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**Algorithm-development strategies for
retrieving the downwelling longwave flux
at the Earth's surface**

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22nd CERES Science Team Meeting

Models

CRM: Column Radiation Model from CCM3

MODTRAN 3.7

Data

**ARM SGP: 15 IOPs from April 1994 to April
1998**

**ARM TWP: Manus Island for six months
during 1997 (JAN, FEB, JUL,
AUG, SEP, OCT)**

**Surface measurements are half-hourly
means.**

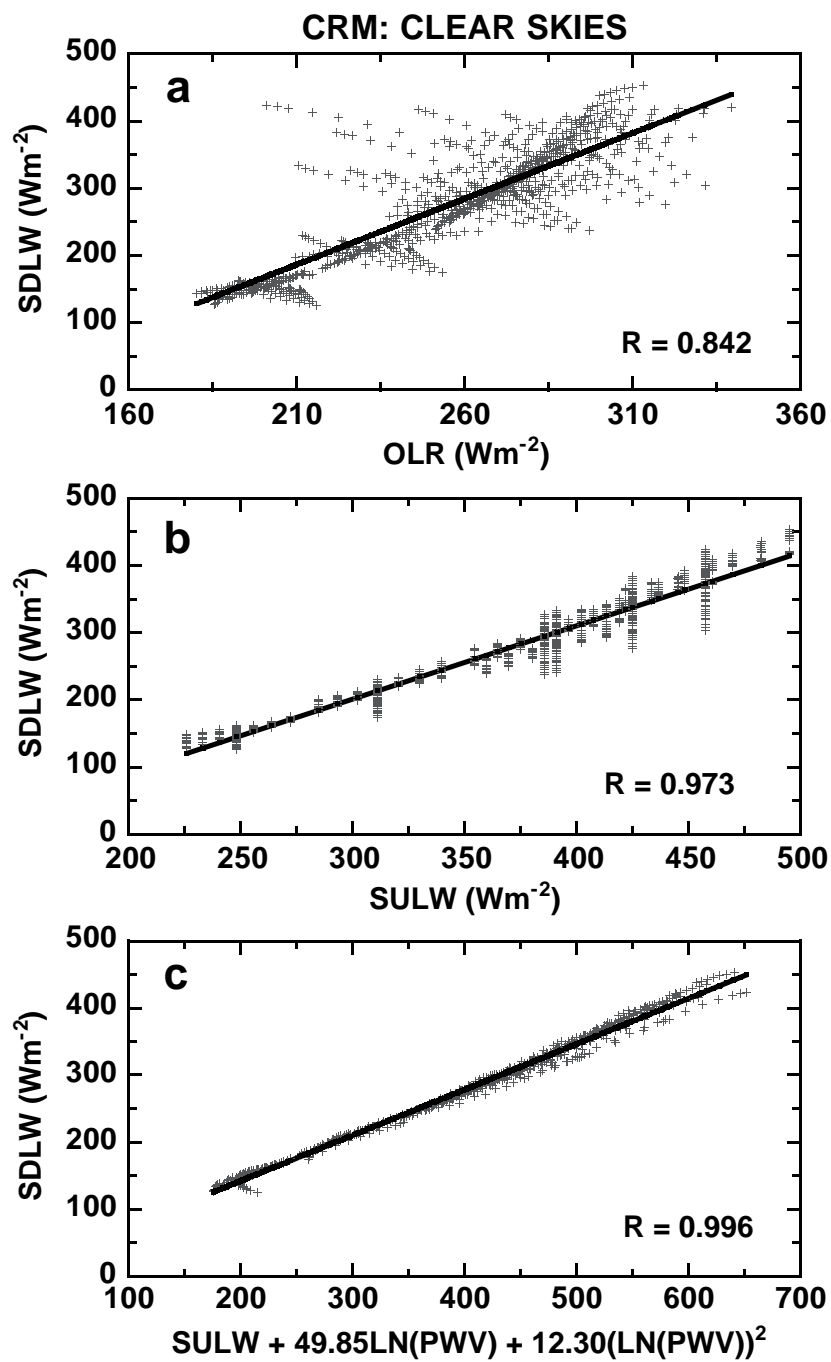


Figure 1

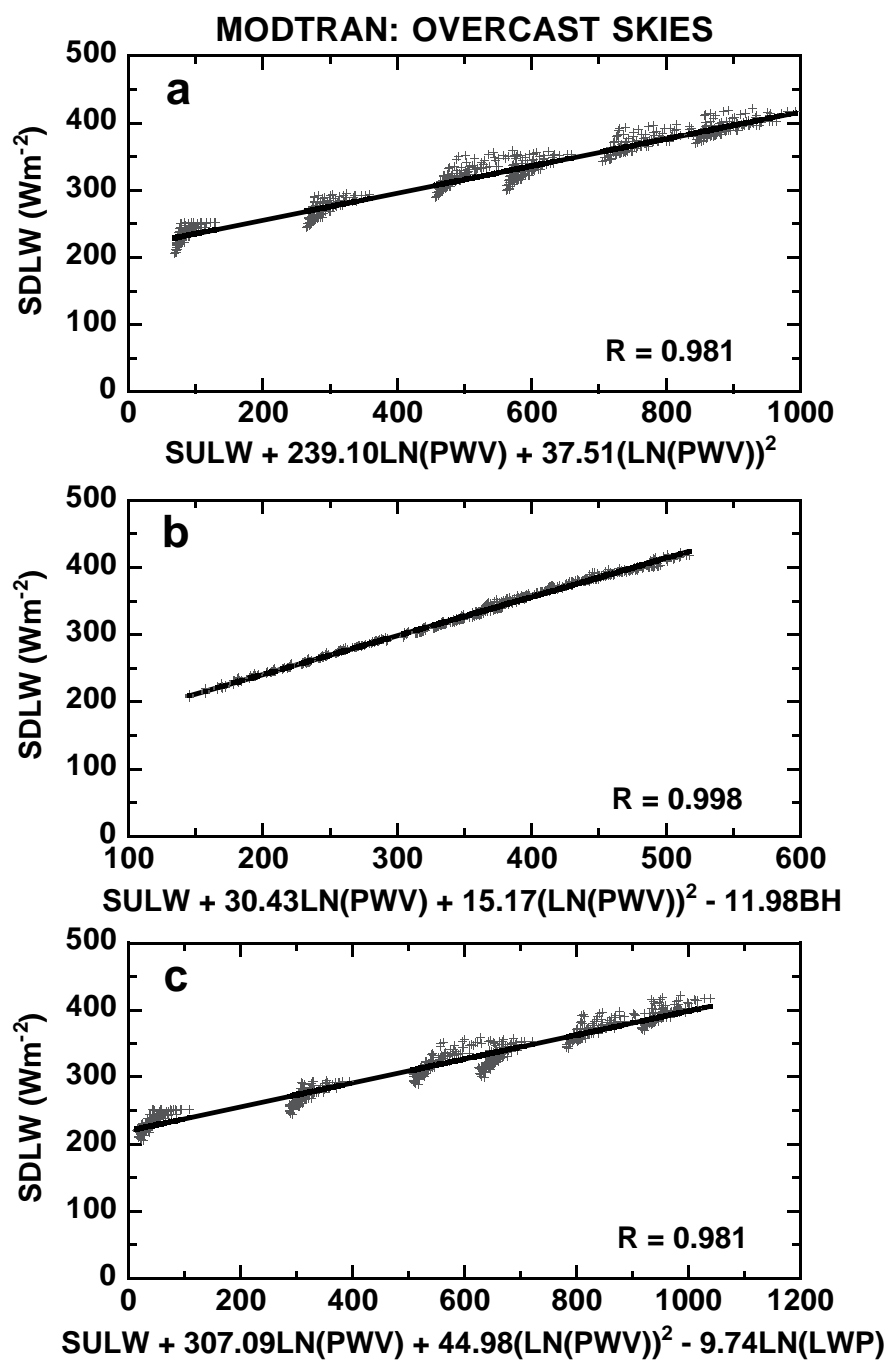


Figure 2

