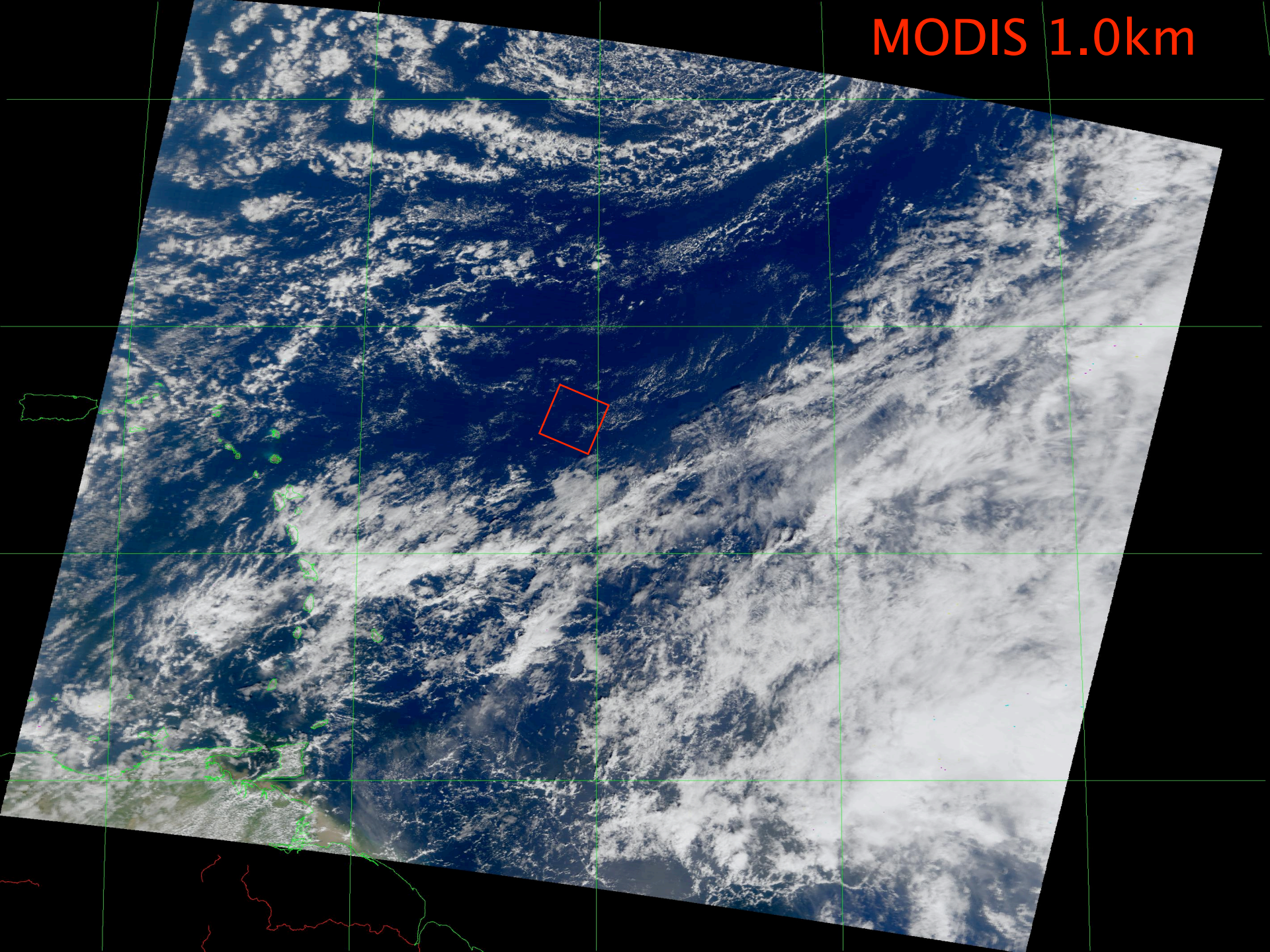


Observation of Trade Wind Cumuli from Space

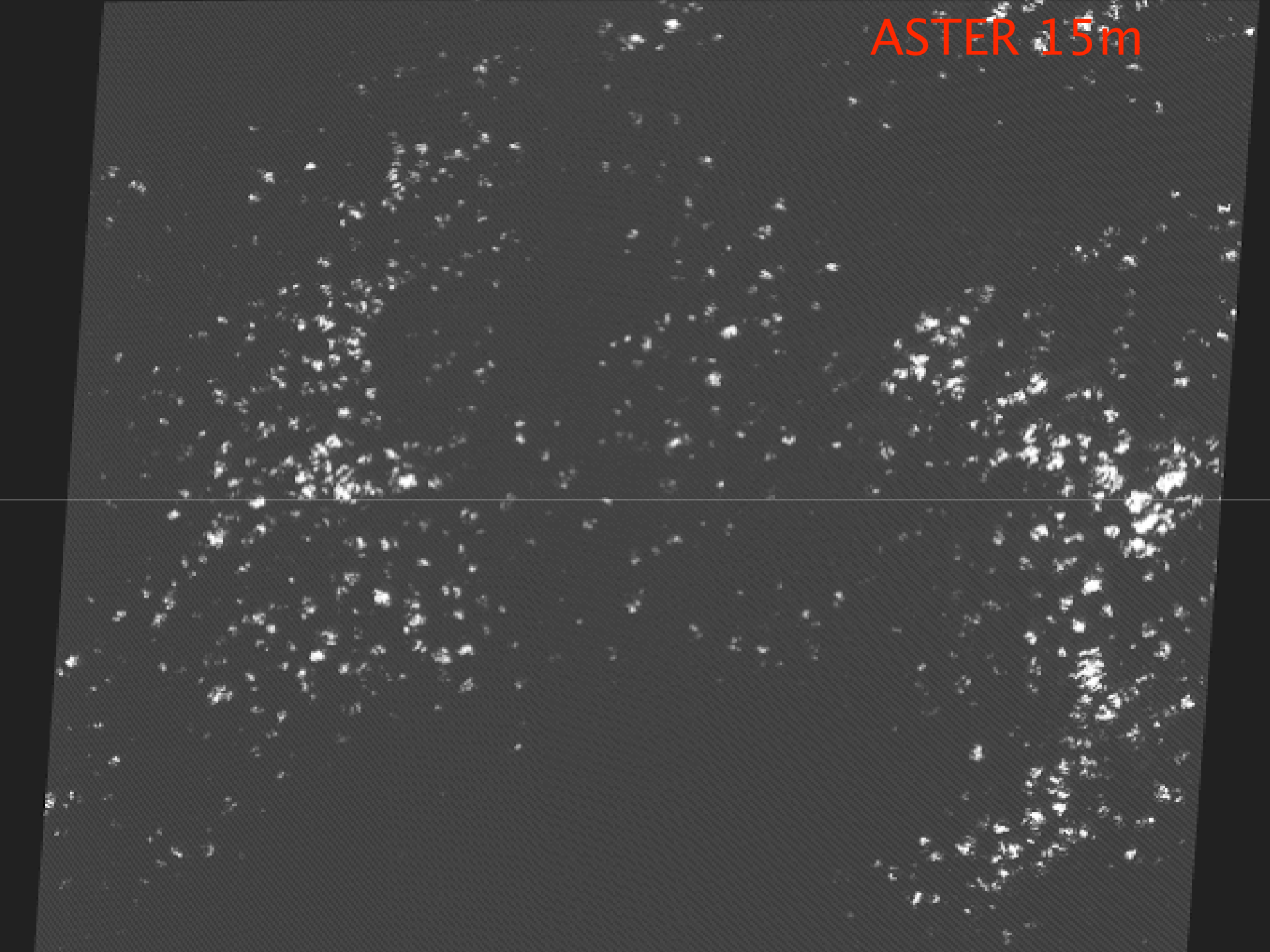
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Dept. of Atmos. Sci., University of Illinois at Urbana-
Champaign

MODIS 1.0km



ASTER 15m



Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER)

| | |
|---------|--|
| Launch | Dec, 1999 on EOS Terra spacecraft |
| Orbit | 705km altitude sun-synchronous; ~10:30a.m equator crossing |
| Channel | 3 VIR, 0.5~1.0 μ m, 15m; 6 SVIR, 1.0~2.5 μ m, 30m 5 TIR, 8.0~12.0 μ m, 90m |
| Swath | 650 scenes per day; 60 x 60 km ² ; \$85 /scene → \$55,250 /day |

