

IHOP ABL-Workgroup Discussion, 25 March 2003, Boulder, CO

Discussion

Led by Ken Davis

Rapporteurs: Ken Craig, Song-Lak Kang, Brian Reen, Peggy LeMone

1. ABL “*Golden Days*”

- a. Fei Chen: 25, 29, 31 May, 2, 7, 14 June
Criteria: clear sky & light winds at Homestead for comparisons with S-Pol refractivity, and comparison of aircraft and surface fluxes to modeled surface fluxes.
- b. Gerhard Ehret (DLR): 21, 28 May, 6-7 June (days with good data.)
- c. HRDL: 6, 7, 14 June
- d. DOW 20, 29 May, 7 June (from Yvette Richardson’s talk)
- e. Peggy LeMone: 14 BLH days (King Air flying)
- f. Ken Davis: All BLH days. Interested in good statistical sample.
- g. Tammy Weckwerth: BLE days

2. ABL depth with different instruments – K. Davis and K. Craig to coordinate

- a. Lidar products (K. Davis + lidar groups)
 - i. Airborne (K. Davis): DLR, LEANDRE, LASE
 - ii. Ground-based: Raman Systems, HARLIE
- b. AERI (Feltz)
- c. King Air in situ soundings – LeMone and Kang, consulting with Davis to ensure common definition of ABL
- d. 915 MHz profilers – LeMone, with help from Coulter or Argonne
- e. Sondes
- f. University of Wyoming Cloud Radar (Geerts and Miao?)
- g. Instrument intercomparison.?

Opportunities for inter-comparisons of ABL depth retrieval techniques.
Entrainment zone definition?

3. ABL model evaluation (B. Reen and D. Stauffer)
 - a. East vs. Central vs. West comparisons
 - b. Comparisons across the domain; 1-D and 3-D comparisons.
 - c. Role of land-surface heterogeneity.
 - d. Does a need exist for MM5 “Re-analyses” of some IHOP cases?
4. Lidar flux measurement validation (Ehret and Hardesty)
 - a. Eddy correlation or variance based
 - b. King Air comparisons (LeMone, Davis, Kang)
5. Construction of surface flux maps for IHOP domain
 - a. Empirical and using diagnostic model such as ALEXI (Davis + Kang)
 - b. Using HRLDAS (F. Chen)
 - c. NOAH offline model runs (F. Chen)
6. Land Surface Model Verification (Fei Chen) and Surface Flux Testing
 - a. Ten (ISFF + CU) surface flux stations. F. Chen to prepare flux, vegetation, and soil moisture data from these sites.
 - b. Horizontal field comparison
 - i. Produce and evaluate flux maps (Davis, Chen)
 - ii. Compare flux maps to aircraft flux data (D.C., plus LeMone and Kang). F. Chen notes we should improve technique beyond simple comparisons to fluxes beneath. Allow for upstream fetch.
 - iii. Comparison between flux maps, aircraft fluxes, and tower fluxes (LeMone/Grossman/Chen/Davis/Kang)
 - iv. Compare LSM-derived radiometric surface temperature to satellite (Grossman).
 - v. Obtain detailed land use data
 - Grossman, through country agents
 - Updated Landsat data (Mecikalski, Wilhelmi, Betancourt)
7. Cooperation on studies of the role of land-surface in ABL heterogeneity.
8. Relevance of ABL structure to convective initiation: requires cooperation/collaboration with CI/QPF workgroups.
9. Next gathering?
 - AMS 2004 (Seattle WA)?
 - AGU?

Attending

Ed Browell

Fei Chen

Ken Craig

Ken Davis

Gerhard Ehret

Rich Ferrare

Bob Grossman

Mike Hardesty

Syed Ismael

Songlak Kang

Peggy LeMone

Qun Miao

David Miller

Brian Reen

Geary Schwemmer