



Assimilation of satellite observations: why and why not

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As a field, atmospheric science is unique in its widespread acceptance of observational information and model information being blended together into assimilated data sets. In fact, assimilated data sets are often used as the observational standard in the evaluation of model performance and the determination of atmospheric processes. This acceptance comes even with the reality that, for many problems, assimilated data sets are limited in their internal consistency. That is, while primary, observed parameters are often well represented, the slow-acting physical processes that physically connect these parameters are not well represented. Further, improvement of the representation of primary parameters is not rewarded with improvements in the derived parameters that are important for physically based process studies. This talk will highlight some of these issues, with special regard to investigation of constituents. It will also identify the general challenges that must be addressed to realize the promise of assimilated data sets to provide consistent, multi-variate estimates of the atmosphere.