

MANAJIT SENGUPTA
Research Scientist II
CIRA/Colorado State University
Foothills Campus, Fort Collins, CO 80523

Voice: (970) 491-8517
Fax: (970) 491-8449
Email: sengupta@cira.colostate.edu

EDUCATION:

May 2002: Ph.D., Meteorology: The Pennsylvania State University, University Park, PA 16802.

Thesis: *Radiative impact of continental stratus at the Southern Great Plains: A Climatological Perspective*

Advisors: Dr. Eugene E. Clothiaux and Dr. Thomas P. Ackerman.

<http://etda.libraries.psu.edu/theses/approved/WorldWideFiles/ETD-179/phdthesis.pdf>

June 1995: Diploma in Industrial Pollution Control: Annamalai University, Chidambaram, Tamil Nadu, India

July 1989: B.S., Honors in Physics: Calcutta University Calcutta, India.

PROFESSIONAL EXPERIENCE:

2003- Research Scientist II, Cooperative Institute for Research in the Atmosphere, Colorado State University, Fort Collins, CO

Created simulated fire datasets for GOES-R ABI for use in developing and testing algorithms for fire retrievals. These datasets were created for the GOES-R Algorithm Working group. Also conducted research into the determination of thresholds for fire detection in terms of size and temperature.

Collaborated in a 4-D Variational data assimilation experiment to assimilate GOES radiances for improving forecasting over a domain centered on the US Department of Energy's Atmospheric Radiation Measurements' (ARM) Southern Great Plains (SGP) central facility in Oklahoma. The experiment also involved independent verification of assimilation results by comparing model output with ARM central facility observations.

Developed scheme to generate satellite imagery for MODIS and GOES-R given output from a mesoscale model. This is a general scheme and can be used for virtually any satellite channel.

Developed the capability to introduce GOES sounder measurements into a 4-D Variational data assimilation experiment. Currently collaborating on a

project to investigate the impact of introduction of sounder measurements in satellite data assimilation experiment.

Developed capability to assimilate visible radiances in the presence of clouds that is being incorporated as part of the Community Radiative Transfer Model by NOAA Joint Center for Satellite Data Assimilation (JCSDA).

Developed statistical methodology for verifying the quality of severe weather simulations produced by a state of the art mesoscale model (CSU-RAMS).

Provided guidance to Post-doctoral scholars and Ph.D. level graduate students in their research activities.

Did graduate level course work in “Concepts of GIS” and gained valuable knowledge into the inner workings and capabilities of a GIS software.

Currently part of the GOES-R AWG team that is providing guidance and expertise to NOAA/NESDIS for the development of the next generation of geostationary satellites.

2002- 2003 Research Associate, Pacific Northwest National Laboratory, Richland, WA

Developed the theory for retrieving cloud base heights using the Infrared Thermometer for the ARM SGP site.

Showed non-existence of anomalous absorption using narrowband observations in broadband calculations using ARM SGP data.

Compared weather forecasting models and observations of warm boundary layer cloud liquid water path on a statistical basis at the ARM SGP site.

2000-2002 Research Fellow, Pacific Northwest National Laboratory, Richland, WA

Studied the sensitivity of solar radiation to changes in liquid water path and cloud droplet size in the presence of boundary layer stratus clouds using ARM SGP data.

Evaluated the accuracy of different stratus cloud microphysics retrieval schemes on the basis of solar radiation at the surface using data from the ARM SGP site.

Developed climatology of the properties of stratus clouds from a solar radiation perspective for the Atmospheric Radiation Measurement Program site at the Southern Great Plains in Oklahoma.

Developed a parameterization of surface radiation in the presence of boundary layer clouds based on climatological data and sensitivity of solar radiation to cloud microphysics.

Conducted an observation-based study of the effect of inhomogeneity of boundary layer clouds on reflected and transmitted solar radiation.

Developed a retrieval scheme for liquid water path in thin boundary layer clouds at the Atmospheric Radiation Measurement Program, Southern Great Plains site based on infrared radiation. This scheme is universally applicable.

1996-1999 Research Assistant, Department of Meteorology, The Pennsylvania State University, University Park, PA.

