Over-ocean spatial variability of sunphotometer AOD, MODIS AOD, and in situ aerosol properties in ACE-Asia, 2001

Goals of this project:
1. Based on the combination of calibrated satellite and ground measurements to determine the spatial variability of aerosol optical depth, also how well current EOS satellite sensors capture or represent such variability within their processing algorithms.
2. Define a characteristic length scale within which aerosol observations can be considered spatially correlated.
3. To compare the spatial variability in aerosol optical depth and column water vapor at different scales and at different locations, identifying the performance of current EOS sensor algorithms under a variety of regional and climatic conditions.

Platform: NASA C-130

Auto-correlation: a tool to study spatial variability

Above: flight tracks during the 24 low-level flights are illustrated in Fig. 1. A low-level flight track is defined as one that is within 1 km of the mean trajectory, shown in the right.

MODIS IR AOD validation and spatial variability of aerosol properties in the Extended-1, MODIS-Validation Experiment (EVE), 2004

EVE flight domain and typical flight pattern

1. Friend of EVE - Asian dust (gives IR AOD II)
2. 3 Fays of EVE:
   - B-I-d-y: flight track for bed
   - Low-level status of CA coast
   - Glimt in MODIS observations

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Previous over-ocean AOD validation in CLAES, 2001

Preliminary MODIS AOD (IR) validation in EVE, 2004