



A Case for Shallow Convection as a CPWG Science Question

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Why Shallow Convection?

- Knowledge gaps:
 - **relationship between surface fluxes and turbulent transport in boundary layer (BL)**
 - **relationship between turbulent transport in the BL and cloud development**
 - relationship between shallow convection and deeper convection
 - diurnal evolution of shallow convection
- separate parameterizations of shallow and deeper convection in many models

Proposed Science Question

- What is the relationship between the surface fluxes, the boundary layer flux profiles, and cloud structure in shallow convection.

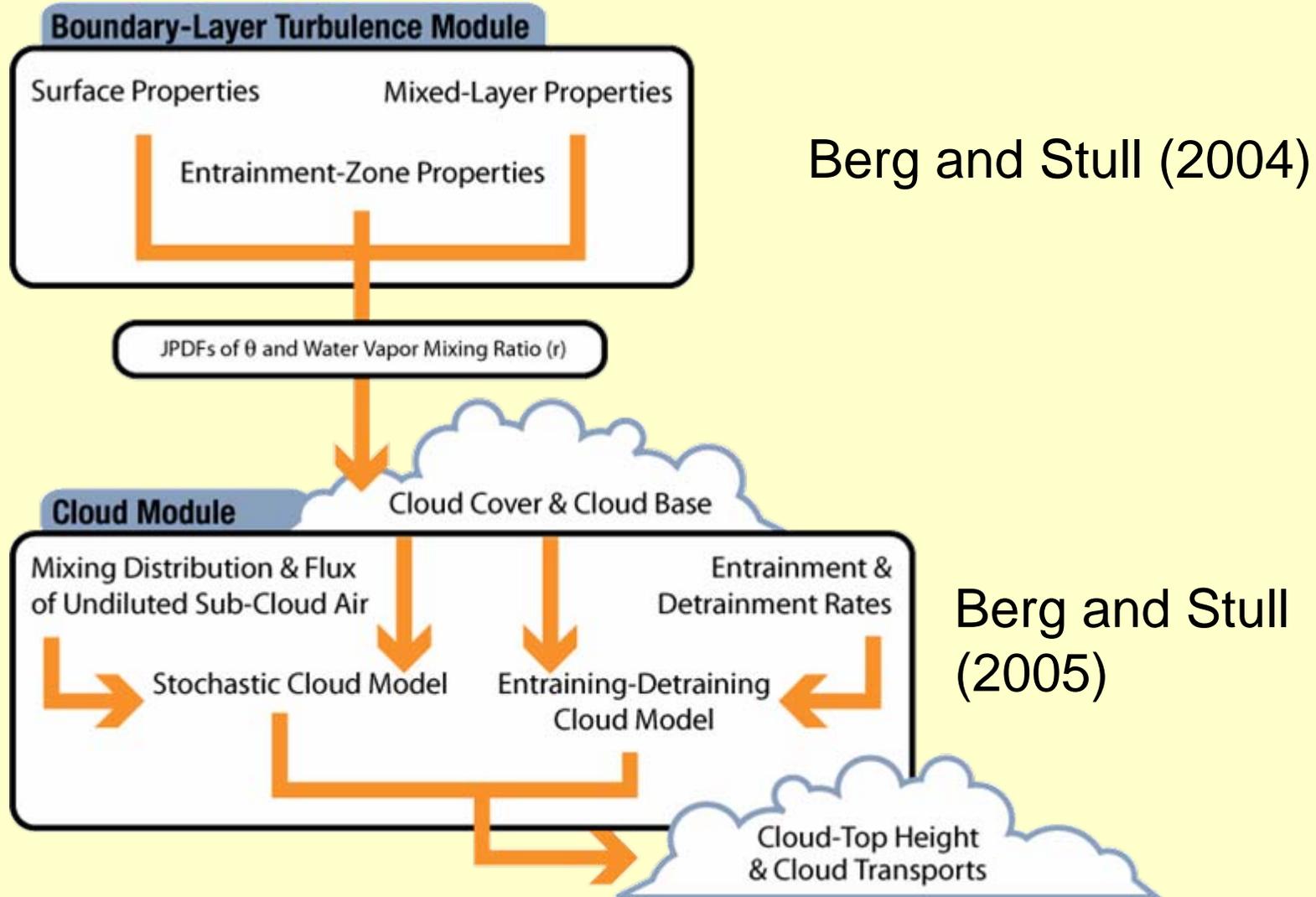
A New Parameterization Framework for Boundary-Layer Cumuli