Courses in radar remote sensing, inversion techniques in remote sensing, climate modeling, radiative transfer, cloud physics, atmospheric chemistry, synoptic meteorology and atmospheric dynamics.

Compared the accuracy of retrievals and parameterizations of cirrus clouds occurring at the DOE Atmospheric Radiation Measurement, Southern Great Plains site.

Passed Ph.D. qualifying examination in June 1996 and Ph.D. comprehensive examination in November 1999.

1991-1996 Revenue Services Officer, Income-Tax Department, Government of India, Calcutta, India.

Was responsible for inspection of income tax returns for businesses in a major part of the city of Calcutta.

Underwent training and completed coursework and examinations to show competency in accounting and tax laws.

REFEREED PUBLICATIONS:

Grasso, L., D. W. Hillger and **M. Sengupta, 2009:** Demonstrating the utility of the GOES-R 2.25 μm band for fire retrieval. *Geophys. Res. Letters*, under review.

Zupanski, D., M. Zupanski, L. D. Grasso, R. Brummer, I. Jankov, D. Lindsey, **M. Sengupta**, and Mark DeMaria, **2009:** Assimilating synthetic GOES-R radiances in cloudy conditions using an ensemble-based method. *Int. J. Remote Sensing*, under review.

- Lakhankar, T., A. S. Jones, C. L. Combs, **M. Sengupta**, and T. H. Vonder Haar, **2009**: Analysis of large scale spatial variability of soil moisture data using a geostatistical method, *J. Hydrometeorology*, under review.
- M. Sengupta**, L. Grasso, D. Hillger, R. Brummer, R. DeMaria, and M. DeMaria, **2009**: Uncertainty in fire detection for the 3.9 μm Band on GOES-R and current GOES. *Bull. Amer. Met. Soc.*, under preparation.
- Jankov, I., **M. Sengupta**, L. Grasso, D. Coleman, D. Zupanski, M. Zupanski², D. Lindsey, and R. Brummer, **2009**: An evaluation of WRF-ARW microphysics using synthetic satellite Imagery for an atmospheric river event. *Int. J. Remote Sensing*, under preparation.
- Jones, A. S., T. Lakhankar, **M. Sengupta**, and T. H. Vonder Haar, **2009**: Temporal adjoint soil moisture sensitivities using the variational method for a 21-day event – implications for deep soil moisture retrievals using remote sensing, in preparation.
- Grasso, L., **M. Sengupta** and M. DeMaria, **2009**: Comparison between synthetic and observed 6.5 and 10.7 μm GOES-12 imagery of thunderstorms. *Int. J. Remote Sensing* accepted for publication.
- Grasso, L., **M. Sengupta**, J. F. Dostalek, R. Brummer and M. DeMaria, **2008**: Synthetic satellite imagery for current and future environmental satellites. *Int. J. Remote Sensing*, 29, Issue 15, 4373-4384.
- Lakhankar, T., H. Ghedira, M. Temimi, **M. Sengupta**, R. Khanbilvardi, and R. Blake, **2008**: Non-parametric Methods for Soil Moisture Retrieval from Satellite Remote Sensing Data. *Int. J. Syst. Appl., Eng. and Dev.*, 4, 203-216.
- Koyama, T., T. Vukicevic, **M. Sengupta**, T. Vonderhaar and A. S. Jones, **2006**: Analysis of information content of IR sounding radiances in cloudy conditions. *Mon. Wea. Rev.*, 134, 3657-3667.
- Vukicevic, T., **M. Sengupta**, A. S. Jones, T. Vonder Haar, **2006**: Cloud Resolving Satellite Data Assimilation: Information content of IR window observations and uncertainties in estimation; *J. Atmos. Sci.*, 63, 901-919.
- Sengupta, M.**, E. E. Clothiaux and T. P. Ackerman, **2004**: Climatology of warm boundary layer clouds at the ARM SGP site and their comparison to models; *J. Clim.*, 17, 4760-4782.
- Sengupta, M.** and T. P. Ackerman, **2003**: Investigating anomalous absorption using surface measurements; *J. Geophys. Res.*, doi:10.1029/2003JD003411.
- Sengupta, M.**, E. E. Clothiaux, T. P. Ackerman, S. Kato and Q. Min, **2003**: Importance of accurate liquid water path for estimation of solar radiation in warm boundary layer clouds: An observational study; *J. Clim.*, 16, 2997-3009.

