

Curriculum Vitae

Guosheng Liu

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General Information

University address: Earth, Ocean & Atmospheric Sci
College of Arts and Sciences
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Professional Preparation

1990 Doctor of Philosophy, Unspecified Institution. Major: Meteorology.

Professional Experience

1999–present Professor, Earth, Ocean & Atmospheric Sci, Florida State University.

Teaching

Courses Taught

Meteorological Instrumentation and Observations (MET4400-C)
Planetary Atmospheres (MET5471)
Advanced Physical Meteorology II (MET5451)
Atmospheric Physics II (MET4450)
Doctoral Seminar (MET6930)
Master's Seminar (MET5930)
Advanced Atmosphere Physics I (MET5425)
Atmospheric Physics I (MET4420)
Meteorological Instruments and Observations (MET5403-C)

Doctoral Committee Chair

Shaheen, G., graduate. (2011).
Noh, Yoo-Jeong, graduate. (2006).

Shao, H., graduate. (2006).
Annane, B., doctoral candidate.
Nowell, H. K., doctoral candidate.
Sims, E. M., doctoral candidate.
You, Y., doctoral candidate.
Honeyager, R. E., doctoral student.
Hong, Y., doctoral student.

Doctoral Committee Cochair

Albers, C. M., doctoral candidate.
Koch, A. M., doctoral student.

Doctoral Committee Member

Martin, A. C., graduate. (2012).
Hopkins, A. E., graduate. (2012).
Shin, C. S., graduate. (2012).
Koorehpazan, D. A., graduate. (2011).
Hayes, P. D., graduate. (2011).
Peffer, L. T., graduate. (2011).
Rudlosky, S. D., graduate. (2011).
Lin, H., graduate. (2010).
Taylor, P. C., graduate. (2009).
Cossuth, J. H., doctoral candidate.
Perron, M., doctoral candidate.
Selman, C. M., doctoral candidate.
Hughes, P. J., doctoral candidate. (2013).
Feng, J., doctoral student.
Holbach, H. M., doctoral student.
Ma, Y., doctoral student.

Doctoral Committee University Representative

Liang, T., graduate. (2012).
Steward, J. L., graduate. (2012).
Bejarano-Avenda, L. F., graduate. (2006).
Gu, Z., doctoral candidate.
Paget, A. C., doctoral candidate.
Becvarik, R. A., doctoral candidate. (2013).

Master's Committee Chair

Smith, J. R., graduate. (2010).
Veenhuis, B. A., graduate. (2009).

Master's Committee Member

Bauer, J. M., graduate. (2012).
Feng, J., graduate. (2012).
Kaeplinger, A., graduate. (2012).
Klich, C. A., graduate. (2012).
Holbach, H. M., graduate. (2012).
Johnson, B. D., graduate. (2012).
Reinhart, B. J., graduate. (2012).
Selman, C. M., graduate. (2012).
Becvarik, R. A., graduate. (2011).
Taylor, Z. B., graduate. (2011).
Dinapoli, S. M., graduate. (2010).
Harrigan, D. L., graduate. (2010).
Peffer, L. T., graduate. (2009).
Chambers, A. K., graduate. (2008).
Martinaitis, S. M., graduate. (2008).
Meech, S. P., student.
Schaaf, B. M., student.
Steffen, J. D., student.
Day, Lindsey Rose-Michelle, student. (2013).
Ma, Y., student. (2013).
Marchand, M. R., student. (2013).

Research and Original Creative Work

Publications

Refereed Journal Articles

- Liu, G., & Seo, E.-K. (in press). Detecting snowfall over land by satellite high-frequency microwave observations: The lack of scattering signature and a statistical approach. *Journal of Geophysical Research*.
- Wang, Y., Liu, G., Seo, E.-K., & Fu, Y. (in press). Liquid water in snowing clouds: Implications for satellite remote sensing of snowfall. *Atmospheric Research*.
- Noh, Yoo-Jeong, Seaman, C. J., Vonder Haar, T. H., & Liu, G. (2013). *In situ* Aircraft Measurements of the Vertical Distribution of Liquid and Ice Water Content in

