** **Coffee break**

Chairperson: Yves BRUNET

16:30-17:00

Keynote speaker

- **Jacques GIGNOUX**, Ecole Normale Supérieure

Back to the roots – how the ecosystem concept can be used as a basis for multiscale modelling

17:00-18:30

Round-table “Modelling biophysical processes in landscapes”

Chairperson: **Yves BRUNET**, INRA

- **Richard ASPINALL**, Macaulay Land Use Research Institute
- **Lluís BROTONS**, Technological Forestry Centre of Catalonia
- **Jacques GIGNOUX**, Ecole Normale Supérieure
- **Sandra LUQUE**, CEMAGREF
- **Marc VOLTZ**, INRA

20:30-23:00

Gala dinner at Brasserie du Théâtre

Friday, February 5th

Session 3: Integrated socio-environmental modelling

S3a) Socio-economic modelling

Chairperson: Peter VERBURG

09:00-09:30

Keynote speaker

- **Dawn PARKER**, University of Waterloo
Representing economic mechanisms in agent-based models of socio-ecological systems: how far have we come?

09:30-10:50

Selected talks

- **Martin WILDENBERG**, University of Klagenfurt
Fuzzy cognitive mapping a tool for integrated modelling and social-ecological research: six European case studies
- **Marieke SANDKER**, Autonomous University of Madrid / CIFOR
Spatial Projections of Participatory System Dynamics Modelling Outcomes: Exploring Oil Palm and REDD consequences for Local Livelihoods in Papua, Indonesia
- **Stéphanie AULONG**, BRGM
Socio-economic assessment of the rural vulnerability of water users under stressors of global changes in the Hard rock area of south India
- **Laure BAMIÈRE**, INRA
Auctions in agri-environmental policies when the spatial pattern of natural habitat counts

10:50-11:20

Coffee break and poster session 3

Posters:

- **Pascal MARTY**, CNRS
Integrative simulation of agricultural and landscape changes
- **Marjorie LE BARS**, IRD
From a local problem to design a generic tool for decision making at farming regional scale
- **Christophe LE PAGE**, Cirad
Participatory design and use of an agent-based model for mitigating land-use conflict in Northern Thailand highlands
- **Burghard MEYER**, University of Dortmund
Optimisation of rural land health: integrating multiple functions
- **Lars KOSCHKE**, Dresden University of Technology
The development of a conceptual framework to assess multifunctional landscapes and the impact of land use changes on land use functions with "Pimp Your Landscape"
- **Karin BERKHOFF**, Leibniz University
Tuning a land use change model with socio-economic data

S3b) Coupling bio-physical and socio-economics models

Chairperson: Tom VELDKAMP

11:20-11:50

Keynote speaker

- **Christine FÜRST**, Dresden University of Technology
Pimp your landscape – a cellular automaton approach to estimate the effects of land-use-pattern changes on environmental services

11:50-13:30

Selected talks

- **Betha LUSIANA**, Hohenheim University
Trade-off analysis of land use change, livelihoods and environmental services in the upper Konto catchment (Indonesia): prospecting land use options with the FALLOW model
- **Szu-Hua WANG**, National Taipei University
An integrated stock-flow and agent-based model for simulating land use and environmental change in peri-urban area
- **Marie CASTELLAZZI**, Macaulay Land Use Research Institute
Developing a nested-scale landscape modelling framework for ecosystem services
- **John TENHUNEN**, University of Bayreuth
Evaluating global change influences on ecosystem services in agricultural production versus water yield and water quality in mountain landscapes
- **Sylvie MORARDET**, CEMAGREF
Trade-offs between livelihoods and wetland ecosystem services: lessons from an integrated dynamic model of Ga-Mampa wetland, South Africa

13:30-14:30

Lunch break

Chairperson: Dawn PARKER

14:30-15:00

Keynote speaker

- **Peter VERBURG**, University of Amsterdam
Modelling the influence of land use and land cover change on landscape functions

15:00-16:30

Round-table "Integration of biophysical and socio-economic processes in landscape modelling"

Chairperson: **Dawn PARKER**, University of Waterloo

- **Olivier BARRETEAU**, CEMAGREF
- **Christine FÜRST**, Dresden University of Technology
- **Tom VELDKAMP**, ITC
- **Peter VERBURG**, University of Amsterdam