OTHER PUBLICATIONS

- M. Sengupta**, L. Grasso, R. Brummer, and D. W. Hillger, **2009**: Improving fire detection: Current GOES to GOES-R, *Preprints: 16th Conference on Satellite Meteorology and Oceanography; Fifth Annual Symposium on Future Operational Environmental Satellite Systems-NPOESS and GOES-R*, January 11-15 Phoenix, AZ, JP2.9.
- R. Brummer, **M. Sengupta**, L. Grasso, D. W. Hillger, D. T. Lindsey, R. DeMaria, and M. DeMaria, **2009**: Synthetic satellite datasets for GOES-R ABI bands. *Preprints: 16th Conference on Satellite Meteorology and Oceanography; Fifth Annual Symposium on Future Operational Environmental Satellite Systems- NPOESS and GOES-R*, January 11-15 Phoenix, AZ, JP2.1
- L. Grasso, **M. Sengupta**, R. Brummer, R. DeMaria, and D. W. Hillger, **2009**: Synthetic GOES-R imagery of fires at 3.9 μm , *Preprints: 16th Conference on Satellite Meteorology and Oceanography; Fifth Annual Symposium on Future Operational Environmental Satellite Systems-NPOESS and GOES-R*, January 11-15 Phoenix, AZ, JP2.8.
- I. Jankov, **M. Sengupta**, L. Grasso, D. Coleman, D. Zupanski, M. Zupanski, L. Daniel, and R. Brummer, **2009**: An evaluation of brightness temperatures simulated by various WRF-ARW microphysical algorithms for an atmospheric river event affecting the California coast, *Preprints: 23rd Conference on Hydrology*, January 11-15 Phoenix, AZ, JP2.10.
- Sengupta, M.**, L. D. Grasso, D. Lindsey and M. DeMaria, **2007**: Validation of mesoscale model output with satellite observations. *Preprints: Third Symposium on Future National Operational Environmental Satellites*, January 2007, San Antonio TX, P2.1.
- Grasso, L. D., **M. Sengupta** and J. Dostalek, **2006**: Synthetic GOES-R and NPOESS imagery of mesoscale weather events. *Preprints: Third Symposium on Future National Operational Environmental Satellites*, January 2007, San Antonio TX, P2.6.
- Sengupta, M.**, L. D. Grasso, D. Lindsey and M. DeMaria, **2006**: Statistical Comparisons of Model Output with Satellite Observations: A severe weather case. *Preprints: AMS 14th Conference on Satellite Meteorology and Oceanography*, January 2006, Atlanta GA, P6.11.
- Grasso, L. D., **M. Sengupta**, J. Dostalek, and M. DeMaria , **2006**: Synthetic GOES-R and NPP Imagery of Mesoscale Weather Events. *Preprints: AMS 14th Conference on Satellite Meteorology and Oceanography*, January 2006, Atlanta GA, P6.11.
- Grasso, L. D., **M. Sengupta**, **2006**: A technique for computing hydrometeor effective radius in bins of a gamma distribution. *Preprints: AMS 14th Conference on Satellite Meteorology and Oceanography*, January 2006, Atlanta GA, P1.30.
- D. Zupanski, L. D. Grasso, M. DeMaria, **M. Sengupta**, and M. Zupanski, **2006**: Evaluating the impact of satellite data density within an ensemble data assimilation approach.

