

# Andrew K. Heidinger

## *Curriculum Vitae*

### **Contact Information**

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### **Education**

- 1998 Ph.D. Colorado State University, in Atmospheric Sciences
- 1995 M.S. Colorado State University, in Atmospheric Science
- 1992 B.S.M.E. Purdue University, Mechanical Engineering

### **Professional Experience**

- 1998-2002 Physical Scientist, NOAA/NESDIS Office of Research and Applications, Camp Springs, Maryland
- 2002 Physical Scientist, NOAA/NESDIS Center for Satellite Applications and Research, Madison, Wisconsin

### **University Affiliations**

- 2004-present Adjunct Professor, Atmospheric and Oceanic Sciences, University of Wisconsin-Madison

### **Honors and Awards**

- 2005 NOAA Silver Medal for Satellite Calibration Work
- 2007 NASA Group Achievement Award presented to the CALIPSO Science Team
- 2011 NOAA Employee of the Month (January)
- 2011 NOAA Bronze Medal for GOES Cloud and Insolation Processing System
- 2012 NOAA Bronze Medal for Satellite Climate Research
- 2013 NOAA Bronze Medal for Leading JPSS Cloud Application Team
- 2015 NOAA STAR Best Paper Award

### **Instrument Science Teams**

- 1999-2006 Member of the CALIPSO Science Team
- 2003-2006 Chair of the VIIRS Operational Algorithm Team (VOAT)
- 2005 Chair of the GOES-R Algorithm Working Group (AWG) Cloud Application Team
- 2007 Chair of VOAT Atmospheres Group
- 2011-2016 Member International Radiation Commission
- 2011 Chair of JPSS Cloud Team
- 2012 Member GEWEX Radiation Panel / Data Analysis Panel
- 2014 Member NASA NPP Science Team
- 2015 Member NASA PACE Atmospheric Science Team

### **Graduate Students**

- Amato Evan - M.S. UW/AOS 2006
- Alex Harrington - M.S. UW/AOS 2008
- Kathryn Mozer – M.S. UW/AOS 2010
- Keiki Yamamoto – MS UW/AOS 2016 (no funding support supplied)
- Charles White – MS UW/AOS 2018

### **Courses Taught**

- **AOS 740** – Advanced Atmospheric Radiation (co-taught 3 times)
- **AOS 745** – Meteorological Satellite Applications (co-taught once)

