# CURRICULUM VITAE

**Zhibo Zhang, Ph.D.**

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**http://userpages.umbc.edu/~zzbatmos/research**

## Research Interests:

- Satellite-based remote sensing of cloud and aerosol properties
- Light scattering by atmospheric cloud particles and aerosols
- Radiative transfer in cloudy atmosphere
- Aerosol-cloud-precipitation interactions
- Water vapor and cloud radiative feedback

## Education:

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|---|---|
| Aug. 2008 | *Texas A&M University,* College Station TX<br>Ph.D., Atmospheric Sciences. Advisor: Ping Yang |
| Aug. 2004: | *Texas A&M University,* College Station TX<br>M.S., Atmospheric Sciences. Advisor: Ping Yang |
| Aug. 2001 | *Nanjing University, China*<br>B.S., Atmospheric Sciences |

## Research Experiences

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|---|---|
| Aug. 2011 ~ Present | *Assistant Professor*<br>Physics Department<br>University of Maryland, Baltimore County |
| May 2011~Aug. 2011 | *Assistant Research Scientist*<br>Joint Center for Earth Systems Technology<br>University of Maryland, Baltimore County<br>**(Work on site at NASA Goddard Space Flight Center)**<br>Advisor: Dr. Steven Platnick |
| Nov 2008 ~ May 2011 | *Postdoctoral Research Associate*<br>Goddard Earth Sci. &. Tech. Center<br>University of Maryland, Baltimore County<br>**(Work on site at NASA Goddard Space Flight Center)**<br>Advisor: Dr. Steven Platnick |

Aug. 2008 ~ Nov. 2008 *Postdoctoral Research Associate*
Texas A&M University
Advisor: Dr. Ping Yang

Sept. 2002 ~ Aug. 2008 *Graduate Research Assistant*
Texas A&M University
Advisor: Dr. Ping Yang

## Honors and Awards:

2007 AGU 2007 Fall Meeting Outstanding Student Paper Award
2005 Geosciences Graduate Excellence Scholarship, Texas A&M University
2000 People's Scholarship, Nanjing University, China
1998 People's Scholarship, Nanjing University, China

## Professional Activities and Affiliations

Member, American Meteorological Society
Member, American Geophysical Union

## Reviewer of the Following Journals

- *Remote sensing of environment*
- *Journal of Geophysical Research-Atmosphere*
- *Monthly Weather Review*
- *Journal of Applied Meteorology and Climatology*
- *Journal of Quantitative Spectroscopy and Radiative Transfer*
- *Journal of Atmospheric and Oceanic Technology*
- *Atmospheric Research*
- *Applied Optics*
- *Atmospheric Measurement Techniques*
- *Theoretical and Applied Climatology*
- *Advance in Atmospheric Science*
- *Scientific Online Letter on the Atmosphere*

## Proposal Reviewer for

- National Aeronautics and Space Administration

## Courses Taught

Satellite Data in Meteorology (TexasA&M ATMO 441)

## Funding

PI: Principal Investigator; Co-I: Co-Investigator

**Awarded**

1. **Zhang, Z. (PI),** Steven Platnick (Co-I), Andrew Ackerman (Co-I), Graham Feingold (Co-I), 2010 "*Toward a better understanding of the vertical structure of marine boundary layer clouds using MODIS observations and large-eddy simulation models*" (**NASA "*The Sciences of Terra and Aqua*" ~$150k/yr 06/0211~05/2013**)

**Pending:**

2. **Zhang, Z. (PI),** Celine Cornet, Laurent, C-Labonnote, Steven Platnick and Jerome Riedi, 2011 "*A modeling study of the capability of space-borne multi-angular multi-spectral polarimeter for water cloud remote sensing in different cloud regimes*" **(NASA New (Early-Career) Investigator in Earth Sciences)**

## Peer Reviewed Publications:

1. **Zhang, Z.**, and S. Platnick (2011), An assessment of differences between cloud effective particle radius retrievals for marine water clouds from three MODIS spectral bands, ***J. Geophysical. Research***, (In Press).

2. Baum, B. A., P. Yang, A. J. Heymsfield, C. Schmitt, Y. Xie, A. Bansemer, Y. X. Hu, and **Z. Zhang (**2011), Improvements to shortwave bulk scattering and absorption models for the remote sensing of ice clouds. ***Journal of Applied Meteorology and Climatology***, 50, 1037-1056

3. **Zhang, Z**., S. Platnick, P. Yang, A. K. Heidinger, and J. M. Comstock (2010), Effects of ice particle size vertical inhomogeneity on the passive remote sensing of ice clouds, ***J. Geophysical. Research***, *115*(D17), D17203.