Larry Berg and Steve Ghan

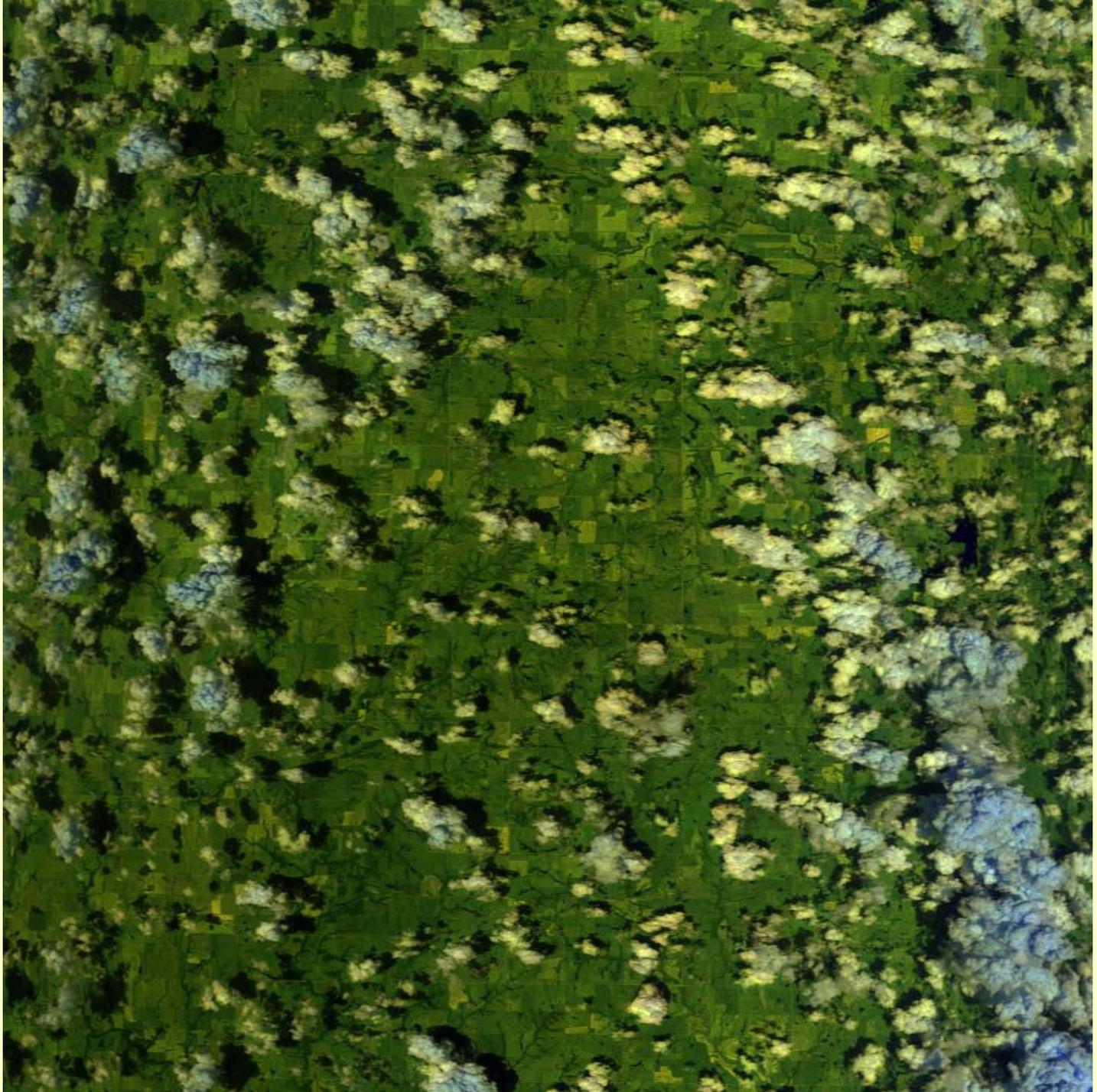
Pacific Northwest National Laboratory

- Cumulus Potential (CuP) Scheme

