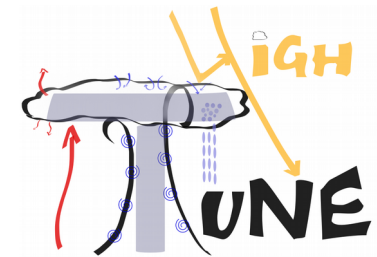


Meeting on SCM/LES tuning
5-7 September 2017, Paris
HIGH-TUNE & DEPHY



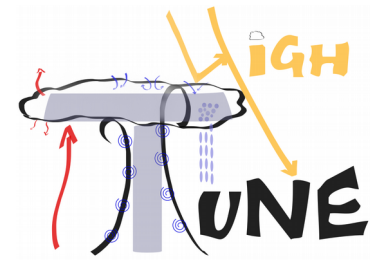
HIGH-resolution simulations to improve and TUNE boundary-layer cloud parameterizations

To improve cloud dynamics and cloud radiative effects in atmospheric models

Comparison 1D/LES

Using state-of-the art statistical tools and advanced Monte Carlo radiative models

Focusing on low clouds

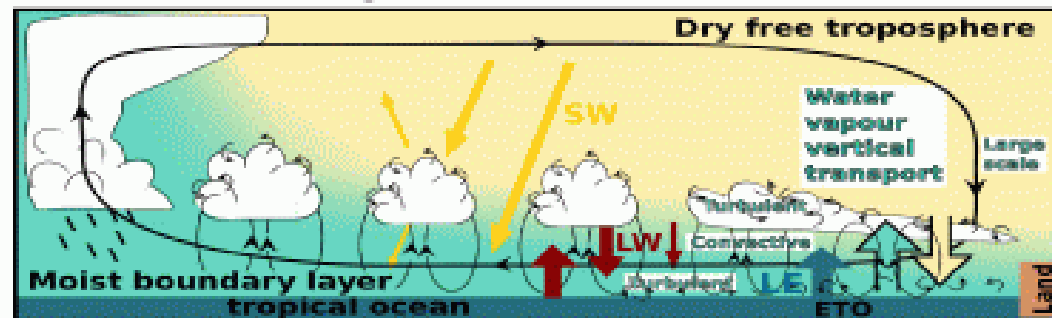
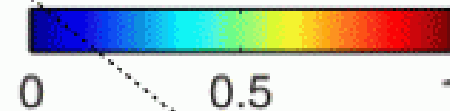
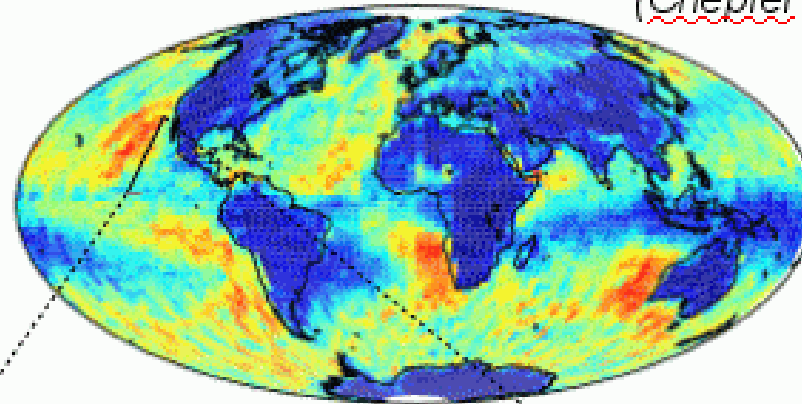


Key for climate :

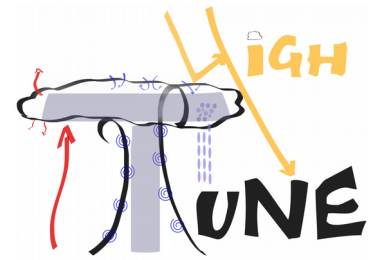
- Large spatial cover
- Cooling effect
- Heat and moisture transfer to the free troposphere
- Associated to main biases and responsible for the spread

