



Further results of the Single-column Urban Boundary Layer Intercomparison Modelling Experiment (SUBLIME)

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Background

Models representing urban areas within numerical weather prediction needs to be developed and evaluated. Urban canopy models have so far mainly been evaluated in offline mode, ignoring the possible interactions with the atmospheric boundary layer. Here we perform such an evaluation for a summer case at Kings College observatory in London.

Objectives

- Develop a case study for evaluating urban model developments for the community.
- Evaluate single-column model results against observations
- Study whether urban model behaviour in offline (phase 0) and online mode (phase 1) are consistent or different.

3 stages

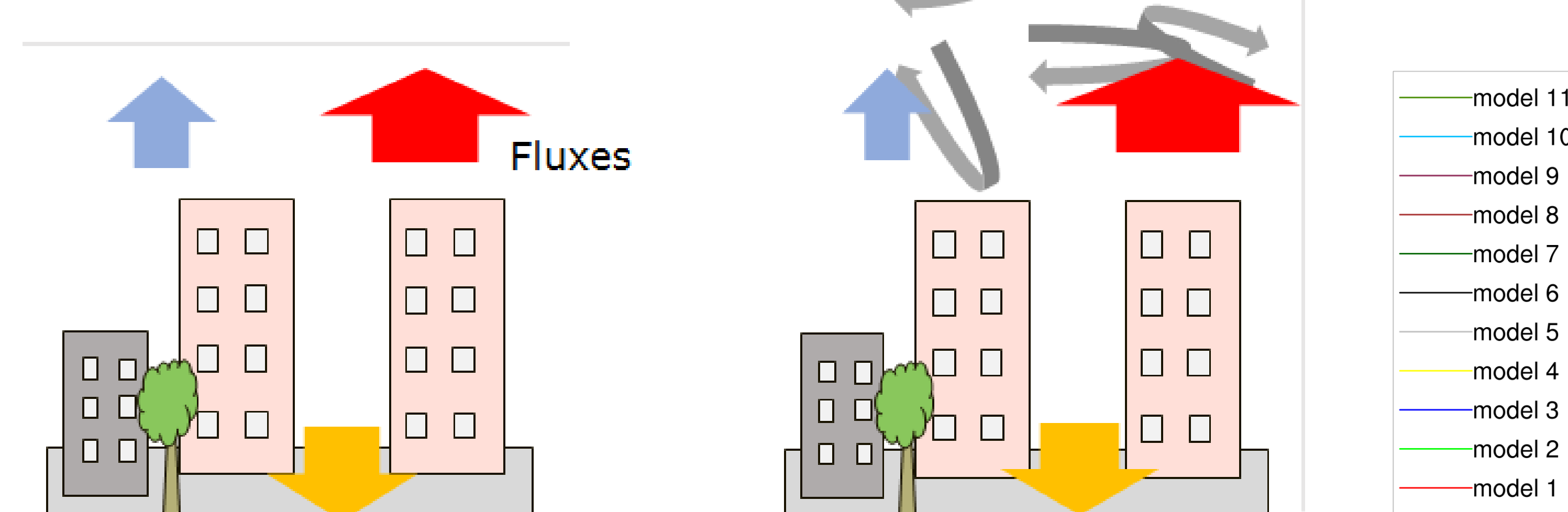
Stage 0: Default model settings for urban morphology
Stage 1: Local Climate zone 2 settings
Stage 2: Morphology settings best known