ASTER Data

In total, 448 scenes from 38 separate days
between Sep. 2004 and Mar. 2005

157 cumuli-only scenes from 27 separate days

1,293,959 cumulus clouds

Current Research

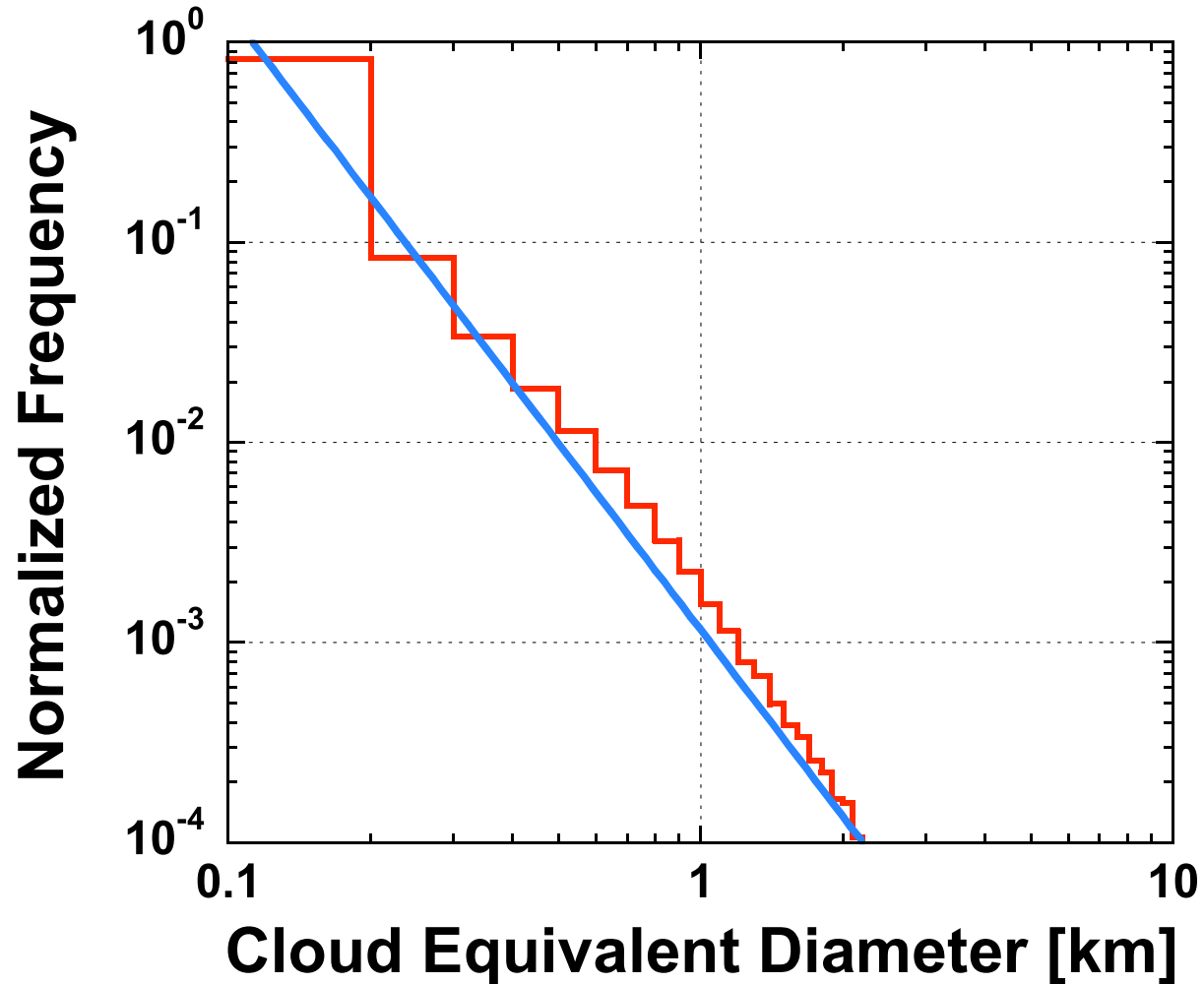
STATISTICS

RESOLUTION EFFECT

- ✓ Cloud Size Distribution
- ✓ Cloud Fraction
- ✓ Cloud Shape
- ✓ Cloud Spatial Distribution
- ✓ Cloud Top Height

- ✓ Comparisons between MISR, MODIS and ASTER

Cloud Size Distribution



Future Research

- ✓ statistics of cloud optical properties
- ✓ Aerosol–cloud interaction