Yating Lin

Topic:

Understanding the spatial pattern of $\delta^{18}O$ deduced from speleothems over China during mid-Holocene

Method:

Model-data comparison (LMDZ-iso)

Expectation:

A basic idea of how to run LMDZ, for a better understanding and analysis of the results

China-Trend-Stream Project

Zun Yin
postdoc at LSCE

Research Objective:

How **climate change** and **human activities** will influence **hydrological cycles** in China?

Climate change:

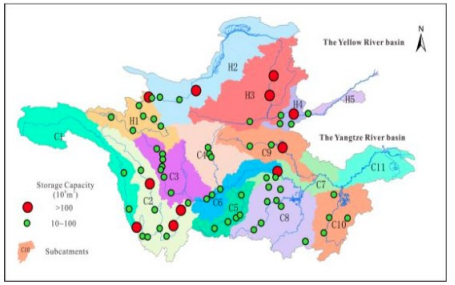
CO2 rise; extreme precipitation events; droughts.

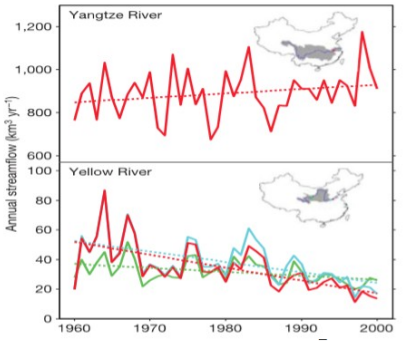
Human activities:

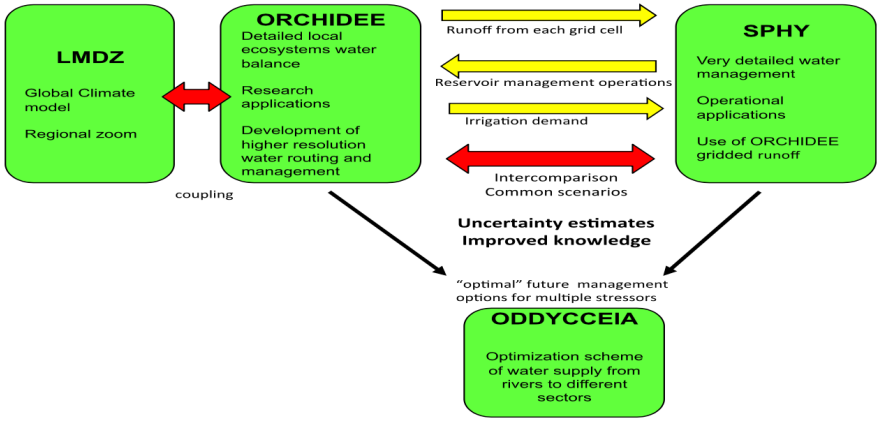
Irrigation; afforestation; dam management; water transfer project.

Land-atmosphere interactions:

Water and energy exchange between land and atmosphere; atmospheric feedbacks; future scenarios.







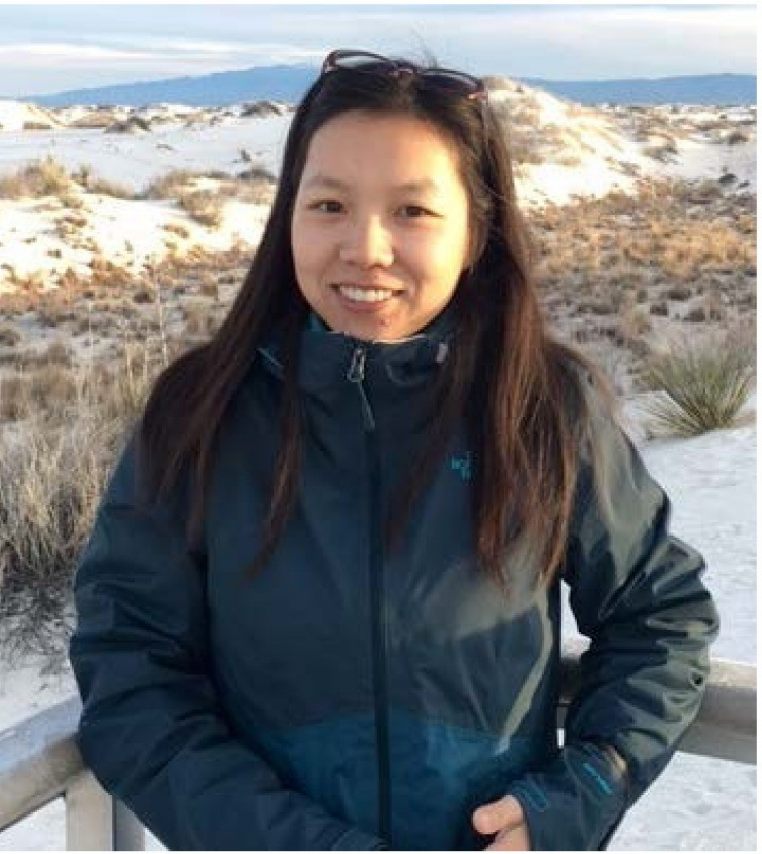
Thomas Fauchez, PhD

Background

- ⭐ Master in astrophysics (Liege University) [2008-2010]
- ⭐ PhD in atmospheric physics (Lille 1 University) [2010-2013]
- ⭐ NASA Postdoctoral Program at NASA GSFC [2014-2017]
- ⭐ Space Research Scientist at NASA GSFC [2017-Now]

Researches

- ⭐ 3D Radiative transfer and 3D cloud modeling
- ⭐ Climate simulations of rocky exoplanets
- ⭐ Impact of clouds and hazes on transmission spectra
- ⭐ Habitability
- ⭐ LUVOIR study office science support analysis team / SEEC