Phase 0

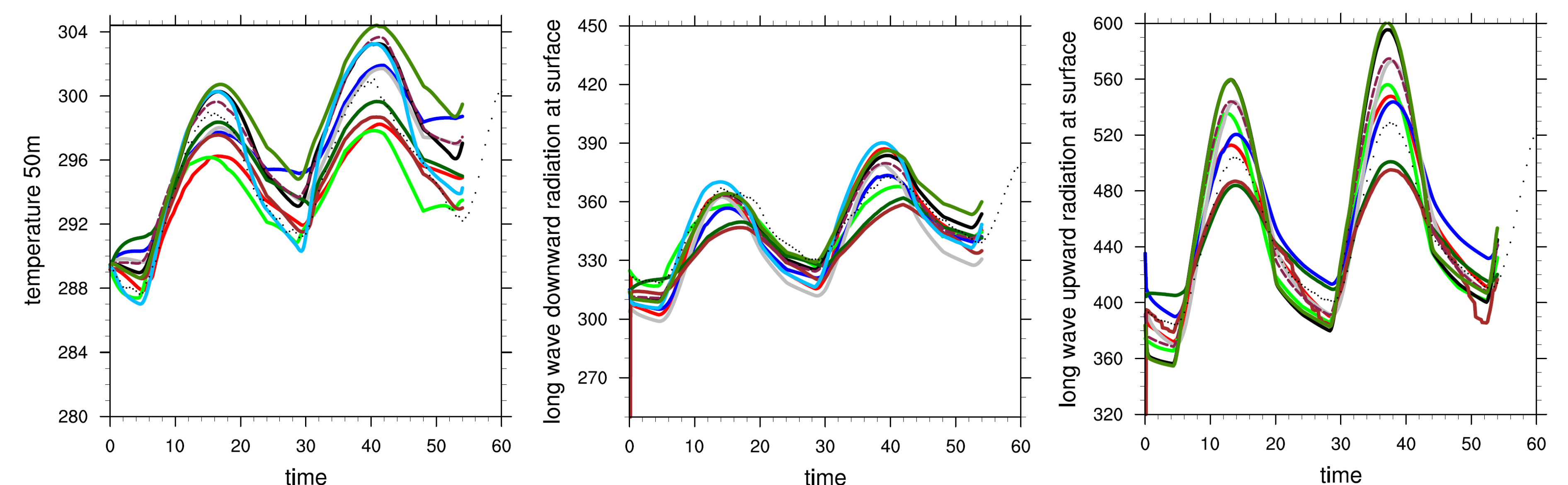
Phase 1

PBL

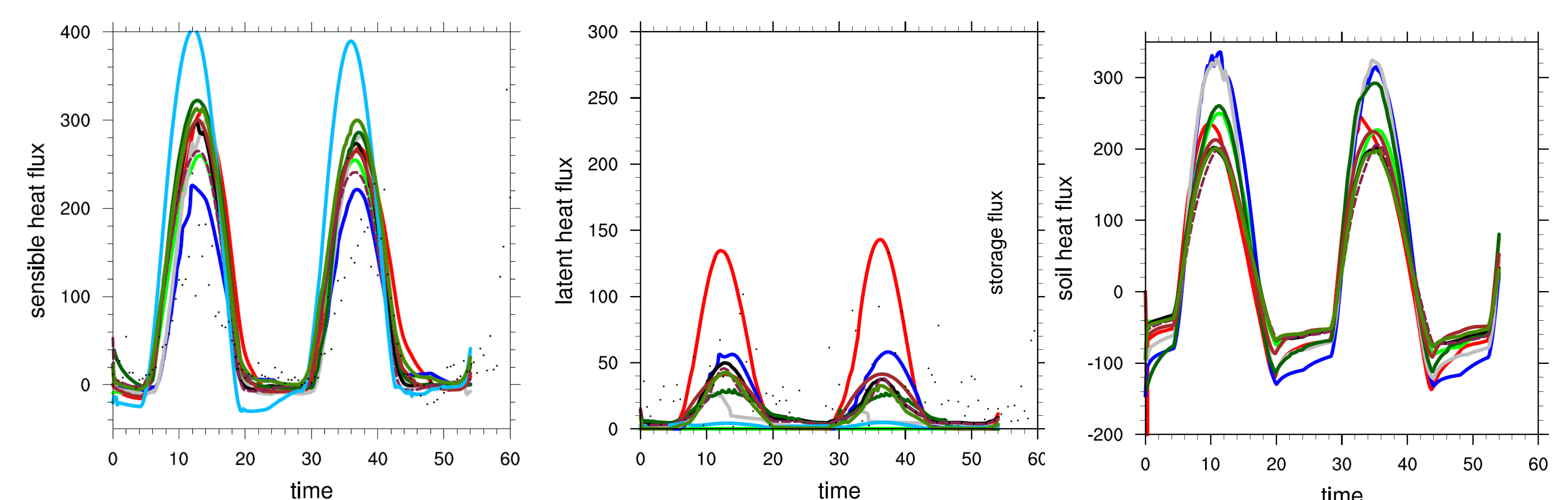