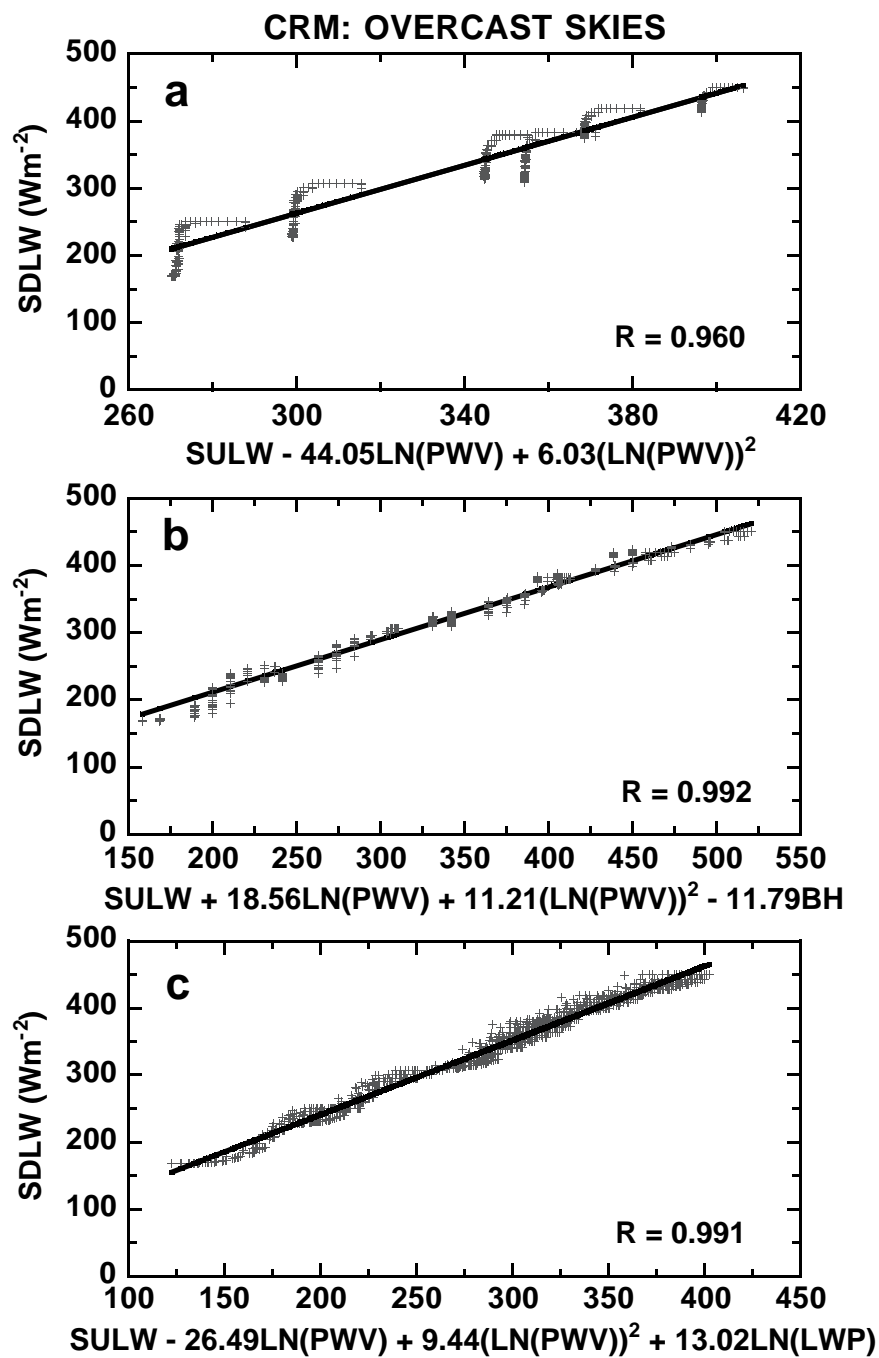


Figure 3

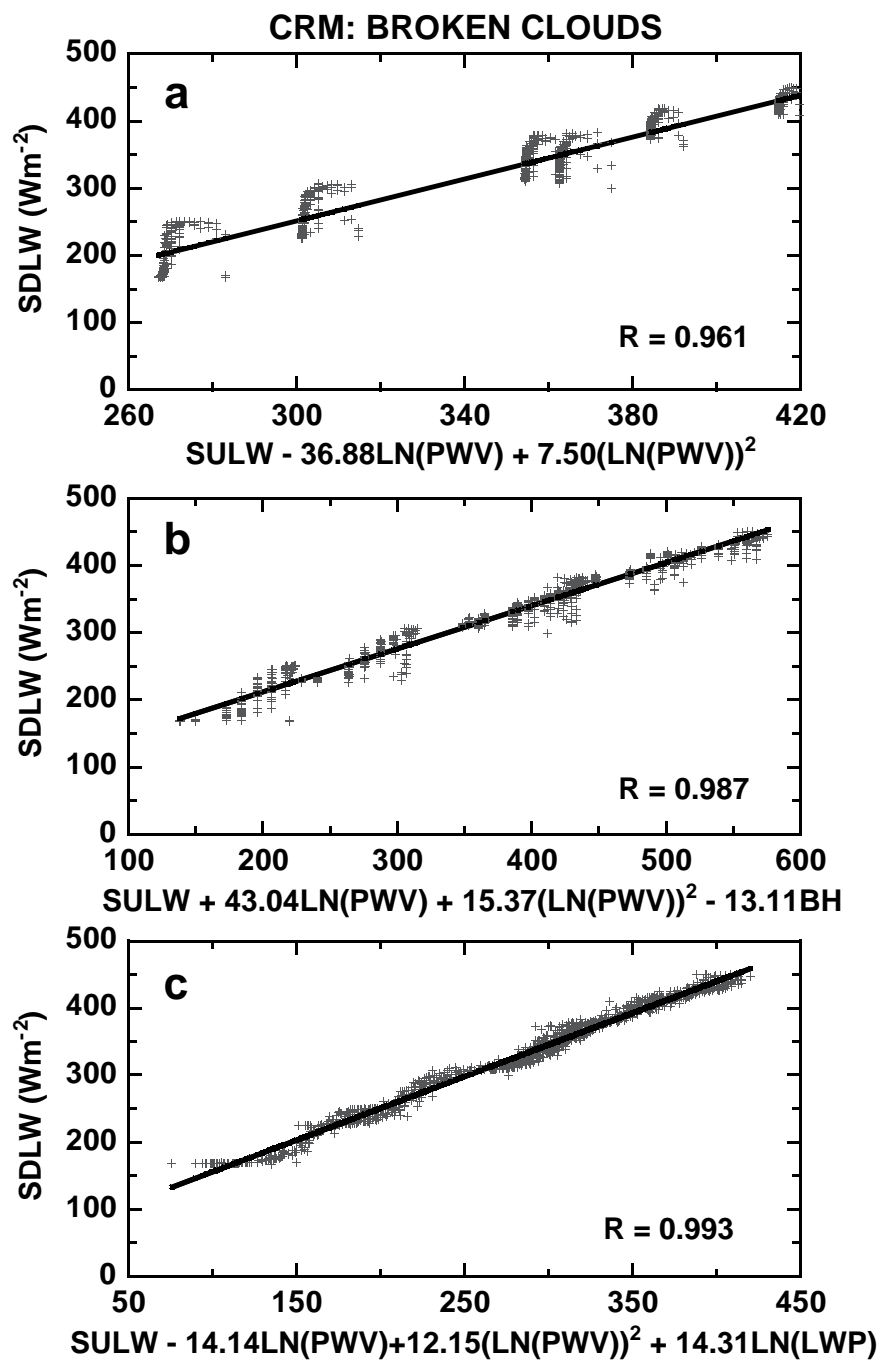


Figure 4

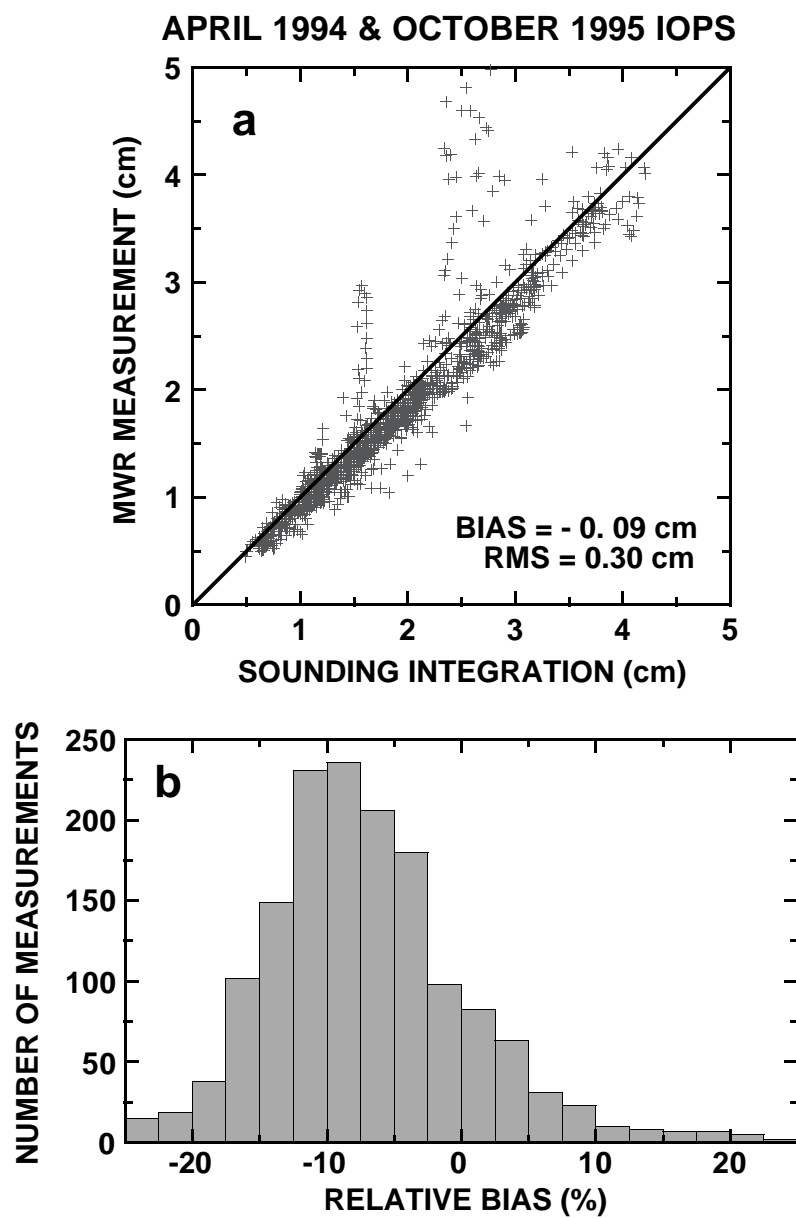


Figure 5

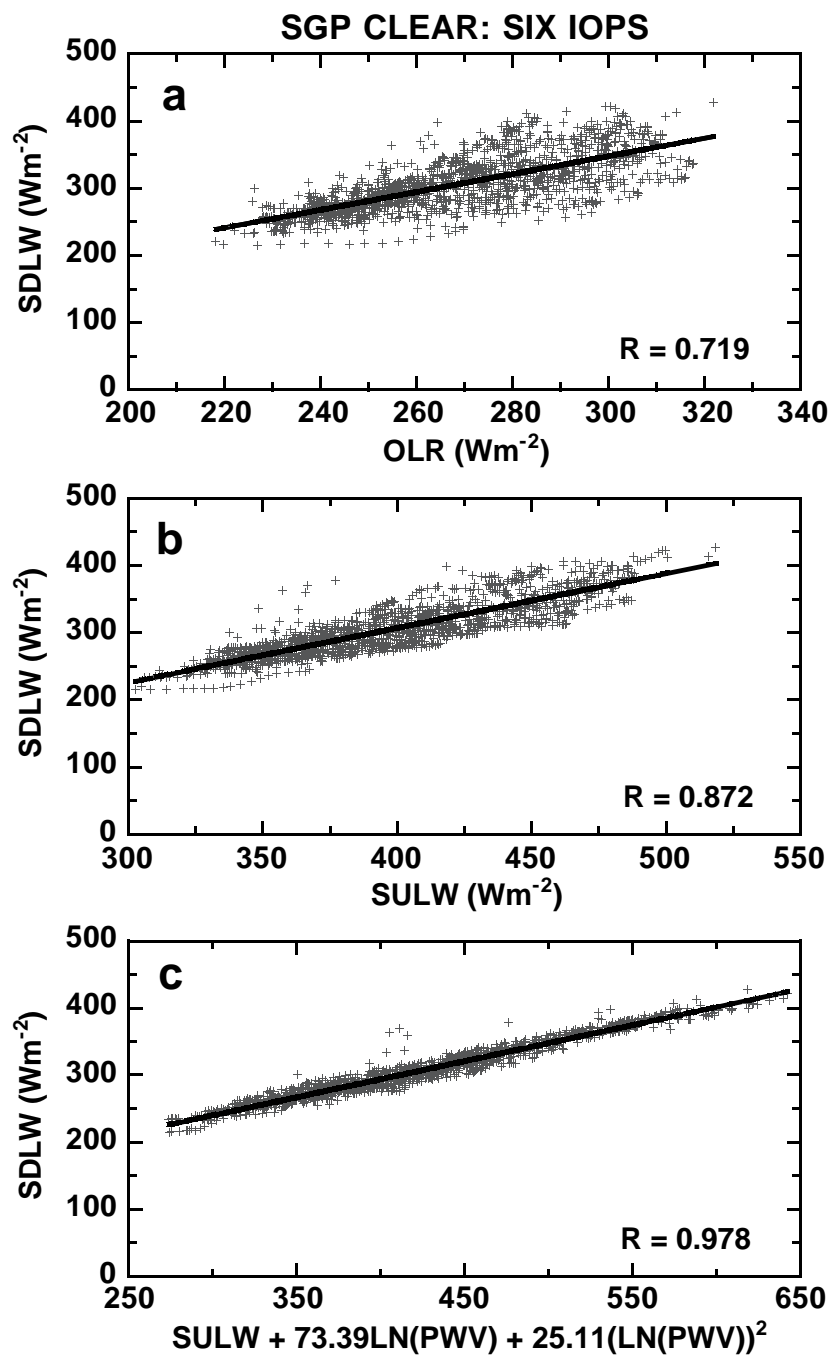


Figure 6

