

# HFIP physics workshop (2011)

HFIP regional modeling team

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# Purpose of the workshop

1. Identify the roles of **boundary layer** and **microphysical processes** in hurricane modeling – what we know/don't know and how to improve them
2. Facilitate the **collaboration between the operational and research community**
  - transferring development in research sector to the operational hurricane models

# Questions to be answered:

1. Are the current PBL schemes used in the hurricane models appropriate to hurricane environment, such as high wind shear and moist adiabatically neutral environment?
2. If inappropriate, what kind of scheme is good and why? (e.g. the non-local PBL used in HWRF and GFDL models tends to have too tall PBL and too diffusive compare to observation)
3. Are roll-vortices in a highly sheared hurricane boundary layer playing an important role? Is worth to investigate?
4. Do microphysical processes play vital role in hurricane track and intensity?
5. Do we need higher-moment MP scheme in order to get the realistic simulation of hurricanes? What are the pros and cons for higher moment and lower moment schemes?
6. Is it worth to use bin-microphysics schemes in order to calibrate the bulk-microphysics scheme?

# Workshop Format

**First day: PBL, Second day: Microphysics**

## **First Session : Perspective from Operational Models**

overview of the PBL schemes in hurricane models (30min)  
Brief descriptions of the operational schemes (10min each)

## **Second Session: Discussion (1.5 hour or more)**

## **Third Session : research point of view**

Talks from research community (15min each)

## **Fourth Session: Discussions (1.5 hour or more)**

**Please keep the presentation on time!!**

# Third day

**9:00 – 10:30 Discussions on the action items:**

9:00 - 9:30 Collaboration between research and operation

9:30 – 10:30 Discussion

**How to proceed physics development in hurricane model**

**How to facilitate collaborations of research and operation sectors**

**The role of HFIP regional modeling team**

**10:30 – 11:00 Morning Break**

**11:00 - 12:00 Plan for the possible next year's workshop**

# Thanks to

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Members of the HFIP regional modeling team