Forcings



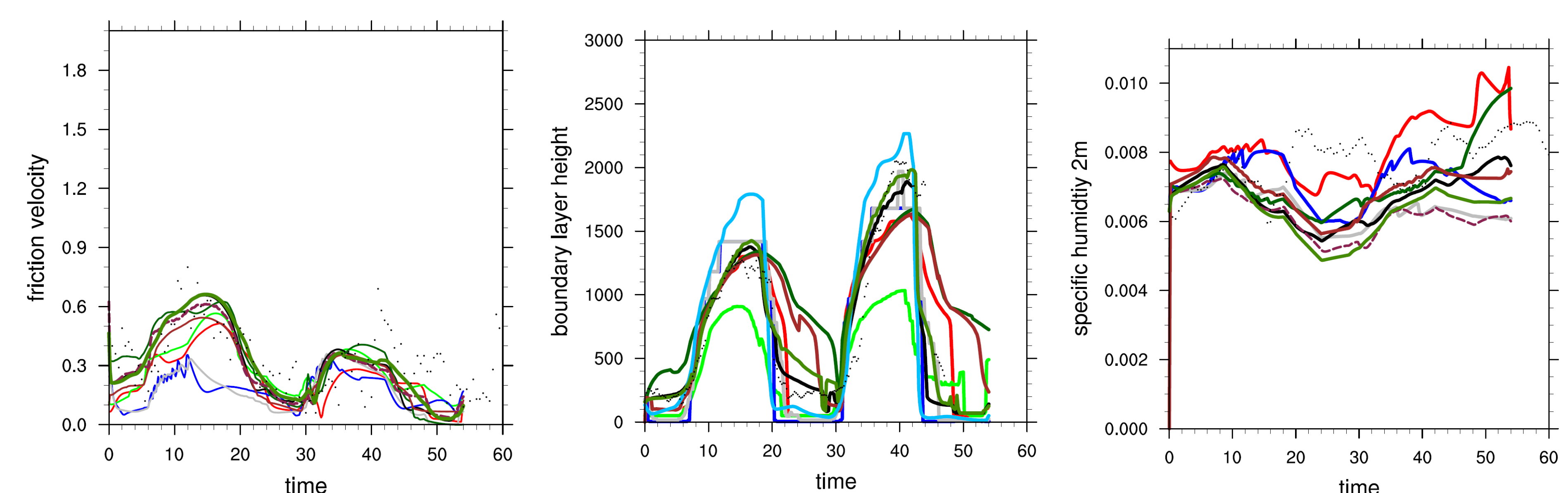
Results: diurnal cycles of temperature and thermal radiation