- Preprints: AMS 14th Conference on Satellite Meteorology and Oceanography*, January 2006, Atlanta GA, 9.4.
- T. Vukicevic, **M. Sengupta**, A. Jones and T. Vonderhaar, **2005**, 4D Assimilation of GOES Imager IR radiances in cloud conditions. *Preprints: Ninth Symposium on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS)*, January 2005, San Diego, CA. 4.5
- M. Sengupta**, T. Vukicevic, A. S. Jones and T. Vonderhaar, **2005**: Assimilation of satellite radiances to improve cloud analysis and short term mesoscale prediction. *Proceeding of the Battlespace Atmospheric and Cloud Impacts on Military Operations (BACIMO) conference*, Monterey, CA. 5.05
- Sengupta, M.**, Grasso, L. and DeMaria, M., **2004**: Simulation of Visible/Infrared Imager/Radiometer Suite (VIIRS) observations for application to mesoscale analysis and forecasting ; *Preprints: AMS 13th Conference on Satellite Meteorology and Oceanography*, September 2004, Norfolk, VA, P1.20.
- Vukicevic, T., **Sengupta, M.**, Vonderhaar, T., Jones, A. and Evans F., **2004**: 4D assimilation of cloudy satellite radiances; *Preprints: AMS 13th Conference on Satellite Meteorology and Oceanography*, September 2004, Norfolk, VA, P3.6.
- Dostalek, J., Grasso, L., **Sengupta, M.**, DeMaria, M., **2004**: Applications of synthetic GOES-R observations for mesoscale weather analysis and forecasting; *Preprints: AMS 13th Conference on Satellite Meteorology and Oceanography*, September 2004, Norfolk, VA, P1.9.
- Grasso, L., **M. Sengupta** and M. Demaria, **2004**: Applications of simulated GOES-R observations for advanced product development for mesoscale weather forecasting; *Proceedings of SPIE - The International Society for Optical Engineering 5549*, pp. 114-122. DOI: 10.1117/12.564466.
- Sengupta, M.**, T. P. Ackerman, and E. E. Clothiaux; **2001**: Effect of stratus on solar radiation: A study using millimeter wave cloud radar and microwave radiometer data from the Southern Great Plains; *Proceedings of the Eleventh DOE Atmospheric Radiation Measurement Program Science Team Meeting*, March 2001, San Antonio, TX.
- T. P. Ackerman, **Sengupta, M.** and E. E. Clothiaux; **1999**: A paradigm for testing cloud parameterizations; *Proceedings of the Ninth DOE Atmospheric Radiation Measurement Program Science Team Meeting*, March 1999, San Antonio, TX.

PRESENTATIONS

- Jones, A. S. , T. Lakhankar, C. Combs, S. Longmore, **M. Sengupta**, and T. H. Vonder Haar, **2008**: Retrieval and verification of deep soil moisture using passive microwave data and a temporal variational data assimilation method, *International Workshop on*

- Microwave Remote Sensing for Land Hydrology, Research and Applications*, October 20-22, Oxnard, CA.
- Sengupta, M.**, L. Grasso, D. Hillger, D. Lindsey, R. DeMaria, M. DeMaria and R. Brummer, **2008**: CIRA/RAMMB synthetic satellite proxy datasets for GOES-R ABI bands. *NOAA STAR GOES-R AWG Review*, 23-26 June 2008, Madison, WI
- Jones, A. S., T. Lakhankar, C. Combs, S. Longmore, G. Mason, G. McWilliams, **M. Sengupta**, and T. H. Vonder Haar, **2008**: An NPOESS feasibility study to retrieve deep soil moisture using a temporal variational data assimilation method and WindSat data, *28th AGU Hydrology Days*, March 26-28, 2008, Fort Collins, CO.
- Lakhankar, T., A. S. Jones, C. Combs, **M. Sengupta**, T. H. Vonder Haar, **2008**: Geostatistical method for analysis of large scale spatial variability of soil moisture, *28th AGU Hydrology Days*, March 26-28, 2008, Fort Collins, CO.
- Sengupta, M.**, L. Grasso, D. W. Hillger, R. Brummer, and M. DeMaria, **2008**: Quantifying uncertainties in fire size and temperature measured by GOES-R ABI; *5th GOES Users' Conference*, Jan 2008, New Orleans, LA, P1.38.
- Jones, A. S., T. Lakhankar, C. L. Combs, S. Longmore, G. Mason, G. McWilliams, M. Mungiole, **M. Sengupta**, and T. H. Vonder Haar, **2008**: An NPOESS Feasibility Study to Retrieve Deep Soil Moisture Using WindSat Data and a Temporal Variational Data Assimilation Method; *Fourth Symposium on Future National Operational Environmental Satellites*, Jan 2008, New Orleans, LA, P1.16.
- Seaman, C. J., J. A. Kankiewicz, S. Longmore, **M. Sengupta**, and T. H. Vonder Haar, **2008**: Assimilation of GOES radiances to improve forecasting of mid-level, mixed phase clouds; *12th Conference on IOAS-AOLS*, Jan 2008, New Orleans, LA, P1.3.
- Zhu, T., M. J. Kim, F. Weng, M. Goldberg, A. Huang, **M. Sengupta**, D. K. Zhou, and B. Ruston, **2008**: GOES-R Proxy Data Management System; *5th GOES Users' Conference*, Jan 2008, New Orleans, LA, P1.30.
- Grasso, L., **M. Sengupta** and D. T. Lindsey, **2008**: Synthetic GOES-R Imagery Development and Uses; *5th GOES Users' Conference*, Jan 2008, New Orleans, LA, P1.19.
- Lakhankar, T., A. S. Jones, C. L. Combs, **M. Sengupta**, and T. H. Vonder Haar, **2008**: Analysis of Large Scale Spatial Variability of Soil Moisture Data using a Geostatistical Method; *22nd Conference on Hydrology and 20th Conference on Climate Variability and Change*, Jan 2008, New Orleans, LA, J1.1 and J1.2.
- Sengupta, M.**, L. Grasso, D. W. Hillger, R. Brummer, and M. DeMaria, **2007**: Validation of mesoscale model output with satellite observations; *Third Symposium on Future National Operational Environmental Satellites*, Jan 2008, San Antonio, TX, P2.1.

