PANCES Modelling Training Seminar

Organized by PANCES

Co-organized by Research Institute for Humanity and Nature (RIHN), Japan Society of Civil Engineers (JSCE) - Environmental Systems Research Committee

Date: 10 March (Wed) 2021, 15:00-18:30JST

Venue: Zoom (The Zoom link will be provided to the registered participants two days before the seminar)

Registration: https://forms.gle/5EMTC9KdzFVbGTy66

Introduction:

In 2016 the PANCES (Predicting and Assessing Natural Capitals and Ecosystem Services) project was launched to respond to scientific and policy needs, inviting 30 research institutes and more than 100 researchers in Japan (http://pances.net/eng/). The project predicts and assesses future natural capital and ecosystem services (nature's contributions to people) and their natural and social-economic values by building an integrated model of social – ecological systems. Using various models and case studies developed by the project, this training seminar is designed for students and young researchers who are interested in studying future scenarios analysis, land use and cover change analysis, and ecosystem services assessment. The seminar will provide basic theory, modeling methodology, and specific case studies.

There is no participation fee to join this seminar. The project will provide completion certificate (pdf) for those who take this seminar.

Models to be instructed:

1: **Land Change Modeler** is an innovative land planning and decision support system that is fully integrated into the TerrSet software. With an automated, user-friendly workflow, Land Change Modeler simplifies the complexities of change analysis. Land Change Modeler allows you to rapidly analyze land cover change, empirically model relationships to explanatory variables, and simulate future land change scenarios. (https://clarklabs.org/terrset/land-change-modeler/)
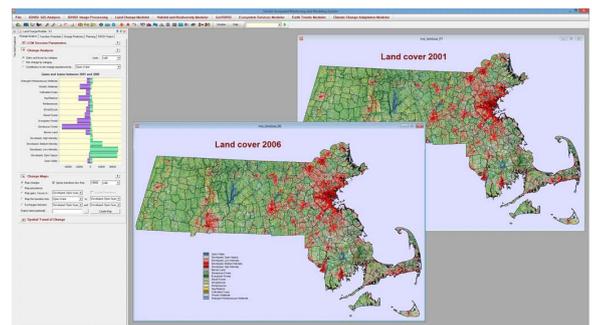
2: **InVEST** (Integrated Valuation of Ecosystem Services and Tradeoffs) is a suite of models used to map and value the goods and services from nature that sustain and fulfill human life.   It helps explore how changes in ecosystems can lead to changes in the flows of many different benefits to people.

(https://naturalcapitalproject.stanford.edu/software/invest)
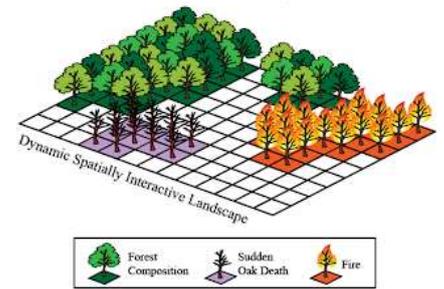
3: **The LANDIS-II** forest landscape model simulates future forests (both trees and shrubs) at decadal to multi-century time scales and spatial scales spanning hundreds to millions of hectares. The model simulates change as a function of growth and succession and, optionally, as they are influenced by range of disturbances (e.g., fire, wind, insects), forest management, land use change. Climate and climate change affect processes throughout the model. LANDIS-II is highly customizable with dozens of libraries ('extensions') to choose from. (http://www.landis-ii.org/)

Program:

- 15:00-15:10JST: Introduction (Dr. Osamu Saito, Institute for Global Environmental Strategies (IGES))
- 15:10-16:00JST: Land Change Modeler (LCM) (Dr. Shizuka Hashimoto, The University of Tokyo)
- 16:00-16:50JST: InVEST (Dr. Huang Wanhui, Research Institute for Humanity and Nature)
- 16:50-17:00JST: Break
- 17:00-17:50JST: LANDIS-II (Dr. Chihiro Haga, Osaka University)
- 17:50-18:30JST: Closing session (feedbacks from participants)

Short Bio-note of Speakers:

Dr. Osamu SAITO is Principal Policy Researcher at Institute for Global Environmental Strategies (IGES). As an expert in the field of biodiversity and ecosystem services, he has been working on the interlinkages between ecological, human and social systems through sustainability science approaches. His research experiences include socio-ecological studies on the ecosystem services provided by traditional rural production landscapes (Satoyama) in both Japan and other Asian countries. He has been also actively promoting various activities for Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) as a lead author of both regional and global assessments. He has been a managing editor of the Sustainability Science journal (Impacct Factor 2019: 5.301) published by Springer since 2011.

Dr. Shizuka HASHIMOTO is an associate professor at the Department of Ecosystem Studies, the University of Tokyo. Before he joins the University of Tokyo, he worked for Kyoto University, the National Institute for Environmental Studies, and the Massachusetts Institute of Technology. Trained in the field of rural planning, he has more than ten years of experience in ecosystem service evaluation and its application in rural and landscape planning. He contributed the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment and the Asia-Pacific Regional Assessment as a Lead Author. Since 2018, he has served as one of the Multidisciplinary Expert Panel members of IPBES and a co-chair of IPBES task force on Scenarios and Models.

Dr. Wanhui HUANG is a researcher at Research Institute for Humanity and Nature (RIHN). She was born in Taiwan, completed a doctoral course at the Graduate School of Agriculture, Kyoto University, in 2013. Her specialty is rural planning and regional planning. After working in Educational Unit for studies on Connectivity of Hill Humans and Oceans as a researcher at Kyoto University, she took up her current position in April 2018 and is in charge of spatial analysis, land use simulation, and ecosystem service evaluation.

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Dr. Chihiro HAGA is a JSPS research fellow DC-1 at Osaka University. He completed a doctoral course at the Graduate School of Engineering, Osaka University, this year. Using a forest landscape model, he conducted a scenario analysis of biodiversity and ecosystem services at a local scale in the PANCES project. His research experiences include 1) applying a forest landscape simulation for integrated social-ecological systems modeling and 2) a future scenario analysis based on the Nature Futures Framework, which is developed by IPBES scenarios and models taskforce.