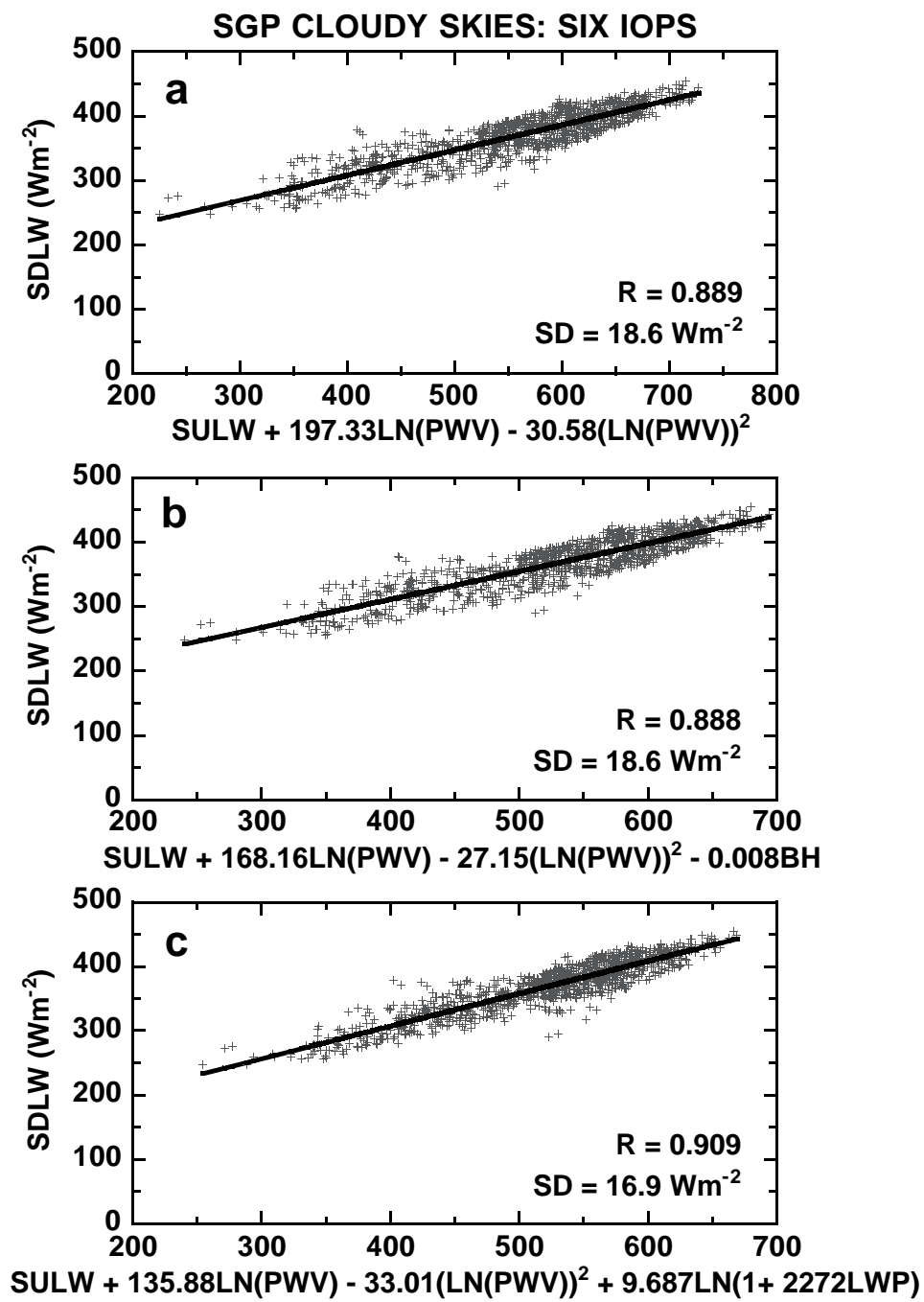


Figure 7

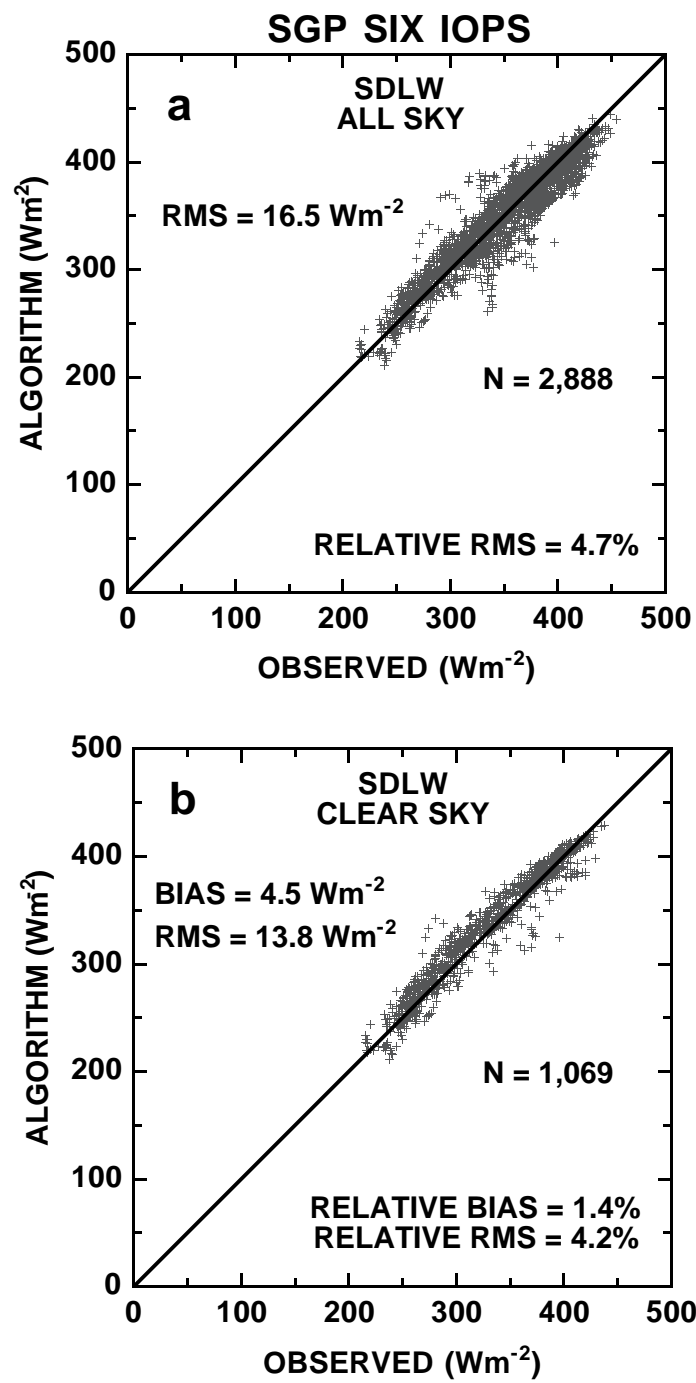


Figure 8

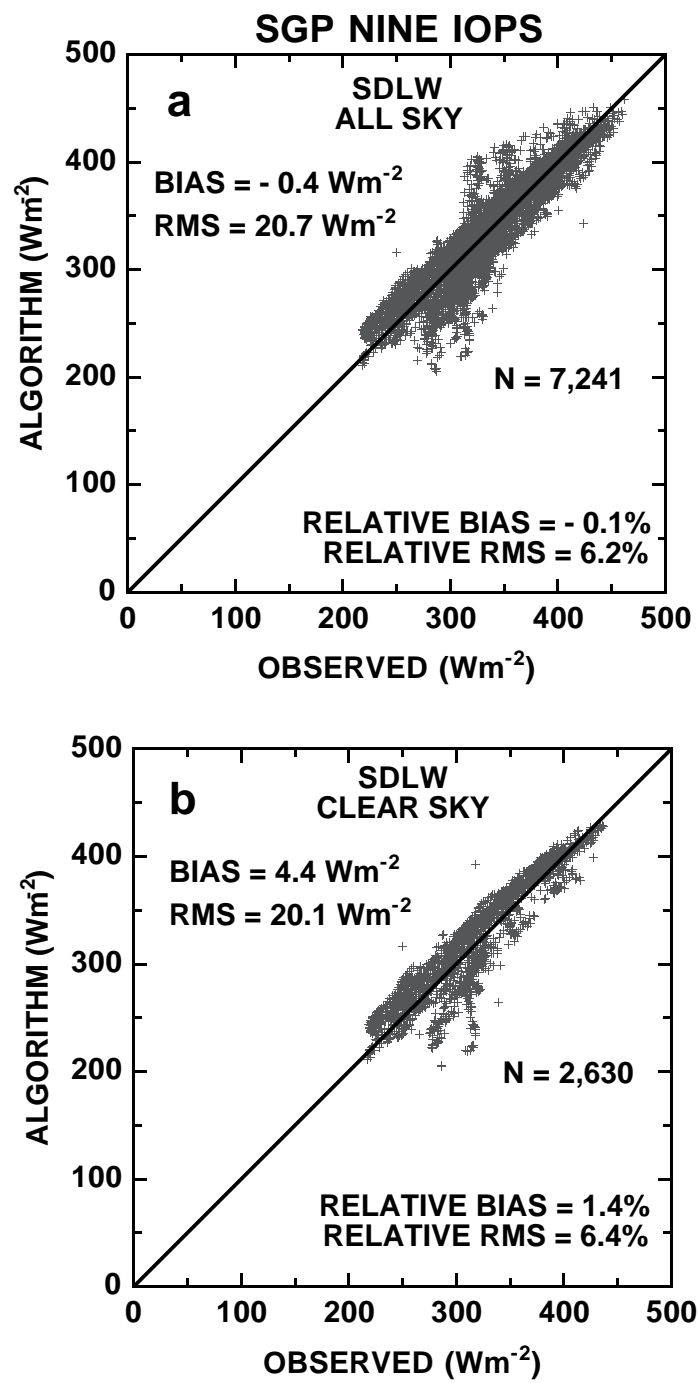


Figure 9

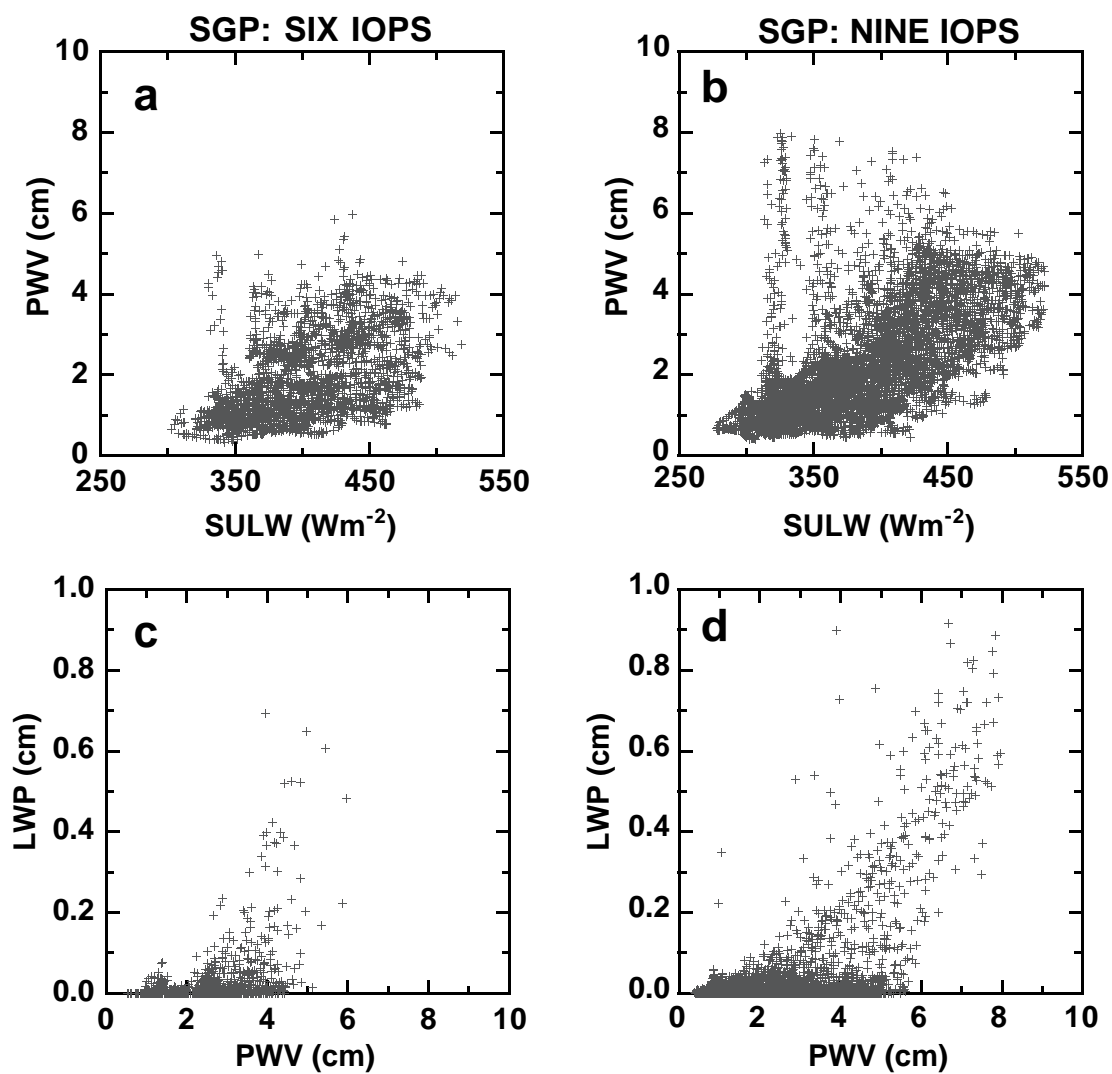