Observations of low cloud cover from CALIPSO

(Chepfer et al 2008)



Focusing on low clouds



Key for climate :

- Large spatial cover
- Cooling effect
- Heat and moisture transfer to the free troposphere
- Associated to main biases and responsible for the spread

Recent parameterization development :

- Boundary-layer dynamics
- Subgrid cloud scheme

Good representation in LES :

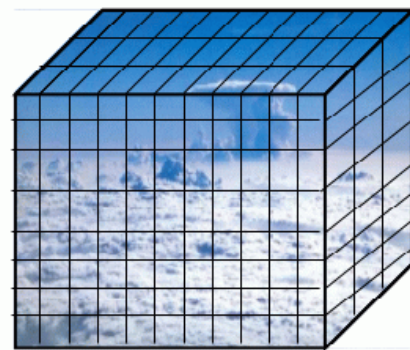
- Agreement in intercomparison
- Correct representation of the cloud distribution, size,...
- LES= reference



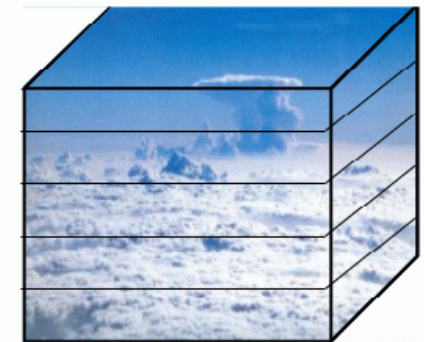
Objectives

- To improve the representation of low clouds
- To develop a strategy for tuning at the process scale
- Better understand and represent the cloud radiative effect

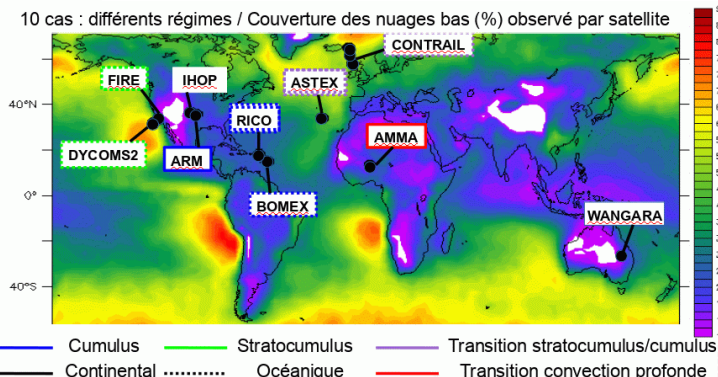
Comparison LES/SCM Focus on the 3D cloud radiative effect



LES



SCM (1D GCM)



Objectives of this meeting

- Exchange informations on the tuning of climate models (statistical tools, strategies used in the two groups)
- Coding sprint in order to better understand the tuning tool to apply on SCM/LES, the limitations & difficulties of the task

Organization of the workshop

- Tuesday : a normal meeting day with presentations on:
 - the use of tuning for climate models (F Hourdin, A Ribes)
 - the different tuning approaches, detail on the Iterative refocusing method (D Williamson)
 - History on LES/SCM comparison & expectation for the LES/SCM tuning
- Wednesday+Thursday : coding sprint :
 - Selection of two cases (clear+cumulus)=> LES runs
 - Use of two climate models (CNRM+LMDZ) in SCM mode
 - Identify the next steps to be carried out for the HIGH-TUNE project

We hope this workshop will be:

- An occasion for many discussions :
 - Gathering statisticians, climate modelers, parameterization developers, process studies
 - Quite informal : so don't hesitate to ask questions
- A collaborative work :
 - Every one should be able to run the SCM version of one of the climate models
 - Identify the different steps
- A pedagogic role:
 - To feel how the tuning tool work
 - To highlight the difficulties & next steps in the project