- Midlatitude Mixed-Phase Clouds. *Journal of Applied Meteorology and Climatology*, 52(1), 269-279. doi:10.1175/JAMC-D-11-0202.1
- Fridlind, A. M., Ackerman, A. S., Chaboureau, J. -P, Fan, J., Grabowski, W. W., Hill, A. A., Jones, T. R., Khaiyer, M. M., Liu, G., Minnis, P., Morrison, H., Nguyen, L., Park, S., Petch, J. C., Pinty, J. -P, Schumacher, C., Shipway, B. J., Varble, A. C., Wu, X., Xie, S., & Zhang, M. (2012). A comparison of TWP-ICE observational data with cloud-resolving model results. *Journal of Geophysical Research-Atmospheres*, 117, D05204. doi:10.1029/2011JD016595
- Piyush, D. N., Varma, A. K., Pal, P. K., & Liu, G. (2012). An Analysis of Rainfall Measurements over Different Spatio-Temporal Scales and Potential Implications for Uncertainty in Satellite Data Validation. *Journal of the Meteorological Society of Japan*, 90(4), 439-448. doi:10.2151/jmsj.2012-401
- Wang, M., Zhang, H., Liu, G., & Li, Y. (2012). Gaussian beam scattering by a rotationally uniaxial anisotropic sphere. *Journal of the Optical Society of America A-Optics Image Science and Vision*, 29(11), 2376-2380.
- You, Y., & Liu, G. (2012). The relationship between surface rainrate and water paths and its implications to satellite rainrate retrieval. *Journal of Geophysical Research-Atmospheres*, 117, D13207. doi:10.1029/2012JD017662
- You, Y., Liu, G., Wang, Y., & Cao, J. (2011). On the sensitivity of Tropical Rainfall Measuring Mission (TRMM) Microwave Imager channels to overland rainfall. *Journal of Geophysical Research-Atmospheres*, 116, D12203. doi:10.1029/2010JD015345
- Seo, Eun-Kyoung, Liu, G., Sufi, Myoung-Seok, & Sohn, Byung-Ju. (2010). The Varying Response of Microwave Signatures to Different Types of Overland Rainfall Found over the Korean Peninsula. *Journal of Atmospheric and Oceanic Technology*, 27(4), 785-792. doi:10.1175/2009JTECHA1364.1
- Varma, A. K., & Liu, G. (2010). On classifying rain types using satellite microwave observations. *Journal of Geophysical Research-Atmospheres*, 115, D07204. doi:10.1029/2009JD012058
- Aonashi, K., Awaka, J., Hirose, M., Kozu, T., Kubota, T., Liu, G., Shige, S., Kida, S., Seto, S., Takahashi, N., & Takayabu, Y. N. (2009). GSMaP Passive Microwave Precipitation Retrieval Algorithm : Algorithm Description and Validation. *Journal of the Meteorological Society of Japan*, 87, 119-136. doi:10.2151/jmsj.87A.119
- Noh, Yoo-Jeong, Liu, G., Jones, A. S., & Haar, T. H. V. (2009). Toward snowfall retrieval over land by combining satellite and in situ measurements. *Journal of Geophysical Research-Atmospheres*, 114, D24205. doi:10.1029/2009JD012307