Yuanyuan Huang
Postdoc, LSCE

Research focus: Land biogeochemical cycles

High latitude land carbon dynamics

Coupling of carbon and nutrient cycles

Process based land N_2O simulation

Modélisation du climat / LSCE

Hayoung Bong (PhD 2nd year)

Thesis Supervisor
- Didier M. Roche

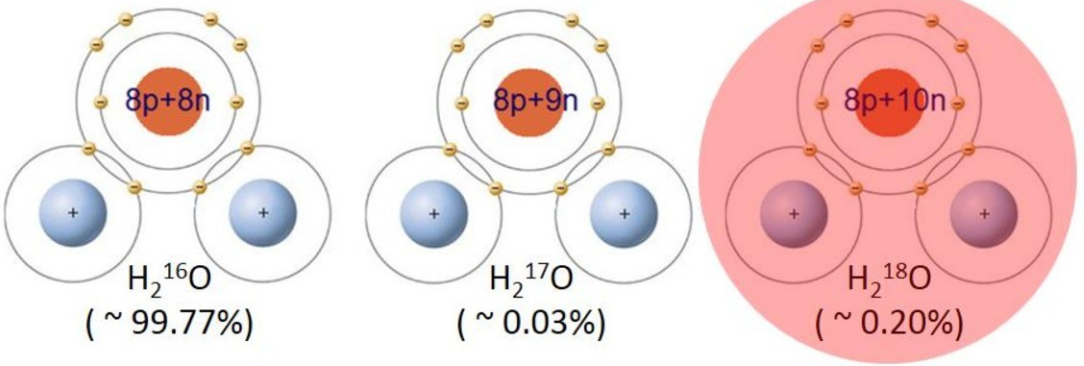
Main Project

Coupling Climate Models

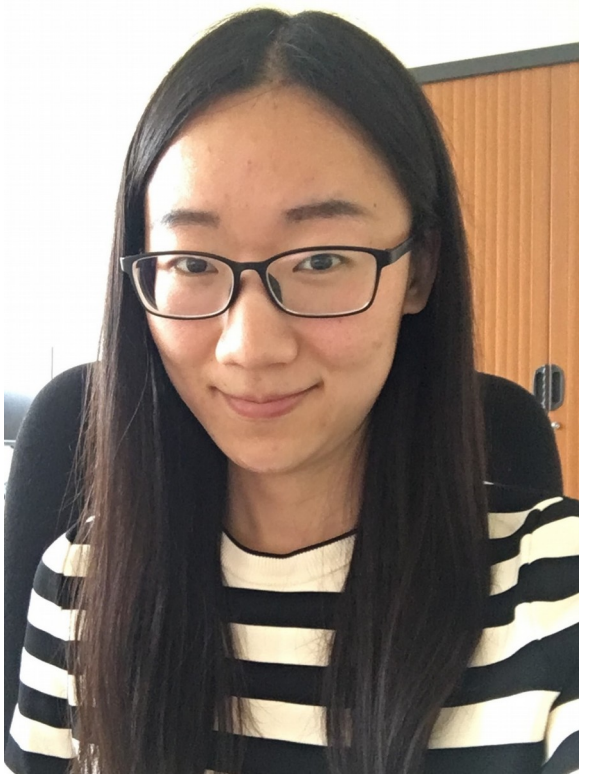
Ocean
Sea-Ice
Biogeochemistry
NEMO

Atmosphere LMDZ
Land ORCHIDEE
Chem/Aerosols INCA

WATER
Isotopes



Jinghui Lian
Ph.D. (2ème année)
LSCE

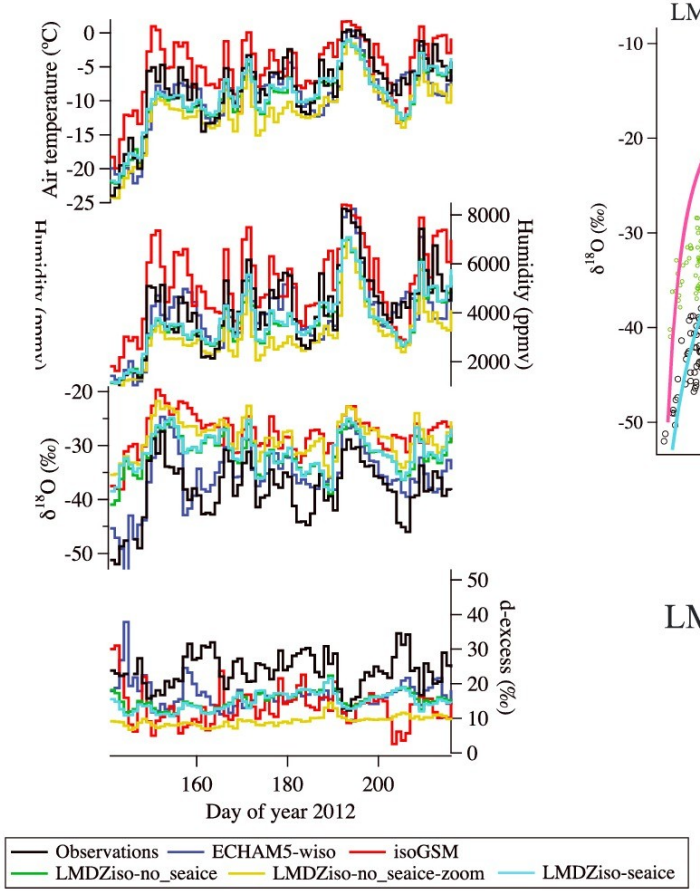


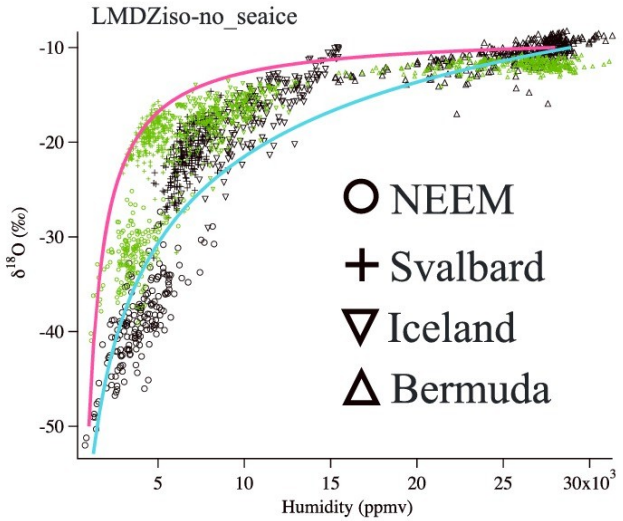
Research focus:

High-resolution atmospheric inversion of urban(Paris area) CO_2 emissions based on WRF-Chem model

