

**Progress since September 2007 NEWS meeting in Huntsville, Alabama.
Eric Fetzer, Jet Propulsion Laboratory, March 25, 2008**

1) Project Status and Progress

This fall we delivered to the CREW website a five-year (2003-2006) record of AIRS and AMSR-E water vapor, and AMSR-E cloud liquid water content. The MLS upper troposphere and middle atmosphere water vapor, and ice water content estimates are included for the period from July 2004 through the end of 2006.

We presented three talks at the AGU Fall meeting in San Francisco, and one at the AMS meeting in New Orleans. We are preparing several manuscripts, and submitted a manuscript in February 2008 [Fetzer et al., 2008] comparing AIRS and MLS water vapor.

Our team, including Co-I Bill Irion, has been actively engaged in AIRS and MLS validation activities (supported by the AIRS project). These activities will lead to a properly merged AIRS-MLS-AMSR-E water vapor product. Co-I Duane Waliser (and NEWS PI on another project) is leading a large effort to examine MJO signatures in a variety of data sets, including ours.

2) Collaboration

Comments from Adam Schlosser and Gao Jiang have help guide our data set development. Xiaohua Fu of the University of Hawaii and Hui Su of JPL have also using our data set. We have an informal collaboration with data visualization researchers at JPL to display multi-parameter data sets. Duane Waliser is examining our data sets as part of his NASA MAP activities.

3) Issues

The main issue has been prioritizing the data sets we are providing to NDIC. Communications with POC Bing Lin has helped set those priorities, and Adam Schlosser has asked for error estimates.

4) Products

We are currently delivering to the NDIC error estimates for water vapor quantities from AIRS, MLS and AMSR-E for the first 5 years of the A-Train mission, to accompany the water vapor data sets listed above under 'Progress'. We will also be delivering cloud properties from MODIS and possibly CloudSat in the next few months.

5) Integration

We have submitted an abstract for the 2008 Spring AGU meeting in Ft. Lauderdale to examine local trends in water vapor in support of Integration Project #1. We will also show results of visualization of weather events at the Spring NEWS Meeting in support of Integration Project #2. Our global data sets are being used in the Integration Project #3 by Adam Schlosser and Bing Lin.

In future, the delivery of the A-Train data sets is our core activity and will continue. We are also expect to continue with trend assessment and intercomparison because this work strongly overlaps with work supported by the AIRS project, and by a NASA MEaSUREs-funded effort to create a merged water vapor climate data record.

6) Alignment with NEWS Integration Plan

Our work has focused on the observational data sets being integrated into the NEWS effort. This has involved assembly of the component quantities (see listing in ‘Progress section’) and intercomparison of similar quantities, as in Read et al. [2007] and Fetzer et al. [2008] listed below.

While we expect a properly merged AIRS-MLS water vapor profile data set, the main challenge to creating our data set will be in providing error estimates on cloud quantities. We welcome collaborations with members of the NEWS team.

Publications

- Fetzer, E. J., W. G. Read, D. Waliser, B. H. Kahn, B. Tian, H. Vömel, F. W. Irion, H. Su, A. Eldering, M. de la Torre Juarez, J. Jiang and V. Dang (2008), Comparison of upper tropospheric water vapor observations from the microwave limb sounder and atmospheric infrared sounder, *J. Geophys. Res.*, in review.
- Livingston, J., B. Schmid, J. Redemann, P. B. Russell, S. A. Ramirez, J. Eilers, W. Gore, S. Howard, J. Pommier, E. J. Fetzer, S. W. Seemann, E. Borbas, D. Wolfe (2007), Comparison of water vapor measurements by airborne Sun photometer and near-coincident in situ and satellite sensors during INTEX/ITCT 2004, *J. Geophys. Res.*, 112, D12S16, doi:10.1029/2006JD007733.
- Read, W. G., A. Lambert, J. Bacmeister, R. E. Cofield, L. E. Christensen, D. T. Cuddy, W. H. Daffer, B. J. Drouin, E. Fetzer, L. Froidevaux, R. Fuller, R. Herman, R. F. Jarnot, J. H. Jiang, Y. B. Jiang, K. Kelly, B. W. Knosp, L. J. Kovalenko, N. J. Livesey, H.-C. Liu¹, G. L. Manney, H. M. Pickett, H. C. Pumphrey, K. H. Rosenlof, X. Sabounchi, M. L. Santee, M. J. Schwartz, W. V. Snyder, P. C. Stek, H. Su, L. L. Takacs¹, R. P. Thurstans, H. Voemel, P. A. Wagner, J. W. Waters, C. R. Webster, E. M. Weinstock and D. L. Wu (2007), Aura Microwave Limb Sounder upper tropospheric and lower stratospheric H₂O and relative humidity with respect to ice validation, *J. Geophys. Res.*, 112, D24S35, doi:10.1029/2007JD008752.
- Waliser, D. E., K. Seo, S. Schubert, E. Njoku, 2007: Global water cycle agreement in IPCC AR4 model simulations, *Geoph. Res. Lett.*, 34, L16705, doi:10.1029/2007GL030675.
- Ye, H., E. J. Fetzer, D. H. Bromwich, E. F. Fishbein, E. T. Olsen, S. Granger, S.-Y. Lee, L. Chen and Bjorn H. Lambriksen (2007), Atmospheric total precipitable water from AIRS and ECMWF during Antarctic summer, *Geophys. Res. Lett.*, 34, L19701, doi:10.1029/2006GL028547.