- Shao, H., & Liu, G. (2009). A Critical Examination of the Observed First Aerosol Indirect Effect. *Journal of the Atmospheric Sciences*, 66(4), 1018-1032. doi:10.1175/2008JAS2812.1
- Wang, Y., Fu, Y., Liu, G., Liu, Q., & Sun, L. (2009). A new water vapor algorithm for TRMM Microwave Imager (TMI) measurements based on a log linear relationship. *Journal of Geophysical Research-Atmospheres*, 114, D21304. doi:10.1029/2008JD011057
- Liu, G. (2008). A Database of Microwave Single-Scattering Properties for Nonspherical Ice Particles. *Bulletin of the American Meteorological Society*, 89(10), 1563-1570. doi:10.1175/2008BAMS2486.1
- Liu, G. (2008). Deriving snow cloud characteristics from CloudSat observations. *Journal of Geophysical Research-Atmospheres*, 113(D18), D00A09. doi:10.1029/2007JD009766
- Seo, Eun-Kyoung, Sohn, Byung-Ju, Liu, G., Ryu, Geun-Hyeok, & Han, Hyo-Jin. (2008). Improvement of microwave rainfall retrievals in Bayesian retrieval algorithms. *Journal of the Meteorological Society of Japan*, 86(2), 405-409. doi:10.2151/jmsj.86.405
- Wang, Y., Yu, Y., Wang, Z., & Liu, G. (2008). Retrieval of Liquid Water Path Inside Nonprecipitating Clouds Using TMI Measurements. *Acta Meteorologica Sinica*, 22(3), 342-350.
- Aonashi, K., Koike, T., Muramoto, Ken-Ichiro, Imaoka, K., Takahashi, N., Liu, G., & Noh, Yoo-Jeong. (2007). Physical validation of microwave properties of winter precipitation over the sea of Japan. *IEEE Transactions on Geoscience and Remote Sensing*, 45(7), 2247-2258. doi:10.1109/TGRS.2007.896740
- Fu, Y., & Liu, G. (2007). Possible misidentification of rain type by TRMM PR over Tibetan plateau. *Journal of Applied Meteorology and Climatology*, 46(5), 667-672. doi:10.1175/JAM2484.1
- Lobl, E. S., Aonashi, K., Griffith, B., Kummerow, C., Liu, G., Murakami, M., & Wilheit, T. (2007). Wakasa Bay - An AMSR precipitation validation campaign ("Wakasa Bay Experiment"). *Bulletin of the American Meteorological Society*, 88(4), 551-558. doi:10.1175/BAMS-88-4-551
- Seo, Eun-Kyoung, Liu, G., & Kim, Kwang-Yul. (2007). A note on systematic errors in Bayesian retrieval algorithms. *Journal of the Meteorological Society of Japan*, 85(1), 69-74. doi:10.2151/jmsj.85.69
- Seo, Eun-Kyoung, Liu, G., Tao, Wei-Kuo, & Han, Sang-Ok. (2007). Adaptation of a model-generated cloud database to satellite observations. *Geophysical Research Letters*, 34(3), L03805. doi:10.1029/2006GL027857

- Seo, Eun-Kyoung, Sohn, Byung-Ju, & Liu, G. (2007). How TRMM precipitation radar and microwave imager retrieved rain rates differ. *Geophysical Research Letters*, *34*(24), L24803. doi:10.1029/2007GL032331
- Fu, Y., Liu, G., Wu, G., Yu, R., Xu, Y., Wang, Y., Li, R., & Liu, Q. (2006). Tower mast of precipitation over the central Tibetan Plateau summer. *Geophysical Research Letters*, *33*(5), L05802. doi:10.1029/2005GL024713
- Noh, Yoo-Jeong, Liu, G., Seo, Eun-Kyoung, Wang, J. R., & Aonashi, K. (2006). Development of a snowfall retrieval algorithm at high microwave frequencies. *Journal of Geophysical Research-Atmospheres*, *111*(D22), D22216. doi:10.1029/2005JD006826
- Seo, Eun-Kyoung, & Liu, G. (2006). Determination of 3D cloud ice water contents by combining multiple data sources from satellite, ground radar, and a numerical model. *Journal of Applied Meteorology and Climatology*, *45*(11), 1494-1504. doi:10.1175/JAM2430.1
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- Varma, A. K., & Liu, G. (2006). Small-scale horizontal rain-rate variability observed by satellite. *Monthly Weather Review*, *134*(10), 2722-2733. doi:10.1175/MWR3185.1
- Seo, E., & Liu, G. (2005). Retrievals of cloud ice water path by combining ground cloud radar and satellite high-frequency microwave measurements near the ARM SGP site. *Journal of Geophysical Research-Atmospheres*, *110*(D14), D14203. doi:10.1029/2004JD005727
- Shao, H., & Liu, G. (2005). Why is the satellite observed aerosol's indirect effect so variable? *Geophysical Research Letters*, *32*(15), L15802. doi:10.1029/2005GL023260
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- Varma, A., Liu, G., & Noh, Y. (2004). Subpixel-scale variability of rainfall and its application to mitigate the beam-filling problem. *Journal of Geophysical Research-Atmospheres*, *109*(D18), D18210. doi:10.1029/2004JD004968
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- Fu, Y., & Liu, G. (2003). Precipitation characteristics in mid-latitude east Asia as observed by TRMM PR and TMI. *Journal of the Meteorological Society of Japan*, *81*(6), 1353-1369. doi:10.2151/jmsj.81.1353
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- Liu, G., Shao, H., Coakley, J., Curry, J., Haggerty, J., & Tschudi, M. (2003). Retrieval of cloud droplet size from visible and microwave radiometric measurements during INDOEX: Implication to aerosols' indirect radiative effect. *Journal of Geophysical Research-Atmospheres*, *108*(D1), 4006. doi:10.1029/2001JD001395
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- Fu, Y., & Liu, G. (2001). The variability of tropical precipitation profiles and its impact on microwave brightness temperatures as inferred from TRMM data. *Journal of Applied Meteorology*, *40*(12), 2130-2143. doi:10.1175/1520-0450(2001)040[2130:TVOTPP>2
- Liu, G., Curry, J., Haggerty, J., & Fu, Y. (2001). Retrieval and characterization of cloud liquid water path using airborne passive microwave data during INDOEX. *Journal of Geophysical Research-Atmospheres*, *106*(D22), 28719-28730. doi:10.1029/2000JD900782
- Liu, G., & Fu, Y. (2001). The characteristics of tropical precipitation profiles as inferred from satellite radar measurements. *Journal of the Meteorological Society of Japan*, *79*(1), 131-143. doi:10.2151/jmsj.79.131