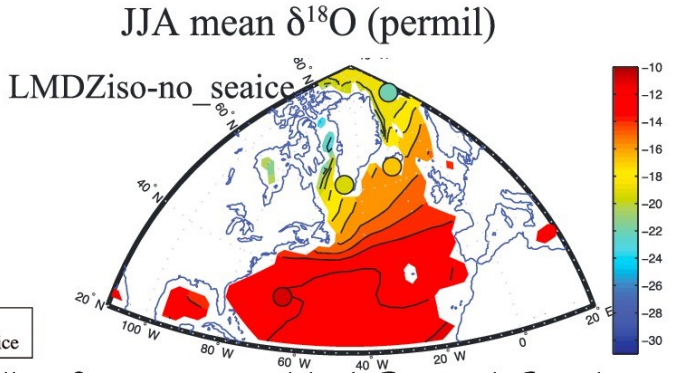
Hans Christian Steen-Larsen, University of Bergen

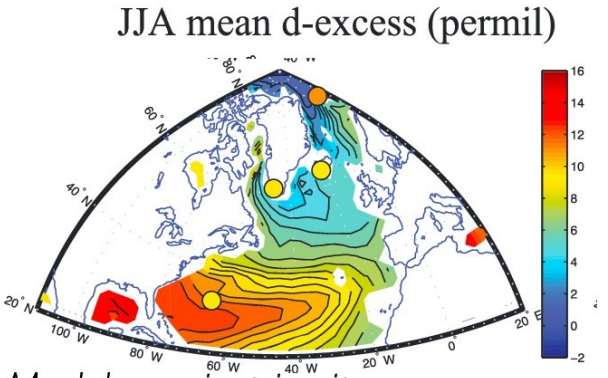
Research goal: Improving our understanding of past climate variability and earth system processes by combining ice core isotope records with simulations from isotope-enabled General Circulation Models





Workshop goal: Allowing me to develop research question to address origins of biases in simulations of water vapor isotopes in polar regions

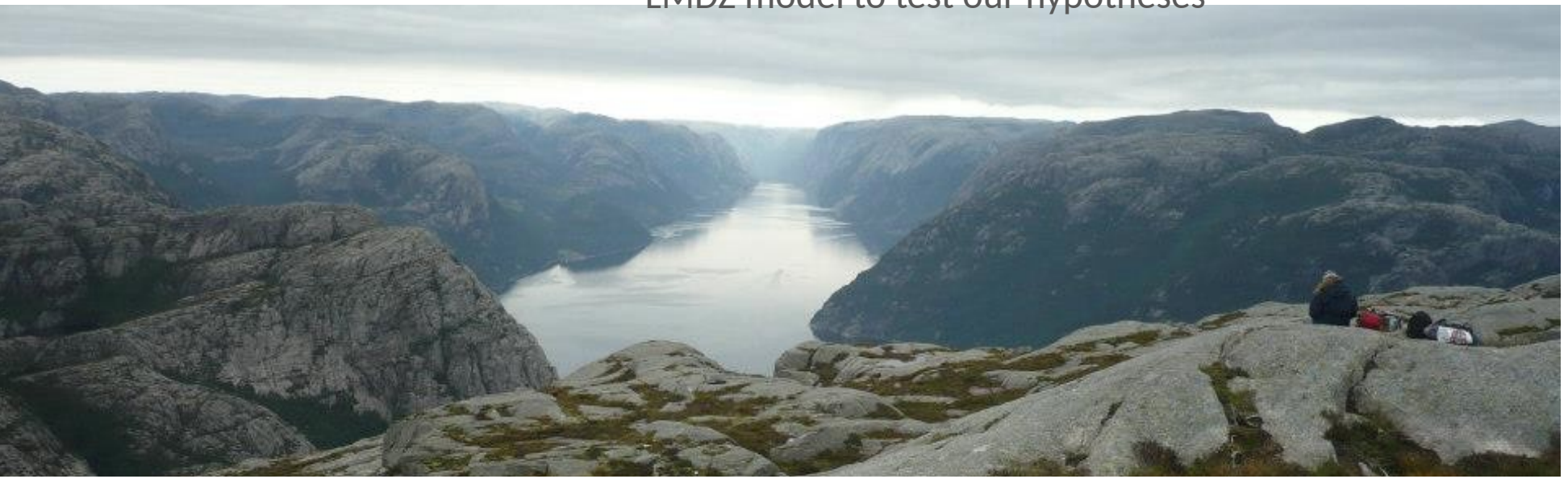




Steen-Larsen et al. 'Evaluating the skills of isotope-enabled General Circulation Models against in situ atmospheric water vapor isotope observations', 2017 – JGR-Atmosphere