The CuP Scheme

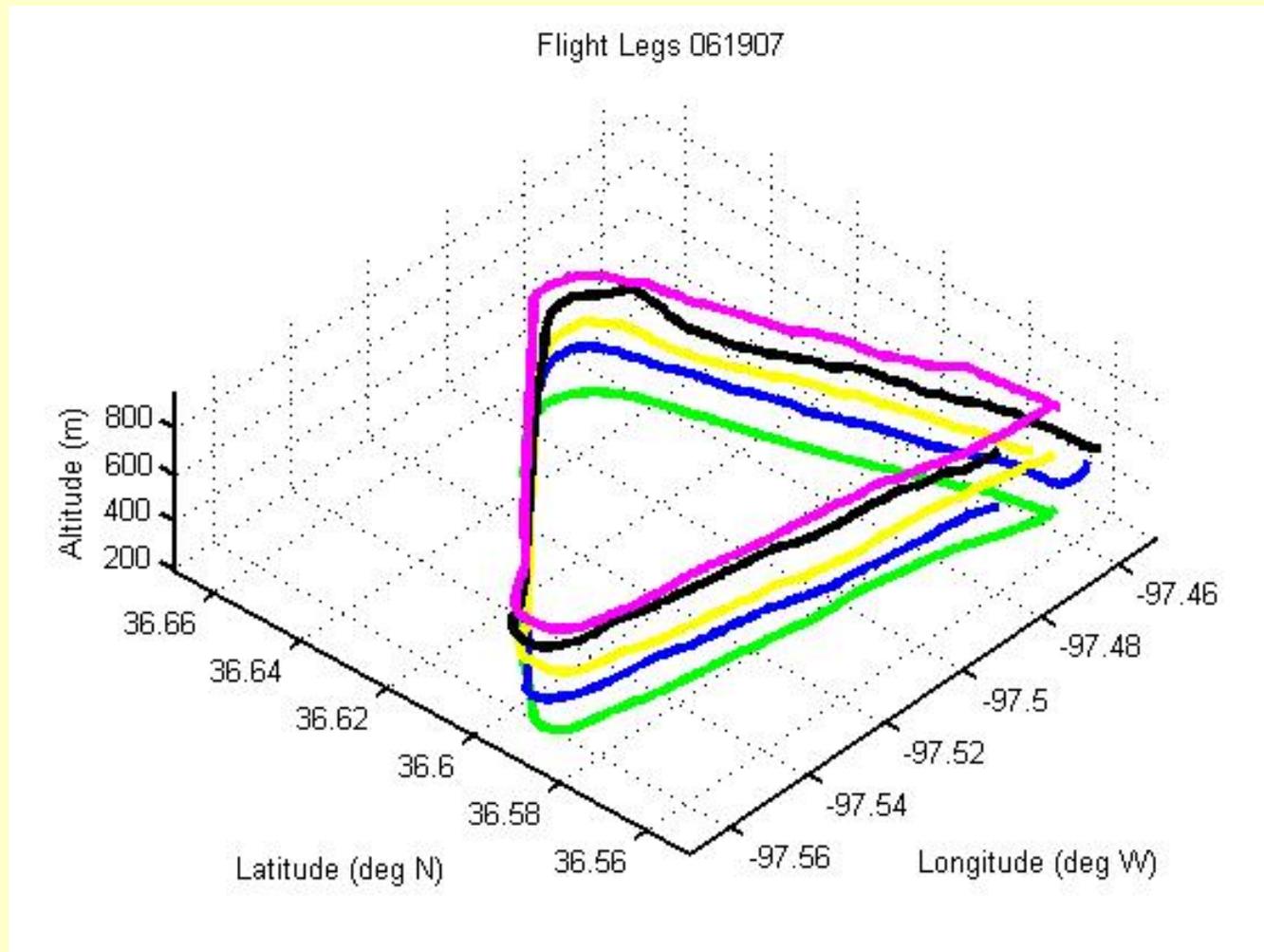


Cumulus Cloud Fields and
Surface Characteristics
from the MODIS Airborne
Simulator on the ER-2