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- Aonashi, K., & Liu, G. (2000). Passive microwave precipitation retrievals using TMI during the Baiu period of 1998. Part I: Algorithm description and validation. *Journal of Applied Meteorology*, *39(12)*, 2024-2037. doi:10.1175/1520-0450(2000)039[2024:PMPRUT>2
- Katsumata, M., Uyeda, H., Iwanami, K., & Liu, G. (2000). The response of 36-and 89-GHz microwave channels to convective snow clouds over ocean: Observation and modeling. *Journal of Applied Meteorology*, *39(12)*, 2322-2335. doi:10.1175/1520-0450(2000)039[2322:TROAGM>2
- Liu, G., & Curry, J. (2000). Determination of ice water path and mass median particle size using multichannel microwave measurements. *Journal of Applied Meteorology*, *39(8)*, 1318-1329. doi:10.1175/1520-0450(2000)039[1318:DOIWPA>2
- Aonashi, K., & Liu, G. (1999). Direct assimilation of multichannel microwave brightness temperatures and impact on mesoscale numerical weather prediction over the TOGA COARE domain. *Journal of the Meteorological Society of Japan*, *77(3)*, 771-794.
- Curry, J., Clayson, C., Rossow, W., Reeder, R., Zhang, Y., Webster, P., Liu, G., & Sheu, R. (1999). High-resolution satellite-derived dataset of the surface fluxes of heat, freshwater, and momentum for the TOGA COARE IOP. *Bulletin of the American Meteorological Society*, *80(10)*, 2059-2080. doi:10.1175/1520-0477(1999)080[2059:HRSDDO>2
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- Smith, E., Lamm, J., Adler, R., Alishouse, J., Aonashi, K., Barrett, E., Bauer, P., Berg, W., Chang, A., Ferraro, R., Ferriday, J., Goodman, S., Grody, N., Kidd, C., Kniveton, D., Kummerow, C., Liu, G., Marzano, F., Mugnai, A., Olson, W., Petty, G., Shibata, A., Spencer, R., Wentz, F., Wilhelm, T., & Zipser, E. (1998). Results of WetNet PIP-2 project.