Delphine Tardif

- 1st year PhD at Institut de Physique du Globe (Paris)
- Directors : Frédéric Fluteau (IPGP) and Yannick Donnadieu (CEREGE, Aix-en-Provence)
- Subject : Paleoclimate modelling over the Cenozoic with emphasis on Asia, onset of the monsoonal system and its controlling factors (paleogeography, paleovegetation, atmospheric dynamics, land-sea thermal contrasts, orbital parameters …)
- Expectations for this training : learn how to use the LMDZ model to test our hypotheses



Max Popp

Postdoc @ LMD Jussieu

I am planning to use LMDZ in a hierarchy of configurations to elucidate the role of convective aggregation in the tropical large-scale circulation.

I plan to use LMDZ in radiative-convective equilibrium and different aquaplanet configurations.

Therefore, I hope to learn how to run LMDZ in different configurations and to use the basic tools to perform changes to the model physics.

Agathe Toumoulin – Ph D student (1st year)

CEREGE - European Centre for Research and Education in Environmental Geosciences
Aix-en-Provence

European Research Council project MAGIC:
"Monsoons in Asia caused Greenhouse to Icehouse Change?"

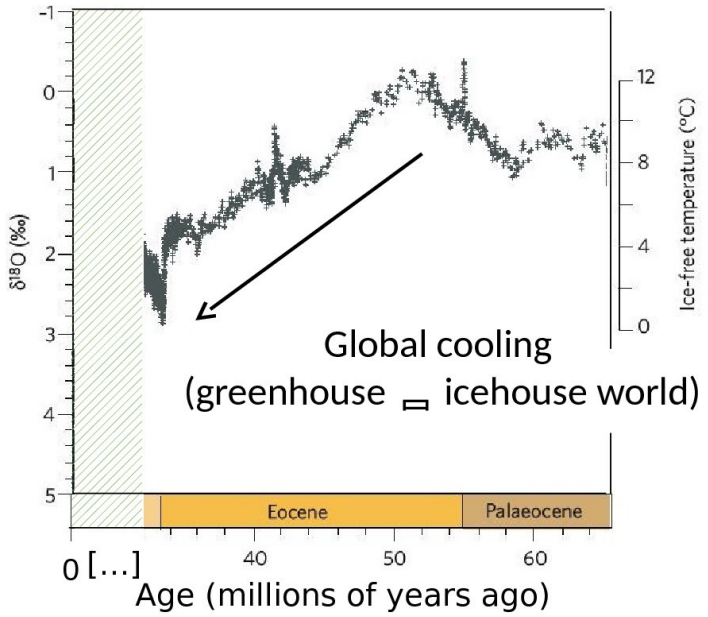
Deep-time palaeoclimates modelling

The interplay between Asian Monsoons, Global Climate and Geodynamics during the India-Asia collision

Period: **Eocene** (56 – 33,9 Ma)

Several simulations to better understand this phenomenon:

Its origin (Tibetan Plateau uplift?),
the palaeo-*p*CO2,
its interactions with the marine carbon cycle…



Devaraju Narayanappa (Dev)