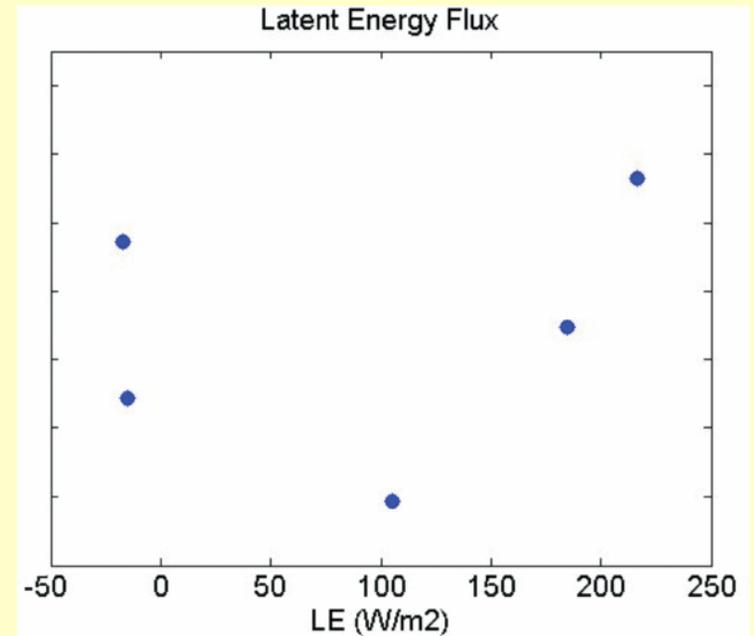
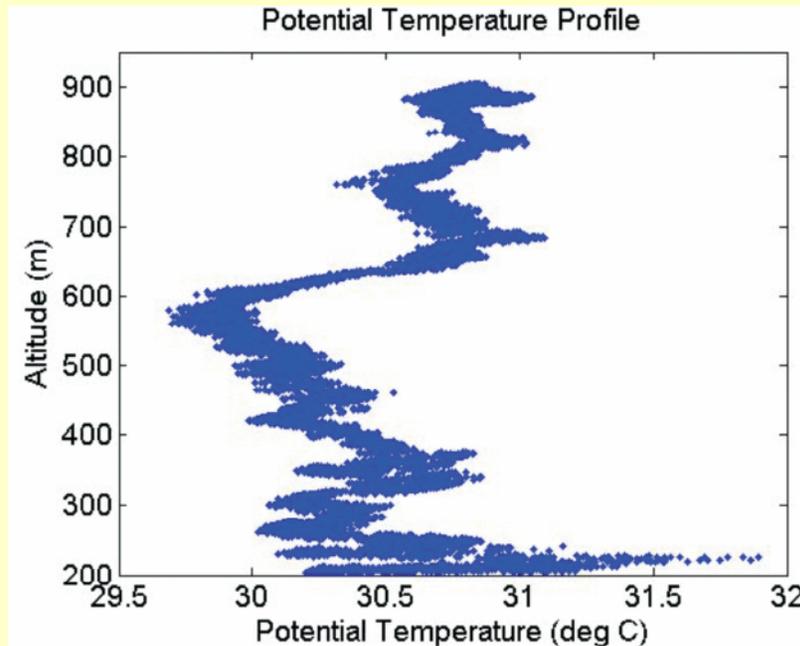


Mapping Vertical Profiles of
the Latent, Sensible, and
Carbon Fluxes over a
supersite (the SGP in this
case)

Helicopter Observation Platform (HOP): Duke University



HOP Averaged Latent Heat Fluxes (6/19/07)



HOP Averaged Sensible Heat Fluxes (6/19/07)

