Which Mathematical Formalizations of Resilience and What For? Workshop, Montpellier, 8 October 2013

Program:

	09:00 – 09:15	Introduction to the workshop (Guillaume Deffuant)
Invited speakers	09:15 – 10:00	Marty Anderies, the School of Sustainability, Arizona State University
	10:00 – 10:45	Olivier Barreteau, Irstea Montpellier
	10:45 – 11:15	Break
	11:15 – 12:00	Steven Lade, Stockholm Resilience Center
	12:00 – 12:45	Luc Doyen, CNRS, Paris
	12:45 – 14:00	Lunch (Buffet)
contributors	14:00 – 14:30	Sophie Martin, Irstea Clermont-Ferrand
	14:30 – 15:00	Bruno Bonté, Irstea Montpellier
	15:00 – 15:30	Charles Rougé, Irstea Clermont-Ferrand
	15:30 – 16:00	Break
	16:00 – 17:00	Discussion panel with invited speakers

Scope:

This workshop is part of a workshop series in preparation for the 2014 Resilience Conference to be held in Montpellier, France. The objective of the workshop series is to bring together French and international scientific communities for an in-depth exploration of the multiple dimensions of resilience following the theme of the 2014 Resilience Conference: *"Adaptation, Transformation and Development"*.

This specific workshop focuses on the different trends of research on mathematical formalizations of resilience and on their practical use. Indeed, the mathematics of resilience generally relates resilience with the attractors of the system's dynamics and proposes different means for qualifying the tendency of the system to return to a desired attractor after a perturbation. This approach is hence based on a study of the system's attractors and

attractor basins, with the tipping points corresponding to the boundaries between attractor basins. Recently, Viability Theory has been proposed as a conceptual and practical tool for formalizing resilience. The proponents of this approach claim that it generalizes the attractor based ones and that it can include more explicitly the search for efficient action policies and express rigorously the adaptability of a system.

The workshop will propose scientific presentations which will introduce and criticize these concepts and methods, in order to identify the next research challenges. It will also propose examples of applications of these approaches. The audience and the speakers will be invited to participate to discussions about the utility of formalizing resilience in different contexts and about the research challenges that need to be prioritized.

Organizers:

Guillaume Deffuant, Jean-Denis Mathias, Catherine Calvayrac (Irstea – LISC)

Practical information:

The workshop will be held

On October 8, 2013, from 9:00 to 17:00,

in **hotel Oceania,**

3 rue du Clos René,
34 000 Montpellier

A lunch buffet will be offered to the participants.

The participation is free but the participants **should register before September 30** by sending an email to: Catherine.calvayrac@irstea.fr announcing their participation and a few words about their interest.