Research Domain

Land-Atmosphere Interactions

LMDZ_v6 ⟷ **ORCHIDEE-MICT**

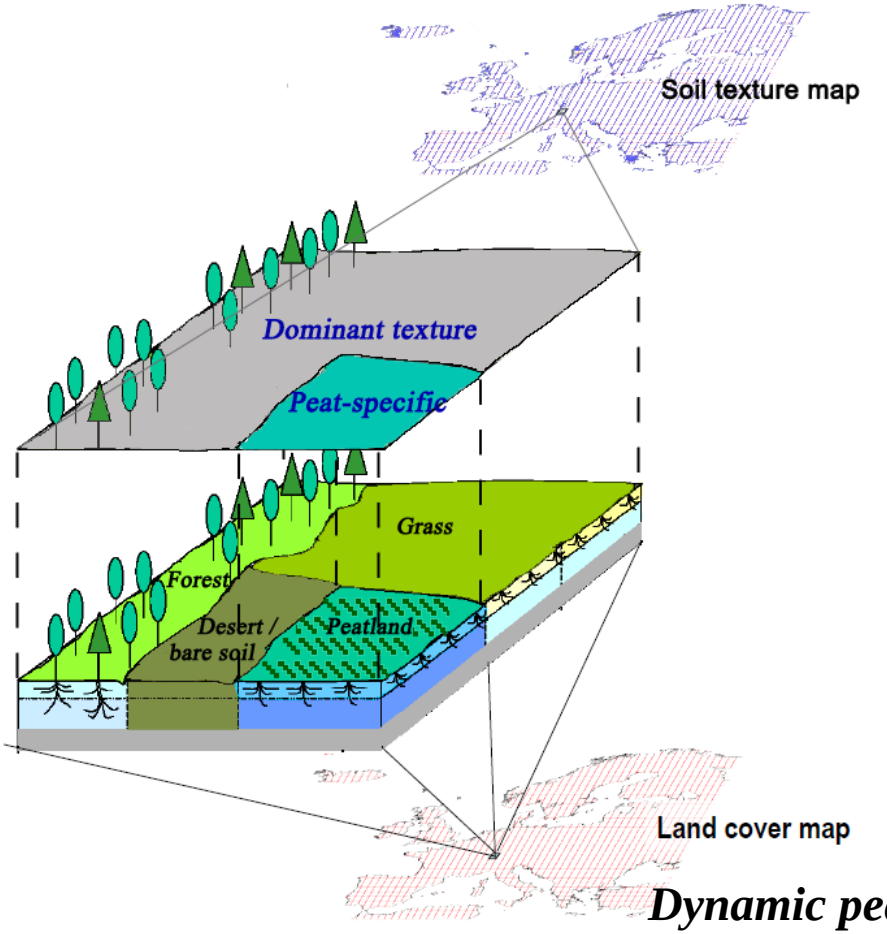
Expectations

- Learn linking the important parameters of exchange between lnd and atm.
- Understand technical aspects of calling routines from LMDZ to ORCHIDEE-MICT
- How to run Zooming a particular region?
- How to run emission driven simulations? (eg. carbon-climate interaction)
- Fixed SST simulations / Slab Ocean simulations/ interactive ocean?
- How to run fast spin up simulations?

Research aims:

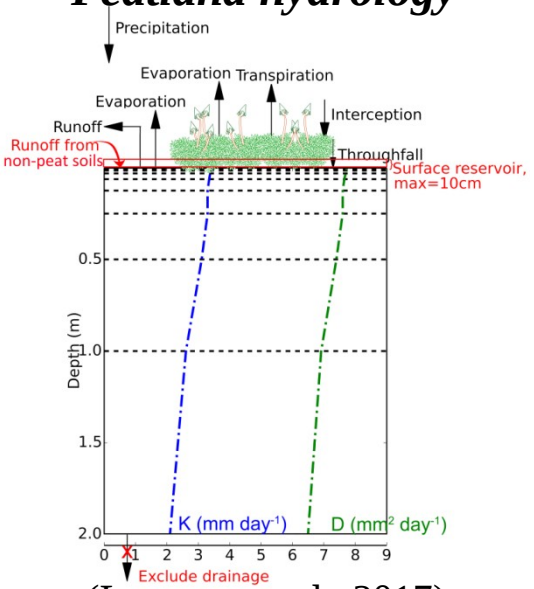
- Quantify the atmospheric feedback effects on regional/global climate and hydrological cycle from land use.
- Investigate the biophysical and biochemical impacts of land use/land management on climate
- Investigate the impacts of Carbon- Nitrogen – Phosphorous interactions on climate.

Peatland in ORCHIDEE



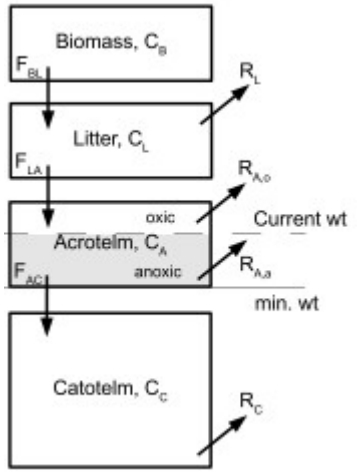
Dynamic peat (ongoing)

Peatland hydrology



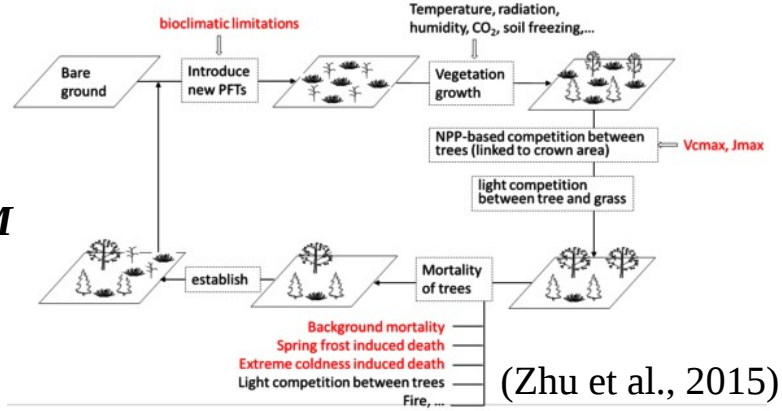
(Largeron et al., 2017)

Peatland carbon



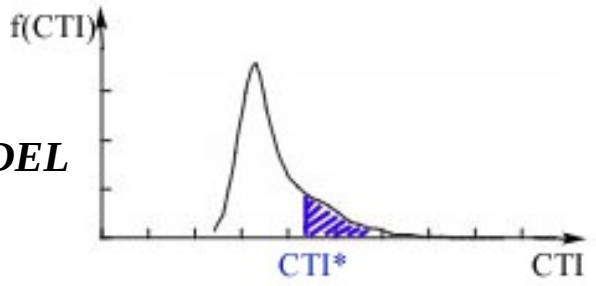
(Kleinen et al., 2012)

DGVM

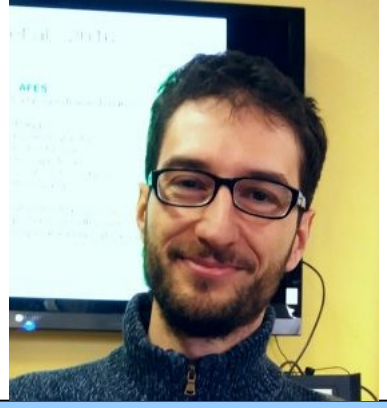


(Zhu et al., 2015)