- Journal of the Atmospheric Sciences*, 55(9), 1483-1536.
doi:10.1175/1520-0469(1998)055[1483:ROWPP>2.
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- Sheu, R., Curry, J., & Liu, G. (1997). Vertical stratification of tropical cloud properties as determined from satellite. *Journal of Geophysical Research-Atmospheres*, 102(D4), 4231-4245. doi:10.1029/96JD02867
- Aonashi, K., Shibata, A., & Liu, G. (1996). An over-ocean precipitation retrieval using SSM/I multichannel brightness temperatures. *Journal of the Meteorological Society of Japan*, 74(5), 617-637.
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- Liu, G., & Curry, J. (1996). Large-scale cloud features during January 1993 in the north Atlantic Ocean as determined from SSM/I and SSM/T2 observations. *Journal of Geophysical Research-Atmospheres*, 101(D3), 7019-7032. doi:10.1029/95JD03859
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- LIU, G., CURRY, J., & SHEU, R. (1995). Classification of Clouds Over the Western Equatorial Pacific-Ocean using Combined Infrared and Microwave Satellite Data. *Journal of Geophysical Research-Atmospheres*, 100(D7), 13811-13826. doi:10.1029/95JD00823
- Sheu, R., & Liu, G. (1995). Atmospheric humidity variations associated with westerly wind bursts during Tropical Ocean Global Atmosphere (TOGA) Coupled Ocean Atmosphere Response Experiment (COARE). *Journal of Geophysical Research-Atmospheres*, 100(D12), 25759-25768. doi:10.1029/95JD00985
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- LIU, G., CURRY, J., & WEADON, M. (1994). Atmospheric Water-Balance in Typhoon Nina as Determined from SSM/I Satellite Data. *Meteorology and Atmospheric Physics*, 54(1-4), 141-156. doi:10.1007/BF01030056
- LIU, G., & CURRY, J. (1993). Determination of Characteristic Features of Cloud Liquid Water from Satellite Microwave Measurements. *Journal of Geophysical Research-Atmospheres*, 98(D3), 5069-5092. doi:10.1029/92JD02888
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- LIU, G., & CURRY, J. (1992). Retrieval of Precipitation from Satellite Microwave Measurement using both Emission and Scattering. *Journal of Geophysical Research-Atmospheres*, 97(D9), 9959-9974.
- LIU, G., & TAKEDA, T. (1988). Observation of the Degree of Glaciation in Middle-Level Stratiform Clouds. *Journal of the Meteorological Society of Japan*, 66(5), 645-660.
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- TAKEDA, T., & LIU, G. (1987). Estimation of Atmospheric Liquid-Water Amount by Nimbus-7 Smmr Data - a New Method and its Application to the Western North-Pacific Region. *Journal of the Meteorological Society of Japan*, 65(6), 931-947.

Contracts and Grants

Contracts and Grants Funded

- Liu, Guosheng (PI). (Aug 2007–Aug 2011). *Developing a Snow Cloud Database Using Cloudsat*. Funded by National Aeronautics & Space A. (NNX07AQ79G). Total award \$336,144.
- Liu, Guosheng (PI). (Jul 2007–Mar 2008). *Improving AMSR/AMSR-E Precipitation Algorithm (AD2M-3RA-*. Funded by Japan Aerospace Exploration Ag. (07/JAXA/ASP No.60100). Total award \$28,001.
- Liu, Guosheng (PI). (Jan 2007–Jan 2011). *Retrieval of Snowfall Over Ocean*. Funded by National Aeronautics & Space A. (NNX07AD63G). Total award \$378,945.

Liu, Guosheng (PI). (Jul 2006–Mar 2007). *Improving AMSR/AMSR-E Precipitation Algorithm*.
Funded by Japan Aerospace Exploration Ag. (AD2M-3RA-IF001). Total award \$28,001.

Liu, Guosheng (PI). (Nov 2005–Mar 2006). *Improving AMSR/AMSR-E Precipitation Algorithm*.
Funded by Japan Aerospace Exploration Ag. (05/JAXA/AENo.1017003). Total award
\$29,000.

Liu, Guosheng (PI). (May 2005–Apr 2009). *Satellite Determination of Cloud Water and
Precipitation*. Funded by National Aeronautics & Space A. (NNG05GJ17G). Total award
\$357,498.