- Grasso, L., **M. Sengupta** and J. F. Dostalek, **2007**: Synthetic GOES-R and NPOESS imagery of mesoscale weather events; *Third Symposium on Future National Operational Environmental Satellites*, Jan 2008, San Antonio, TX, P2.6.
- Sengupta, M.**, A. Jones, S. Longmore, T. H. Vonder Haar, **2007**: Cloudy 4DVAR data assimilation of the GOES Sounder, *BACIMO 2007*, November 6-8, Chestnut Hill, MA, Session 2: Data Assimilation and Numerical Modeling.
- Jones, A. S., T. Lakhankar, C. L. Combs, S. Longmore, G. Mason, G. McWilliams, M. Mungiole, **M. Sengupta**, and T. H. Vonder Haar, **2007**: NPOESS soil moisture satellite data assimilation using WindSat data and the 4DVAR method, *BACIMO 2007*, November 6-8, Chestnut Hill, MA, Session 2: Data Assimilation and Numerical Modeling.
- Sengupta, M.**, **2006**: Radiative transfer modeling for simulating GOES-R imagery; *NOAA/NESDIS Cooperative Research Program: Third Annual Science Symposium*, August 2006, Fort Collins, CO.
- Weng, F., A. Huang, D. Zhou, **M. Sengupta**, B. Ruston, M. Goldberg, T. Zhu and J. Yoe, **2006**: GOES-R Proxy Data Management System; *Fourth Goes Users' Conference*, May 2006, Broomfield, CO.
- Sengupta, M.**, L. D. Grasso, D. T. Lindsey and M. DeMaria, **2006**: A statistical assessment of mesoscale model output using computed radiances and GOES observations; *Fourth Goes Users' Conference*, May 2006, Broomfield, CO.
- Grasso, L. D. and **M. Sengupta**, **2006**: A technique for computing hydrometeor effective radius in bins of a gamma distribution; *Fourth Goes Users' Conference*, May 2006, Broomfield, CO.
- Grasso, L. D., **M. Sengupta**, J. Dostalek and M. DeMaria, **2006**: Synthetic GOES-R and NPP imagery of mesoscale weather events; *Fourth Goes Users' Conference*, May 2006, Broomfield, CO.
- Fletcher, S. J., M. Zupanski and **M. Sengupta**, **2006**: Implications and impact from transforming between lognormal variables to normal variables; *Workshop on Predictability, Observations, and Uncertainties in Geosciences*. March 2006. Tallahassee FL.
- Sengupta, M.**, L. D. Grasso, D. Lindsey and M. DeMaria, **2006**: Statistical Comparisons of Model Output with Satellite Observations: A severe weather case. *14th Conference on Satellite Meteorology and Oceanography*, January 2006, Atlanta GA, P6.11.
- Grasso, L. D., **M. Sengupta**, J. Dostalek, and M. DeMaria, **2006**: Synthetic GOES-R and NPP Imagery of Mesoscale Weather Events. *14th Conference on Satellite Meteorology and Oceanography*, January 2006, Atlanta GA, P6.11.