Figure 10

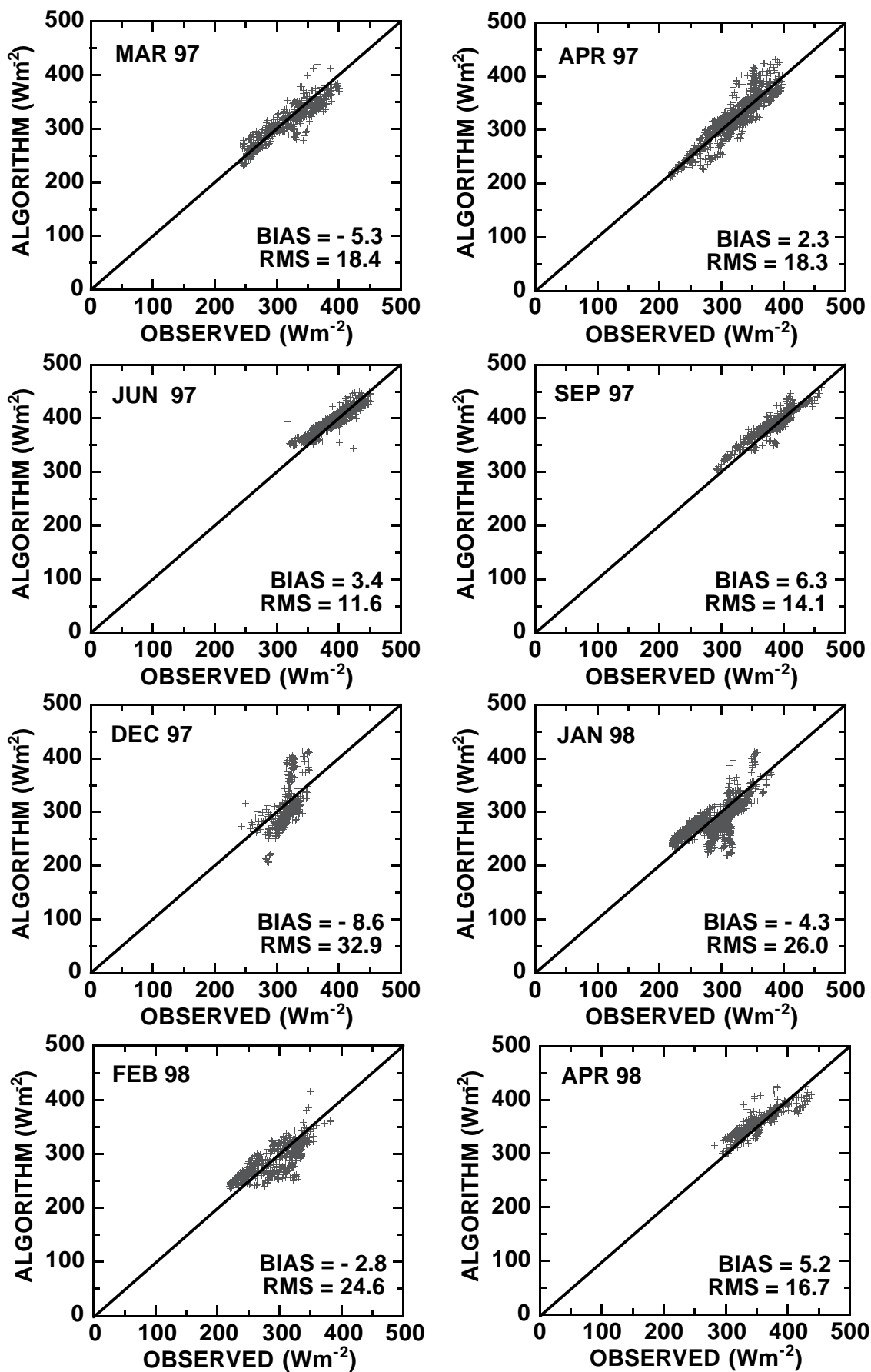


Figure 11

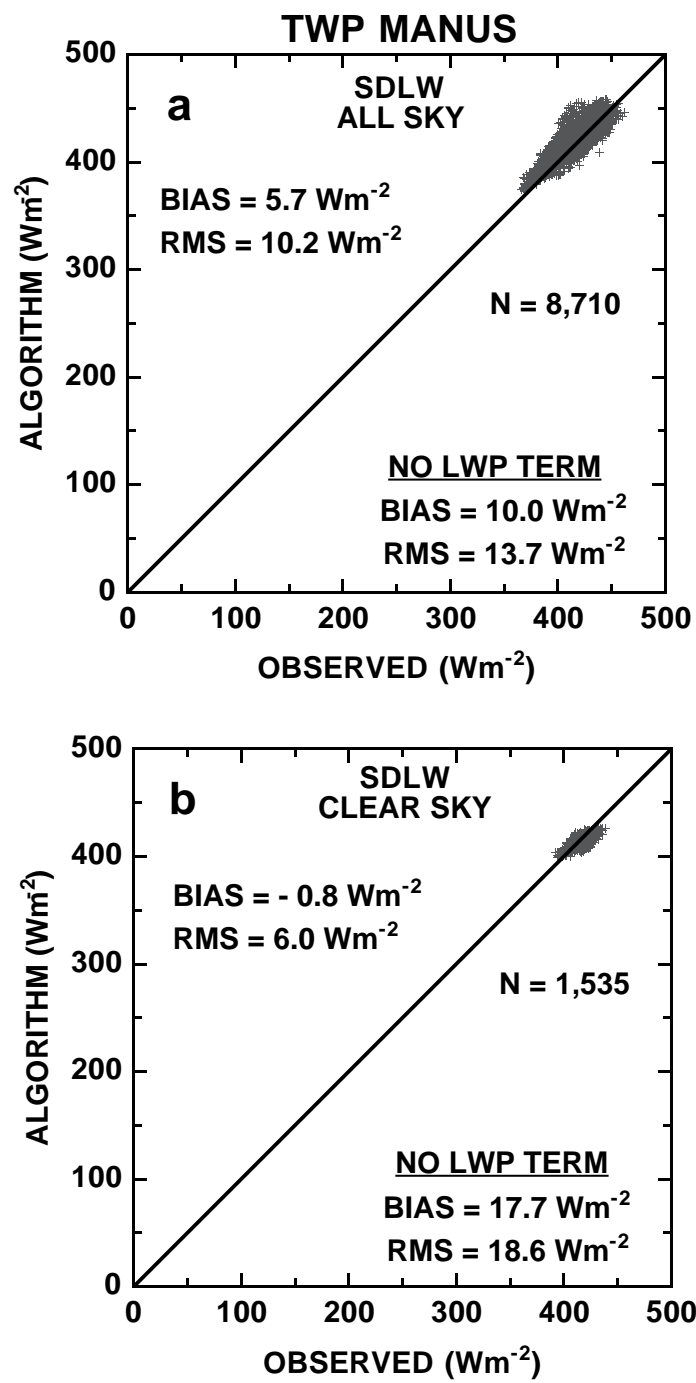


Figure 12

Conclusions

- **Both the model sensitivity studies and the data correlations suggest that cloud-base height might not be a useful grid-averaged input parameter.**
- **Although SDLW should not depend upon cloud liquid water, this does appear to be a useful input parameter in the context of serving as a surrogate for cloud-base height.**
- **A simple parameterization for SDLW in terms of PWV and LWP might be geographically invariant except for regions where there are low-level ice clouds.**