WUN-CUHK Workshop on Ecosystem-Atmosphere Interactions in Air Quality and Climate Assessment: Modeling and Measurement Strategies

With the support of the Worldwide Universities Network, the Institute of Environment, Energy and Sustainability at CUHK, and CANEXMIP, we are inviting experts and early career scientists in related fields to attend a 2-day training workshop setting out the current knowledge and state-of-the-art development of in particular:

1. Fire modeling with a focus on applications in air quality and climate studies
2. Agricultural and crop modeling with a focus on climate impacts on yields
3. Canopy exchange modeling: determining effective atmosphere-biosphere exchange of reactive compounds and aerosols

A major theme is how these important terrestrial ecosystem processes interact with the atmosphere and shape climate and air quality. Emphasis will be on the use of models such as canopy exchange models to analyze field observations, measurement strategies needed for further model development and improvement, and application of these models for future projections capacity that can inform policy making and management approaches.

P.S. CANEXMIP is a global initiative focusing on the evaluation of models that simulate the effective exchange of reactive compounds and aerosols between the atmosphere and biosphere. Specifically, this project considers the role of in-canopy interactions between emissions, dry deposition, chemistry and turbulent transport. This joint iLEAPS-GEIA (integrated Land Ecosystem-Atmosphere Processes Study - Global Emission InitiAtive) initiative has, in addition to conducting an intercomparison of canopy exchange modeling systems, two major goals:
1) to introduce the atmospheric community involved in air quality, atmospheric chemistry-climate and ecosystem studies to the use of canopy reactive trace gas and aerosol exchange models as a tool for evaluation of field measurements; and
2) to demonstrate the current skills of these models to improve simulations of atmosphere-biosphere exchange compared to current atmospheric chemistry and Earth system models.

When and where: The Chinese University of Hong Kong, Hong Kong, 19-20 June 2017

Host: Amos Tai (CUHK)

Lecturers: Maria Val Martin (Sheffield), Olivier Crespo (Cape Town), Laurens Ganzeveld (WU), Alex Guenther (UCI), Xuemei Wang (SYSU)

Who are invited? We especially invite experts and early-career scientists who examine or are interested in examining ecosystem-atmosphere exchange processes in air quality, climate and food security studies. Attendees will be introduced to the theories, challenges and applications of explicit fire, agricultural and canopy exchange modeling systems for field observation analysis and representation in Earth system and environmental models.

Application? Please fill out the online application form linked here.

Tentative program:

Day 0: 18 June, 4pm-6pm

Informal meetings among currently or potentially collaborating groups

Day 1: 19 June (Venue: Mong Man Wai Building 7/F Lecture Theatre 2)

Time	Content	Person-in-charge
09:00-09:05	Introduction to workshop	Amos Tai
09:05-10:05	**Lecture:** Fire modeling in Earth system models: theories and applications	Maria Val Martin
10:05-10:20	Coffee break	
10:20-11:20	**Lecture:** Agricultural and crop modeling: theories and applications	Olivier Crespo
11:20-11:35	Coffee break	
11:35-12:35	**Lecture:** Atmosphere-biosphere exchange processes in air quality and Earth system science	Alex Guenther
12:35-14:00	Lunch	
14:00-15:30	**Model exercise:** Crop modeling: hands-on model trials with examples	Olivier Crespo
15:30-16:00	Coffee break with desserts	
16:00-17:30	**Model exercise:** Fire modeling: hands-on model trials with examples	Maria Val Martin
17:30-17:40	Wrap-up of the day	Amos Tai
17:40-18:40	Self-organized discussion among individual research groups	

Day 2: 20 June (Venue: Mong Man Wai Building 7/F Lecture Theatre 2)

Time	Content	Person-in-charge
09:00-10:00	**Lecture:** Roles of micro- and boundary-layer meteorological and hydrological processes in atmosphere-biosphere exchange of reactive compounds and biogenic aerosols	Laurens Ganzeveld
10:00-10:15	Coffee break	
10:15-11:15	**Lecture:** Uncertainties of BVOC emissions and applications in air quality models	Xuemei Wang
11:15-12:00	**Open forum:** Synthesis: modeling and measurement strategies for ecosystem-atmosphere exchange	Laurens Ganzeveld, Alex Guenther, Xuemei Wang
12:00-13:30	Lunch	
13:30-15:00	**Model exercise:** Introduction to model setup (boundary conditions, time periods, advection, initial conditions)	Alex Guenther, Laurens Ganzeveld
15:00-15:30	Coffee break with desserts	
15:30-17:00	**Model exercise:** Canopy processes: hands-on model trials with examples related to deposition and biogenic VOCs and aerosols	Alex Guenther, Laurens Ganzeveld
17:00-18:00	Conclusions and discussion of future directions	Amos Tai