- Grasso, L. D., **M. Sengupta**, **2006**: A technique for computing hydrometeor effective radius in bins of a gamma distribution. *14th Conference on Satellite Meteorology and Oceanography*, January 2006, Atlanta GA, P1.30.
- Zupanski, D., L. D. Grasso, M. DeMaria, **M. Sengupta**, and M. Zupanski, **2006**: Evaluating the impact of satellite data density within an ensemble data assimilation approach. *14th Conference on Satellite Meteorology and Oceanography*, January 2006, Atlanta GA, 9.4.
- Sengupta, M.**, T. Vukicevic, A. S. Jones and T. Vonderhaar, **2005**: Assimilation of satellite radiances to improve cloud analysis and short term mesoscale prediction. *Battlespace Atmospheric and Cloud Impacts on Military Operations (BACIMO) conference*, Monterey, CA. 5.05
- Evans, K. F., **M. Sengupta** and T. Vukicevic, **2005**: SHDOMPPDA: A radiative transfer tool for data assimilation, *International Workshop on the assimilation of satellite-observed cloud and precipitation observations*. May 2005. Landsdowne, VA.
- Vukicevic, T., **M. Sengupta**, A. S. Jones and T. H. Vonder Haar, **2005**: Cloud Resolving Data Assimilation. *Fourth World Meteorological Organization International Symposium on Assimilation of Observations in Meteorology and Oceanography*, April, 2005, Prague, Czech Republic.
- Sengupta, M.**, T. Vukicevic and T. H. Vonder Haar, **2005**: Efficient All-Weather (Cloudy and Clear) Observational Operator for Satellite Radiance Data Assimilation; *Joint Center for Satellite Data Assimilation; Third Science Workshop*, April 2005, Camp Springs, MD.
- Vukicevic, T., **M. Sengupta**, A.S. Jones and T. H. Vonderhaar., **2005**: 4D assimilation of GOES imager IR radiances in cloudy conditions. *Ninth Symposium on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS)*, San Diego, CA. 4.5.
- Koyama, T., T. Vukicevic, A.S. Jones, **M. Sengupta** and T. H. Vonderhaar., **2005**: Sensitivity Characteristics of a variational assimilation of cloudy satellite radiances using the GOES sounder. *Ninth Symposium on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS)*, San Diego, CA. P 1.7.
- Vukicevic, T., **M. Sengupta**, F. Evans, and T. Vonder Haar, **2004**: Cloud resolving data assimilation; *Fourteenth DOE Atmospheric Radiation Measurement Program Science Team Meeting*, April 2003, Albuquerque, NM.
- Sengupta, M.**, Grasso, L. and DeMaria, M., **2004**: Simulation of Visible/Infrared Imager/Radiometer Suite (VIIRS) observations for application to mesoscale analysis and forecasting ; *13th Conference on Satellite Meteorology and Oceanography*, September 2004, Norfolk, VA, P1.20.