TOPMODEL



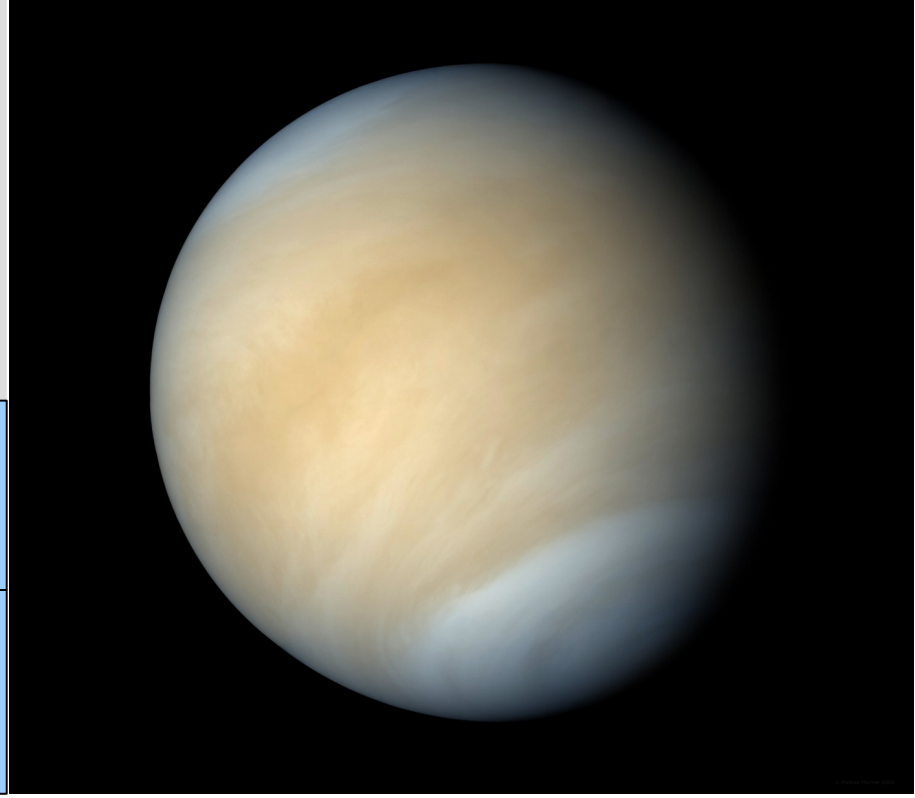
Chunjing Qiu, PhD student
Le Laboratoire des Sciences du Climat et de l'Environnement



Pietro Scarica

2nd year PhD student

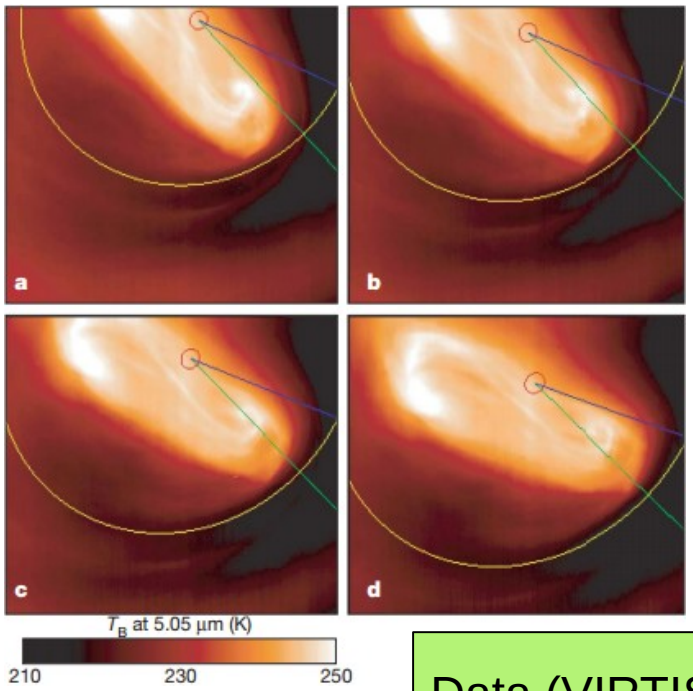
Astronomy, Astrophisics and Space Science



PhD thesis title (provisional):

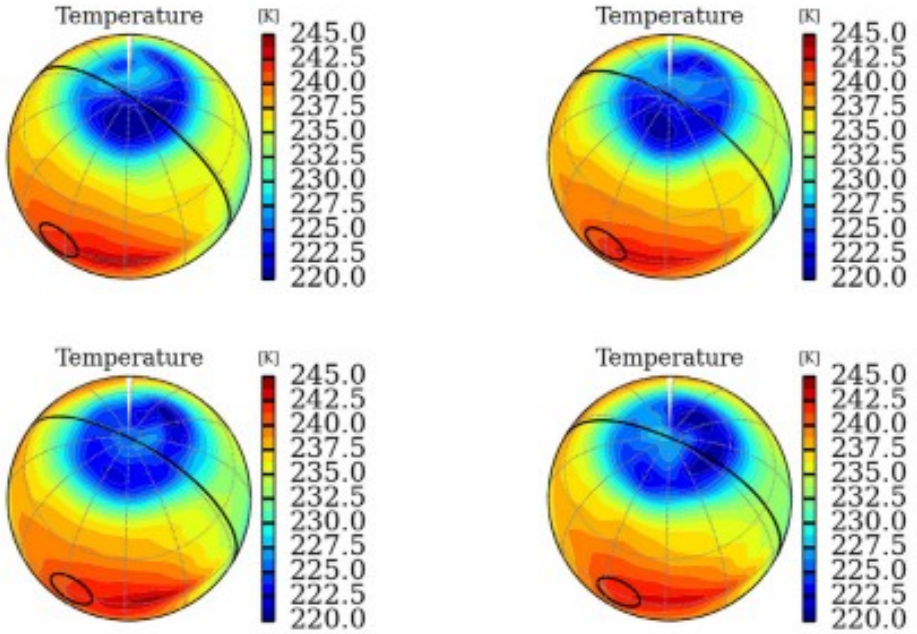
The atmosphere of Venus: observations and modelling