   **Highlighted by American Geophysical Union**
   http://www.agu.org/cgi-bin/highlights/highlights.cgi?action=show&doi=10.1029/2010JD013835&jc=jd

4. **Zhang, Z.,** P. Yang, G. Kattawar, J. Riedi, L. C.-Labonnote, B. Baum, S. Platnick, and H.-L. Huang (2009), Influence of ice particle model on satellite ice cloud retrieval: lessons learned from MODIS and POLDER cloud product comparison, ***Atmospheric Chemistry and Physics***, 9, 7115-7129.. (www.atmos-chem-phys.net/9/1/2009/)

5. Dessler, A. E., Z. Zhang, and P. Yang (2008), Water-vapor climate feedback inferred from climate fluctuations, 2003-2008, ***Geophys. Res. Lett.***, *35*(20), L20704.

   **Highlighted by *Science* in November 2008**
   http://www.sciencemag.org/content/322/5903/twil.full#compilation-1-6-article-title-1

   **Highlighted by *Nature* in December 2008**
   *http://www.nature.com/climate/2008/0812/full/climate.2008.129.html*

6.

7. Dessler, A. E., P. Yang, J. Lee, J. Solbrig, **Z. Zhang**, K. Minschwaner, N. M. Tech, and N. M. Socorro, (2008): An analysis of the dependence of clear-sky top-of-atmosphere outgoing longwave radiation on atmospheric temperature and water vapor. ***J. Geophysical. Research***, 113, doi:10.1029/2008JD010137.

8. Yang, P., **Z. Zhang**, G. W. Kattawar, S. G. Warren, B. A. Baum, H.-L. Huang, Y. X. Hu, D. Winker, and J. Iaquinta, (2008): Effect of Cavities on the Optical Properties of Bullet Rosettes: Implications for Active and Passive Remote Sensing of Ice Cloud Properties. ***Journal of Applied Meteorology and Climatology***, 47, 2311-2330.

9. **Zhang, Z**., P. Yang, G. Kattawar, H. L. Huang, T. Greenwald, J. Li, B. A. Baum, D. K. Zhou, and Y. Hu, (2007): A fast infrared radiative transfer model based on the adding-doubling method for hyperspectral remote-sensing applications. ***Journal of Quantitative Spectroscopy & Radiative Transfer,*** **105**, 243-263.

10. **Zhang, Z**., P. Yang, G. W. Kattawar, and W. J. Wiscombe, (2007): Single-scattering properties of Platonic solids in geometrical-optics regime. ***Journal of Quantitative Spectroscopy & Radiative Transfer***, **106**, 595-603.

11. Yang, P., **Z. Zhang**, B. A. Baum, H. L. Huang, and Y. Hu, (2004): A new look at anomalous diffraction theory (ADT): Algorithm in cumulative projected-area distribution domain and modified ADT. ***Journal of Quantitative Spectroscopy & Radiative Transfer***, **89**, 421-442.

12. **Zhang, Z.,** P. Yang, G. W. Kattawar, S.-C. Tsay, B. A. Baum, Y. Hu, A. J. Heymsfiel, and J. Reichardt, (2004): Geometrical-optics solution to light scattering by droxtal ice crystals. ***Applied Optics,*** **43**, 2490-2499.

## Invited Talks

1. "Scattering of ice clouds in forward radiative transfer models". 3rd Workshop on *Advanced High Spectral Resolution Infrared Observations,* Madison, 2006

2. "Influence of ice particle microphysical model on ice cloud optical thickness retrieval", *Seminar series of The Center for Aerosol Research at NASA's Goddard Space Flight Center*, Greenbelt, MD, March 10, 2009

3. "Assessing the information content in MODIS observations on the vertical structure of marine boundary layer clouds", *Seminar series of The Center for Aerosol Research at NASA's Goddard Space Flight Center*, Greenbelt, MD, Feb.16, 2010

4. "Influence of ice particle microphysical model on ice cloud optical thickness retrieval", Seminar series of *Earth System Science Interdisciplinary Center* College Park, MD, March 29, 2010

5. "Effects of ice particle size vertical inhomogeneity on the passive remote sensing of ice clouds", Goddard Earth Science and Technology Center 10th Anniversary Science Symposium, Greenbelt, MD, June 7, 2010

6. "An assessment of MODIS marine boundary layer cloud property retrievals based on a Large-Eddy-simulation" American Meteorological Society 13th Cloud Physics & Atmospheric Radiation meeting. Portland, OR June 29th ~ July 2nd 2010

7. "Effects of ice particle size vertical inhomogeneity on the passive remote sensing of ice clouds", Goddard Earth Science and Technology Center All-hands meeting, Greenbelt, MD, Nov. 4, 2010
8. "Remote Sensing of Global Cloud Properties from MODIS", *Physics Department, University of Maryland, Baltimore County*, Feb. 9 2011

9. "Remote sensing of cloud droplet effective radius from space: Open issues and way forward", *Seminar series of The Center for Aerosol Research at NASA's Goddard Space Flight Center*, Greenbelt, MD, May.10, 2011

10. "Evaluating MOD06 marine Stratocumulus cloud products with LES models", MODIS Science Meeting, College Park, MD, May 19, 2011

## Selected Conference Proceedings, Presentations, and Posters

### 2010

1. **Zhang, Z** and S. Platnick: On the consistency of cloud particle effective radius retrievals from three MODIS shortwave infrared bands for marine water clouds. Oct. 24~28, 2010, A-Train Symposium, New Orleans, LA

2. **Zhang, Z**, S Platnick and B Stevens, An assessment of MODIS marine boundary layer cloud property retrievals based on a Large-Eddy-simulation. Jan. 26~28, 2010, MODIS science meeting, Washington D.C.

