

Recap of Monday and intro of Tuesday

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with inputs from Harald and Franziska

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Recap of Monday: presentations and posters

- ▶ **vapour isotope boom** in the last ten years
- ▶ developing **profile** capabilities (shown or discussed in at least 6 talks and posters)
- ▶ **from local to regional scales**: e.g. densification of measurement networks, availability of satellite observation at very high spatio-temporal coverage, modelling activities to identify representative scales
- ▶ processes in **weather systems** (e.g. extra-tropical cyclones, cold air outbreaks... to be continued today with tropical cyclones, shallow clouds and their cold pools...)
 - ▶ missing: precipitation at high temporal resolution?
- ▶ growing efforts towards isotopes in the “**integrated and connected water cycle**” (*Boulder report*): vapor + snow, ocean surface, sea ice, land surface water, cloud water...

Recap of Monday: discussion sessions

- ▶ T1: Models intercomparison and comparison with observations
 - ▶ wide hierarchy of models
 - ▶ precipitation data: time scales? data access?
 - ▶ uncertainty in kinetic fractionation -> d-excess is a challenge
- ▶ T2: Data sharing: optimal formats for obs and simulations?
- ▶ T3: Communicating about isotopes
 - ▶ **Science outreach**: gap between research on isotopes and outreach on climate or weather. Should we talk about isotopes, if so how?
 - ▶ How to convince model developers to favor sustainable implementation of isotopes?
 - ▶ Need recent review paper? Isotopes in Obs4MIP?
 - ▶ communication should go both ways -> build **partnership** between iso/non iso specialists (e.g. convection):
- ▶ T4: From weather to climate
 - ▶ Pair isotope-enabled climate modelling with proxy system models
 - ▶ Compile **weather-system-based isotope datasets** -> model-data intercomparisons
 - ▶ Need for **high-resolution precipitation** sampling
 - ▶ Link spatial relationships with temporal relationships -> variability across timescales from today's measurements

Introduction of Tuesday

- ▶ Isotopic measurements to investigate deep convection, shallow convection, cloud microphysical processes, land-atmosphere interactions, in the tropics
-> address “**today’s pressing climate and water cycle questions**” (*Boulder report*)
- ▶ At least 5 talks and posters on shallow convection during **EUREC4A** campaign (*Bony et al 2017*) -> Addressing science questions on cloud processes and organization, key for understanding climate sensitivity
- ▶ Both observations and models:
 - ▶ Boom in water vapor observations -> more and more relevant to address “today’s pressing climate and water cycle questions”
 - ▶ Wider use of high-resolution modelling
 - ▶ New methods for integrating simulations and observations, e.g. data assimilation
-> Keynote talk by Kei!