Dr. G.Piccioni
Dr. F.Berrilli
Dr. C.Cagnazzo
Dr. S.Lebonnois
Dr. I.Garate-Lopez



Piccioni et al., 2007

Data (VIRTIS) - model (LMDZ) comparison



Lebonnois et al., 2016

Yue LI, *PhD student from*

Sep 2014 - now (Jun 2019)

Peking University, Physical Geography

Sep 2010 - Jun 2014

Wuhan University, Geography Science

PEKING UNIVERSITY

SOFIE

SINO-FRENCH INSTITUTE FOR EARTH SYSTEM SCIENCE

PEKING UNIVERSITY CEA VERSAILLES ST QUENTIN UNIVERSITY

Supervised by Prof. Shilong Piao (PKU) & Laurent Li (LMD, UPMC)

Current research interests：

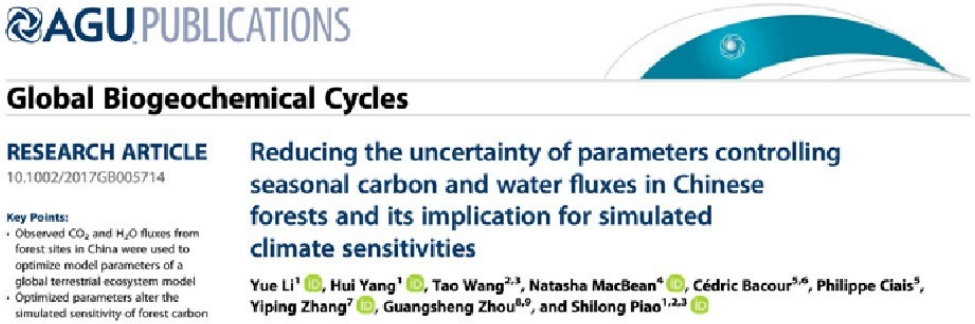
Regional climate,

Interaction between atmosphere & biosphere

Parameter uncertainty within land surface models

Recent work:

Optimizing parameters of Chinese vegetation within the ORCHIDEE terrestrial ecosystem model



AGU PUBLICATIONS

Global Biogeochemical Cycles

RESEARCH ARTICLE

10.1002/2017GB005714

Key Points:

- Observed CO_2 and H_2O fluxes from forest sites in China were used to optimize model parameters of a global terrestrial ecosystem model
- Optimized parameters alter the simulated sensitivity of forest carbon

Reducing the uncertainty of parameters controlling seasonal carbon and water fluxes in Chinese forests and its implication for simulated climate sensitivities

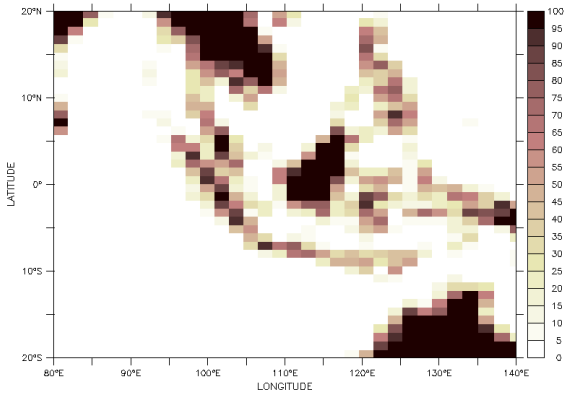
Yue Li[1], Hui Yang[1], Tao Wang[2,3], Natasha MacBean[4], Cédric Bacour[5,6], Philippe Ciais[5], Yiping Zhang[7], Guangsheng Zhou[8,9], and Shilong Piao[1,2,3]

Impact of change in South-East Asia bathymetry within IPSL-CM5A2 model

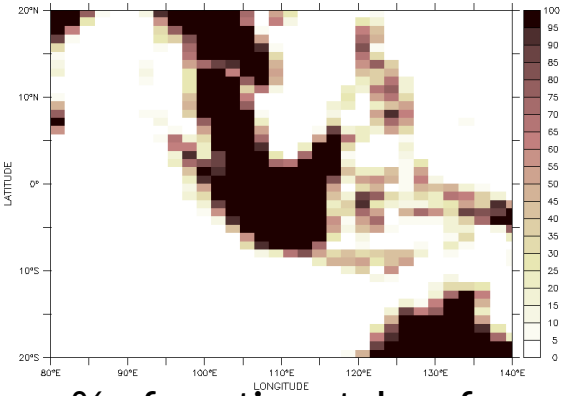
Anta-Clarisse Sarr - PhD student
Direction : Pierre Sepulchre (LSCE) and Laurent Husson

→ Test the atmospheric response to land emergence in Indonesia using LMDZOR and COUPLED simulations

