MODELLING FOR SUSTAINABLE ADAPTATION PLANNING

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SUMMARY

The use of GIS and spatial information has become essential in planning the adaptation of human communities to the impacts of climate change and disasters, especially in developing countries where other alternative infrastructures do not always exist. Reducing the vulnerability of communities to these impacts, while increasing their resilience through a sustainable path to development, requires however more advanced tools, like dynamic integrated models of socio-ecosystems, able to capture and represent the complex interactions and feedback loops between a changing society and its changing environment in multiple climatic scenarios.

The design of such models raises different challenges, among which:

- The necessity to support multidisciplinary contributions as their scope expands beyond climate-related issues and spatial information to embrace social, economical or ecological ones;
- The necessity to offer ways to represent (and explore) the complexity of the socio-ecological processes that need to adapt or be adapted;
- The necessity to support stakeholders to participate in the design and assessment of alternate adaptation strategies.

It is argued in this speech that agent-based modeling (ABM) can provide a capable framework for addressing these challenges. Current research perspectives, illustrated by examples taken from the work of IRD modellers with Vietnamese partners, will be presented, with the main aim of opening a fruitful discussion with the audience about the role of models in Sustainability Science.

BIO

Alexis Drogoul graduated in AI in 1990 and received his PhD. degree from the University of Paris 6 in 1993. Recruited in 1995 as associate professor, he became full professor in 2000 and joined the IRD as a senior researcher in 2004. He works on agent-based simulation of complex systems, mainly by developing the GAMA platform (http://gama-platform.org). Since 2007, he has been working in Vietnam to enhance the research capacity of Vietnamese teams (IFI-MSI, CTU-DREAM, USTH-ICTLab, TLU-WARM) on the design of models for environmental decision-support and adaptation to climate change, in the framework of several international research projects. In addition, he is since 2017 the representative of IRD in Vietnam and Philippines.