3. **Zhang, Z** and S. Platnick, Effects of ice particle size vertical inhomogeneity on the passive remote sensing of ice clouds. Jan. 26~28, 2010, MODIS science meeting, Washington D.C.

4. Bryan A. Baum, Ping Yang, Andrew Heymsfield, Carl Schmitt, Aaron Bansemer, Yu Xie, Lei Bi, and **Zhibo Zhang**. "Recent Progress: Bulk Scattering Models for the Remote Sensing of Ice Clouds" Jan. 26~28, 2010, MODIS science meeting, Washington D.C.

5. Andrew K. Heidinger, Bryan Baum, Michael Pavolonis, Steve Platnick, Ping Yang, and **Zhibo Zhang**, "Studies in Cirrus Microphysics using MODIS-IR Observations" Jan. 26~28, 2010, MODIS science meeting, Washington D.C.,

### 2009

6. **Zhang, Z**, S Platnick and B Stevens, An assessment of MODIS marine boundary layer cloud property retrievals based on a Large-Eddy-simulation. Dec. 15~19, 2009, AGU 2009 fall meeting, San Francisco, CA

7. **Zhang, Z** and S. Platnick, Effects of ice particle size vertical inhomogeneity onthe passive remote sensing of ice clouds. Gordon Research Conference-Radiation and Climate. July 5-10, 2009 Colby-Sawyer College, New London, NH

8. **Zhang, Z.,** K. Meyer P. Yang, S. Platnick, B. Baum, On the influence of ice particle microphysical model on the retrieval of cirrus cloud optical thickness using MODIS 1.38-μm band. AMS 89th annual meeting, Phoenix, AZ, 10-16 Jan. 2009

## 2008

9. **Zhang, Z**., P. Yang, J. Riedi, G. Kattwar, B. Baum, and S. Platnick, 2008: Ice particle microphysics and satellite-based cirrus cloud retrieval: Lessons learned from comparison of POLDER and MODIS cirrus retrievals. AGU 2008 Joint Assembly, Fort Landerale, FL, 27-30 May 2008.

10. **Zhang, Z.** and P. Yang, 2008: How sensitive are radiative properties of ice clouds in CAM3.0 to the ice crystal habit, inclusions and surface roughness? *AMS 88th Annual Meeting*, New Orleans, LA, 20-24 January 2008.

## 2007

11. **Zhang, Z**., P. Yang, J. Riedi, and G. Kattawar, 2007: A Comparison of Cirrus Clouds Retrieved From POLDER-3/PARASOL and MODIS/Aqua. *AGU 2007 Fall Meeting,* San Francisco, 10–14 December 2007.

12. Yang, P., G. Hong, J. Niu, **Z. Zhang**, H. L. A. Huang, B. A. Baum, and J. Li, 2007: Hyperspectral Cloud and Aerosol Optical and Radiative Properties Modeling and Applications. *2007 FTS/HISE Topical Meeting and Tabletop Exhibit*, Santa Fe, New Mexico, 11-15, February 2007. (invited talk)

13. **Zhang, Z.**, P. Yang, H.-L. Huang, and J. Li, 2007: A theoretical study of the uncertainties in the remote sensing of ice cloud optical thickness and effective size using high spectral resolution satellite observations. *AMS 87th AMS Annual Meeting*, San Antonio, TX, 13-18 January 2007.

## 2006

14. **Zhang, Z**., P. Yang, A. Heymsfield, B. A. Baum, Y. X. Hu, and K. M. Xu, 2006: Investigation of the sensitivity of ice cloud radiative properties to the parameterization scheme of ice crystal habit distributions in NCAR Community Atmosphere Model 3.0. *AMS 12th Conference on Atmospheric Radiation*, Madison, WI, 9-14 July 2006.

15. **Zhang, Z**., P. Yang, H.-L. Huang, B. A. Baum, and D. Zhou, 2006: A fast radiative transfer model for hyperspectral remote sensing. *AMS 12th Conference on Atmospheric Radiation*, Madison, WI, 9-14 July 2006.

16. **Zhang, Z.,** P. Yang, G. W. Kattawar, and W. Wiscomb, 2006: Single-scattering Properties of Platonic solids with Size Parameters in the Geometric-Optics Regime. *AMS 12th Conference on Cloud Physics, Madison*, WI, 9-14 July 2006.

**Last updated on 08/29/11.**
**This CV is true and correct.**