CTRL

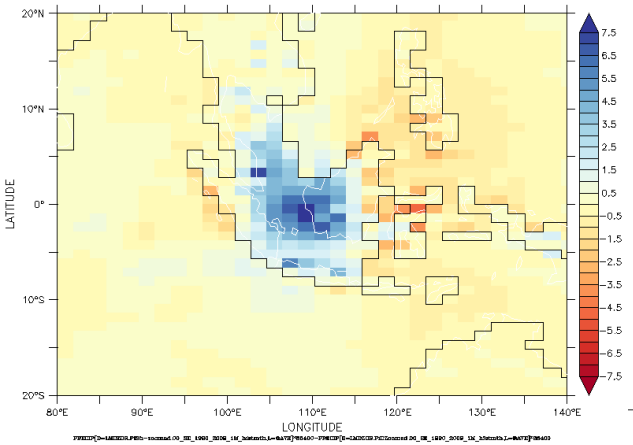


SHELF



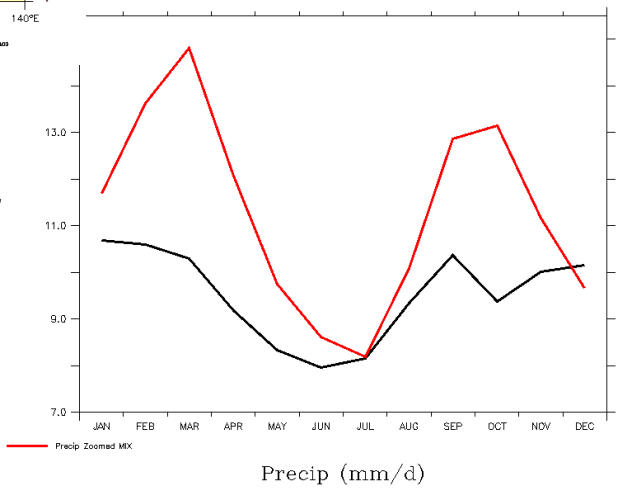
% of continental surface

Some results …



Avg Change in precipitation between SHELF and CTRL

Mensual precipitation over the shelf for SHELF (red) and CTRL (black)



Role and functioning of natural or weakly polluted atmospheres on the oxidizing capacity of the Earth's atmosphere

Cyril Karam, 1st year PhD candidate in atmospheric chemistry

Natural environments such as oceans, ice sheets and forests help regulate the atmosphere's oxidizing capacity. My work focuses on integrating the latest chemistry of natural VOCs, halogenated compounds and peroxide radicals into the LMDz-INCA model in order to faithfully quantify and evaluate the oxidizing capacity of past and current climates

Doctoral advisors:
SZOPA Sophie BEKKI Slimane

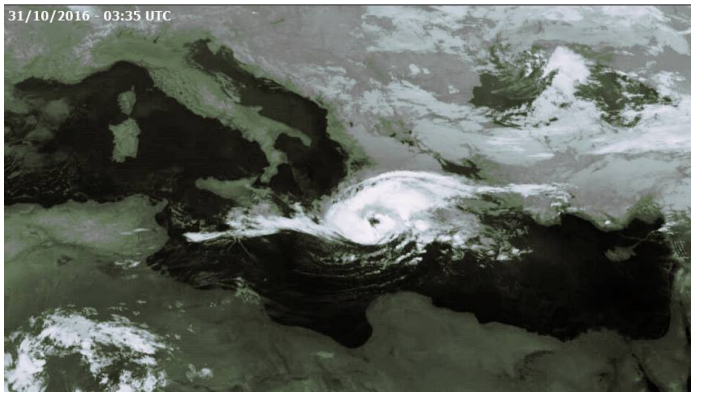
LSCE
LABORATOIRE DES SCIENCES DU CLIMAT & DE L'ENVIRONNEMENT

UNIVERSITÉ DE VERSAILLES ST-QUENTIN-EN-YVELINES
université PARIS-SACLAY

Stavros NTAFIS (DAFIS)

Physicist, M.Sc. Atmospheric Physics and Environment

PhD student in LMD, Ecole Polytechnique (superv. Chantal Claud)



<u>Thesis</u>: Contribution of deep convection on the intensification of Mediterranean Cyclones

1. Observational study of Mediterranean cyclones by using passive–microwave (AMSU/MHS/ATMS), geostationary–infrared (Meteosat) and active platforms (CloudSat). Emphasis on the poor-documented East Mediterranean basin.

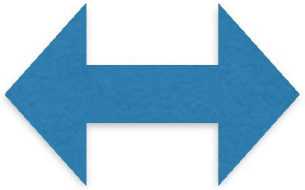
2. Exploitation of numerical simulations (WRF-ARW, Meso-NH). Validation of different models and re–analysis datasets.

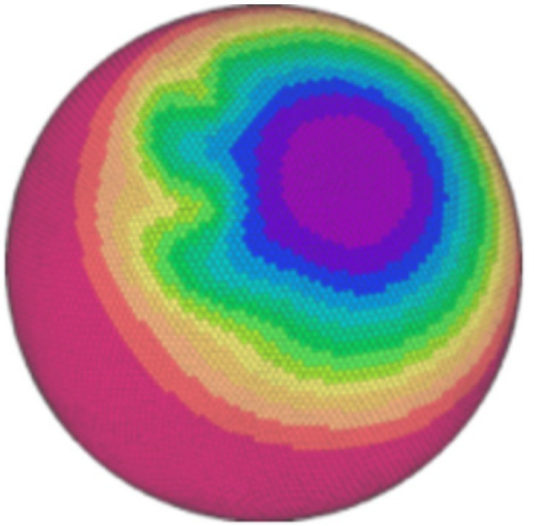
2. Combination of observations and numerical simulations to retrieve a complete climatology of strong Mediterranean cyclones (especially for tropical–like cyclones). – **LMDZ?**

Lilia Bédidi

Ingénieure en charge du couplage entre les logiciels DYNAMICO et NEMO

- DYNAMICO : coeur dynamique de l'atmosphère
- NEMO : modèle d'océan





Grille NEMO

Grille DYNAMICO

SAFI MOHAMED JOMAA
Ecole Nationale d'Ingénieurs de Tunis

DOMAINES DE RECHERCHES

- Etudes Numérique et Expérimentale de la Convection Naturelle et Forcée dans les milieux Confinés et semi-Confinés

- Captation et stockage thermique du Rayonnement solaire dans les Etangs Solaires

- Dessalement Thermique