- Vukicevic, T., **Sengupta, M.**, Vonderhaar, T., Jones, A. and Evans F., **2004**: 4D assimilation of cloudy satellite radiances; *13th Conference on Satellite Meteorology and Oceanography*, September 2004, Norfolk, VA, P3.6.
- Dostalek, J., Grasso, L., **Sengupta, M.**, DeMaria, M., **2004**: Applications of synthetic GOES-R observations for mesoscale weather analysis and forecasting; *13th Conference on Satellite Meteorology and Oceanography*, September 2004, Norfolk, VA, P1.9.
- Grasso, L., **M. Sengupta** and M. Demaria, **2004**: Applications of simulated GOES-R observations for advanced product development for mesoscale weather forecasting; *49th Annual Meeting of The International Society for Optical Engineering. Conference on Weather and Environmental Satellites*, August 2004, Conference 5549.
- Sengupta, M.** and C. N. Long, **2003**, Retrieving cloud height using infrared thermometer measurements. *Thirteenth DOE Atmospheric Radiation Measurement Program Science Team Meeting*, April 2003, Broomfield, CO.
- Sengupta, M.** and C. N. Long, **2003**, Comparison of observed and modeled liquid water path for stratus and stratocumulus clouds at the SGP. *Thirteenth DOE Atmospheric Radiation Measurement Program Science Team Meeting*, April 2003, Broomfield, CO.
- Sengupta, M.** and T. P. Ackerman, **2002**: Climatology of stratus clouds at the SGP: A radiation based study; *Twelfth DOE Atmospheric Radiation Measurement Program Science Team Meeting*, April 2002, St. Petersburg, FL.
- Sengupta, M.**, E. E. Clothiaux and T.P. Ackerman, **2002**: Relative importance of size distribution and liquid water path to solar radiation in the presence of continental stratus; *Twelfth DOE Atmospheric Radiation Measurement Program Science Team Meeting*, April 2002, St. Petersburg, FL.
- Ackerman, T. P., **Sengupta, M.** and E. E. Clothiaux, **2001**: A statistical study of the effect of continental stratus properties on solar transmission; *4th International Scientific Conference on Global Energy and Water Cycle*. September 2001, Paris, France.
- Sengupta, M.**, T. P. Ackerman and E. E. Clothiaux, **2001**: Effect of stratus on solar radiation: A study using Millimeter Wave Cloud Radar (MMCR) and Microwave Radiometer (MWR) from the Southern Great Plains; *Eleventh DOE Atmospheric Radiation Measurement Program Science Team Meeting*, March 2001, Atlanta, GA.
- Ackerman, T. P., E. E. Clothiaux, J. Liljegren, J., and **M. Sengupta**, **2000**: Cloud Radars and Radiometers for Atmospheric Measurements; *Fifth International Symposium on Tropospheric Profiling: Needs and Technology*, December 2000, Adelaide, Australia.
- Sengupta, M.**, T. P. Ackerman and E. E. Clothiaux, **2000**: Comparison of infrared radiance in the 8-12 micron region retrieved by the Atmospheric Emitted Radiance Interferometer (AERI) with calculations using Modtran for clear-sky cases at Nauru; *Tenth DOE Atmospheric Radiation Measurement Program Science Team Meeting*, March 2000, San Antonio, TX.

Sengupta, M., T. P. Ackerman and E. E. Clothiaux, **2000**: Variation in liquid water paths and resulting sensitivity of drop size distribution on broadband solar radiation; *Tenth DOE Atmospheric Radiation Measurement Program Science Team Meeting*, March 2000, San Antonio, TX.

Ackerman, T. P., E. E. Clothiaux, J. Liljegren and **M. Sengupta**, **2000**: Cloud Radars and Radiometers for Atmospheric Measurements; *Fifth International Symposium on Tropospheric Profiling: Needs and Technology*, December 2000, Adelaide, Australia.

FUNDED PROPOSALS

2004-2006: Co-Principal Investigator. All-weather (cloudy and clear) observational operator for satellite radiance data assimilation. Funded by the Joint Center for Satellite Data Assimilation (NOAA) \$131 K

2006-2008: Principal Investigator: Analysis of Simulated Radiance Fields for GOES-R ABI Bands for Mesoscale Weather and Hazard Events: Funded by GOES-R Algorithm Working Group. \$180 K

ACADEMIC AND PROFESSIONAL HONORS

Top Incoming Graduate Student, Penn State, 1996.

Chi Epsilon Pi (Meteorology Honor Society) Penn State, 1997.

CIRA Research Initiative Award 2006

PROFESSIONAL MEMBERSHIPS

Member American Geophysical Union.

Member American Meteorological Society.

OTHER PROFESSIONAL CONTRIBUTIONS

Reviewer for American Meteorological Society Journal

(1) Journal of Climate

Reviewer for American Geophysical Union Journal.

(1) Geophysical Research Letters

(2) Journal of Geophysical Research – Atmospheres

Reviewer for the International Journal of Remote Sensing

Reviewer for National Oceanic and Atmospheric Administration (NOAA)

(2) Small Business Innovative Research (SBIR) proposal

Member of Science Team of the GOES-R Algorithm Working Group (AWG) of NOAA.

OTHER SKILLS

Proficient in Unix, Linux and Windows operating systems.
C, FORTRAN, MATLAB, shell and parallel programming experience using MPI.

REFERENCES

Available on request.