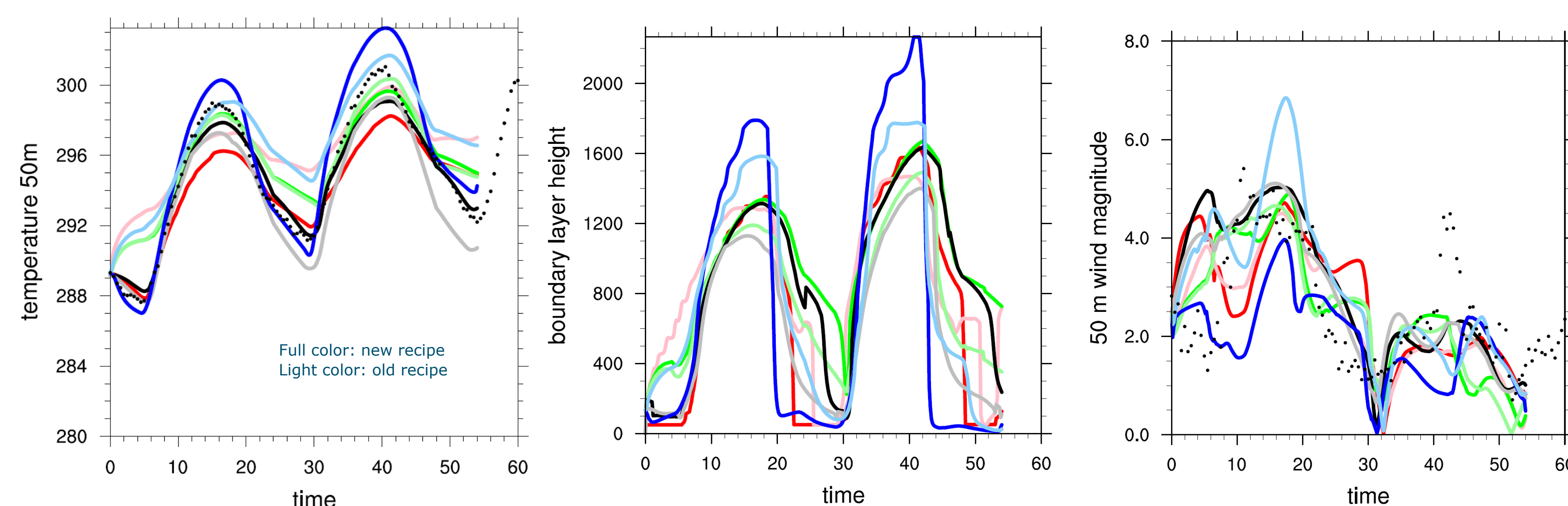
Results: energy budget components



Results: wind, humidity and boundary-layer depth



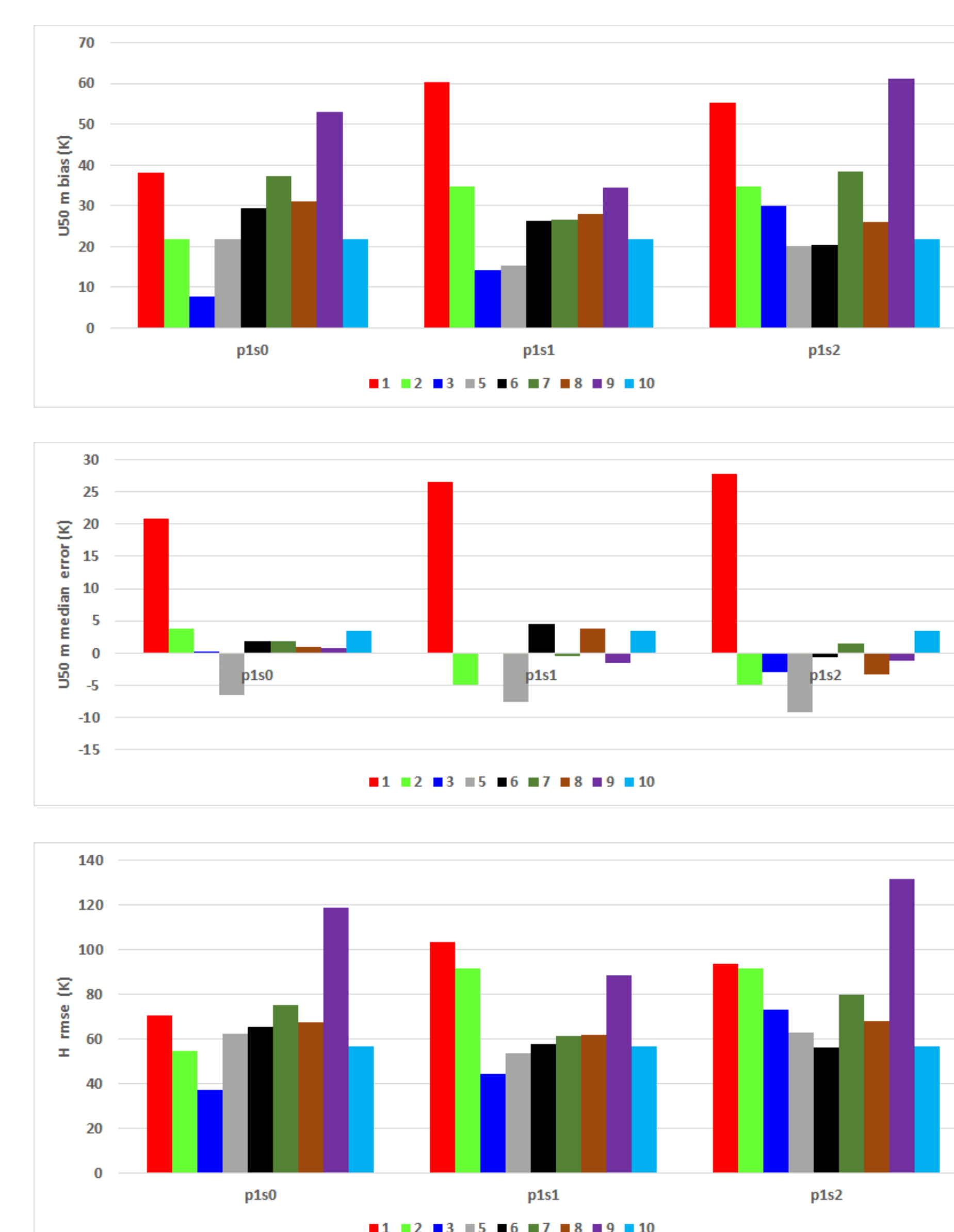
Results: old vs new recipe



Conclusions

- Wide variety of model results
- New iteration with updated forcings ongoing
- More morphology information does not always provide better modelling results.

Results: do we improve per stage?



Results: wind profiles

