Dr. Sun Wong
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Research Interests:
My research interests are mainly on analyses of climate and weather processes using both satellite-based observations and models. My research covers many topics that include Saharan dust transport and radiative effect, water and energy balances in the atmosphere, variability of Indian summer monsoon, tropopause variability, stratospheric and tropospheric chemistry, and connection among clouds, precipitation and large-scale dynamical systems. I am responsible for validation of AIRS temperature and specific humidity retrievals against radiosonde measurements.

Education:
Columbia University, Ph.D. in Physics, 1999
Columbia University, M.A. and M.Phil. in Physics, 1995
The Chinese University of Hong Kong, B.S. in Physics (with honor), 1992

Employment:
2009-present: Research Scientist, Jet Propulsion Laboratory, Pasadena, CA
2005-2009: Assistant Research Scientist, Department of Atmospheric Science, Texas A&M University, College Station, TX.
2003-2005: Postdoctoral Research Associate, Earth System Science Interdisciplinary Center, University of Maryland, College Park, MD.
1999-2003: Postdoctoral Research Associate, Atmospheric Science Research Center, State University of New York at Albany, Albany, NY.

Honor and Award:
2005: Article "Suppression of deep convection over the tropical North Atlantic by the Saharan Air Layer" highlighted by *Geophys. Res. Lett.*

Selected Publications:
Wong, S., and A. Behrangi (2018), Regime dependent differences in surface freshwater exchange estimates over the ocean, *Geophys. Res. Lett.*, 45, doi:10.1002/2017GL075567.
Wu, L., **S. Wong**, T. Wang, and G. Huffman (2018): Moist convection: a key to tropical wave-moisture interaction in Indian monsoon intraseasonal oscillation. *Climate Dyn.*, in press.
Wong, S., A. D. Del Genio, T. Wang, B. Kahn, E. J. Fetzer, and T. S. L'Ecuyer (2016), Responses of tropical ocean clouds and precipitation to the large-scale circulation: Atmospheric water budget-related phase space and dynamical regimes, *J. Climate*, 29, 7127-7142, doi:10.1175/JCLI-D-15-0712.1
Wong, S., and J. Teixeira (2016), Extreme weather and tropical climate: Scaling of extremely cold brightness temperature over the ocean to tropical sea surface temperature and possible implications for global warming, *J. Climate*, 29, 3893-3905, doi:10.1175/JCLI-D-15-0214.1.
Wang, T., **S. Wong**, E. J. Fetzer (2015), Cloud regime evolution in the Indian monsoon intraseasonal oscillation: Connection to large-scale dynamical conditions and the atmospheric water budget, *Geophys. Res. Lett.*, 42, 9465-9472, doi:10.1002/2015GL066353.

Wong, S., E. J. Fetzer, M. Schreier, G. Manipon, E. F. Fishbein, B. H, Kahn, Q. Yue, and F. W. Irion (2015), Cloud-induced uncertainties in AIRS and ECMWF temperature and specific humidity, *J. Geophys. Res.*, 120, doi:10.1002/2014JD022440.

Kalmus, P., **S. Wong**, and J. Teixeira (2015), The Pacific subtropical cloud transition: a MAGIC assessment of AIRS and ECMWF profiles in the northeast Pacific, *IEEE Geosci. And Remote Sens. Lett.*, in press

Wong, S., T. S. L'Ecuyer, W. S. Olson, X. Jiang, and E. J. Fetzer (2014), Local balance and variability of atmospheric heat budget over oceans: Observation and reanalysis-based estimates. *J. Climate*, **27**, 893-913.

Behrangi, A., **S. Wong**, K. Mallick, J. Fisher (2014), On the net surface water exchange rate estimated from remote sensing observation and reanalysis, *International J. of Remote Sensing*, 2170-2185.

Wong, S., E. J. Fetzer, B. H. Kahn, B. Tian, B. H. Lambrigtsen, and H. Ye (2011), Closing the global water vapor budget with AIRS water vapor, MERRA reanalysis, TRMM and GPCP precipitation, and GSSTF surface evaporation, *J. Climate*, **24**, 6307-6321.

Wong, S., E. J. Fetzer, B. Tian, B. H. Lambrigtsen, and H. Ye (2011), The apparent water vapor sinks and heat sources associated with the intraseasonal oscillation of the Indian summer monsoon, *J. Climate*, **24**, 4466-4479.

Wong, S., A. E. Dessler, N. M. Mahowald, P. Yang, and Q. Feng (2009), Maintenance of lower tropospheric temperature inversion in the Saharan Air Layer by dust and dry anomaly, *J. Clim.*, **22**, 5149-5162.

Dessler, A. E., and **S. Wong** (2009), Climate model simulations of the water vapor climate feedback during the El Niño Southern Oscillation, *J. Clim.*, **22**, 6404-6412.

Wong, S., A. E. Dessler, N. M. Mahowald, P. R. Colarco, and A. da Silva (2008), Long-term variability in Saharan dust transport and its link to North Atlantic sea surface temperature, *Geophys. Res. Lett.*, 35, doi:10.1029/2007GL032297.

Wong, S., and A. E. Dessler (2007), Regulation of H_2O and CO in tropical tropopause layer by the Madden-Julian oscillation, *J. Geosphys. Res.*, 112, D14305, doi:10.1029/2006JD007940.

Wong, S., P. R. Colarco, and A. E. Dessler (2006), Principal component analysis of the evolution of the Saharan Air Layer and dust transport: Comparisons between a model simulation and MODIS and AIRS retrievals, *J. Geophys. Res.*, 111, D20109, doi:10.1029/2006JD007093.

Wong, S., and A. E. Dessler (2005), Suppression of deep convection over the tropical North Atlantic by the Saharan Air Layer, *Geophys. Res. Lett.*, 32, L09808, doi:10.1029/2004GL022295

Wong, S., W. -C. Wang, I. S. A. Isaksen, T. K. Berntsen, and J. K. Sundet (2004), A global climate-chemistry model study of present-day tropospheric chemistry and radiative forcing from changes in tropospheric O_3 since the preindustrial period, *J. Geophys. Res.*, 109, D11309, doi:10.1029/2003JD003998.

Wong, S., and W. -C. Wang (2003), Tropical-extratropical connection in interannual variation of the tropopause: Comparison between NCEP/NCAR reanalysis and an atmospheric general circulation model. *J. Geophys. Res.*, 108(D2), 4043, doi:10.1029/2001JD002016.

Wong, S., and W. -C. Wang (2000), Interhemispheric asymmetry in the seasonal variation of the zonal mean tropopause. *J. Geophys. Res.*, 105, 26,645-26,659.

Wong, S., M. J. Prather, and D. Rind (1999), The seasonal and interannual variability of the budgets of N_2O and CCl_3F. *J. Geophys. Res.*, 104, 23,899-23,909.

<u>Manuscripts in Preparation</u>:

Wong, S., C. M. Naud, B. H. Kahn, L. Wu, and E. J. Fetzer (2018), Coupling of precipitation and cloud structures in oceanic extratropical cyclones to large-scale moisture transport. In preparation for *J. Climate*.