## Peer-Reviewed Literature (H Index = 36)

- Heidinger, Andrew; Foster, Michael; Botambekov, Denis; Hiley, Michael; Walther, Andi and Li, Yue. Using the NASA EOS A-train to probe the performance of the NOAA PATMOS-x cloud fraction CDR. *Remote Sensing*, Volume 8, Issue 6, 2016, doi:10.3390/rs8060511.
- Holz, Robert E.; Platnick, Steven; Meyer, Kerry; Vaughan, Mark; Heidinger, Andrew; Yang, Ping; Wing, Gala; Dutcher, Steven; Ackerman, Steven; Amarasinghe, Nandana; Nagle, Fredrick and Wang, Chenxi. Resolving ice cloud optical thickness biases between CALIOP and MODIS using infrared retrievals. *Atmospheric Chemistry and Physics*, Volume 16, Issue 8, 2016, pp.5075-5090. Reprint # 7615. Heidinger, M Foster, D Botambekov, M Hiley, 216: Using the NASA EOS A-Train to Probe the Performance of the NOAA PATMOS-x Cloud Fraction CDR, *Remote Sensing*, 2016, 8, page 511
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- Zhao, X. AK Heidinger, A Walther, 2016: Climatology Analysis of Aerosol Effect on Marine Water Cloud from Long-Term Satellite Climate Data Records, *Remote Sensing*, 8, page 300
- Staten, P.W., BH Kahn, MM Schreier, AK Heidinger, 2016: Subpixel Characterization of HIRS Spectral Radiances Using Cloud Properties from AVHRR, *Journal of Atmospheric and Oceanic Technology*, 33, 1519-1538.
- Holz, R.E., S Platnick, K Meyer, M Vaughan, A Heidinger, 2016: Resolving ice cloud optical thickness biases between CALIOP and MODIS using infrared retrievals, *Atmospheric Chemistry and Physics*, 2016, 16. 5075-5090
- Saide, P. E.; Spak, S. N.; Pierce, R. B.; Otkin, J. A.; Schaack, T. K.; Heidinger, A. K.; da Silva, A. M.; Kacenelenbogen, M.; Redemann, J. and Carmichael, G. R. Central American biomass burning smoke can increase tornado severity in the U.S.. *Geophysical Research Letters*, Volume 42, Issue 3, 2015, pp.956-965.
- Sun, Bormin; Free, Melissa; You, Hye Lim; Foster, Michael J.; Heidinger, Andrew and Karlsson, Karl-Goran. Variability and trends in US cloud cover: ISCCP, PATMOS-x, and CLARA-A1 compared to homogeneity-adjusted weather observations. *Journal of Climate*, Volume 28, Issue 11, 2015, 4373–4389.
- Heidinger, Andrew K.; Li, Yue; Baum, Bryan A.; Holz, Robert E.; Platnick, Steven and Yang, Ping. Retrieval of cirrus cloud optical depth under day and night conditions from MODIS Collection 6 cloud property data. *Remote Sensing*, Volume 7, 2015, pp.7257-7271.
- Schmit, Timothy J.; Goodman, Steven J.; Gunshor, Mathew M.; Sieglaff, Justin; Heidinger, Andrew K.; Bachmeier, A. Scott; Linstrom, Scott S.; Terborg, Amanda; Feltz, Joleen; Bah, Kaba; Rudlosky, Scott; Lindsey, Daniel T.; Rabin, Robert M. and Schmidt, Christopher C. Rapid refresh information of significant events: Preparing users for the next generation of geostationary operational satellites. *Bulletin of the American Meteorological Society*, Volume 96, Issue 4, 2015, 561–576, supplement.
- Kopp, Thomas J.; Thomas, William; Heidinger, Andrew K.; Botambekov, Denis; Frey, Richard A.; Hutchison, Keith D.; Iisager, Barbara D.; Brueske, Kurt and Reed, Bonnie. The VIIRS cloud mask: Progress in the first year of S-NPP toward a common cloud detection scheme. *Journal of Geophysical Research-Atmospheres*, Volume 119, Issue 5, 2014, pp.2441-2456.

- Miller, Steven D.; Noh, Yoo-Yeong and Heidinger, Andrew K. Liquid-top mixed-phase cloud detection from shortwave-infrared satellite radiometer observations: A physical basis. *Journal of Geophysical Research-Atmospheres*, Volume 119, Issue 13, 2014, 8245–8267.
- Hamann, U.; Walther, A.; Baum, B.; Bennartz, R.; Bugliaro, L.; Derrien, M.; Francis, P. N.; Heidinger, A.; Joro, S.; Kniffka, A.; Le Gleau, H.; Lockhoff, M.; Lutz, H.-J.; Meirink, J. F.; Minnis, P.; Palikonda, R.; Roebeling, R.; Thoss, A.; Platnick, S.; Watts, P. and Wind, G. Remote sensing of cloud top pressure/height from SEVIRI: Analysis of ten current retrieval algorithms. *Atmospheric Measurement Techniques*, Volume 7, Issue 9, 2014, pp.2839-2867.
- Heidinger, Andrew K.; Foster, Michael J.; Walther, Andi and Zhao, Xueping (Tom). The Pathfinder-Atmospheres Extended AVHRR climate dataset. *Bulletin of the American Meteorological Society*, Volume 95, Issue 6, 2014, pp.909-922.
- Heidinger, Andrew K.; Laszlo, Istvan; Molling, Christine C. and Tarpley, Dan. **Using SURFRAD to verify the NOAA single-channel land surface temperature algorithm.** *Journal of Climate*, Volume 30, Issue 12, 2013, 2868–2884.
- Walther, Andi; Heidinger, Andrew K. and Miller, Steven. **The expected performance of cloud optical and microphysical properties derived from Suomi NPP VIIRS day/night band lunar reflectance.** *Journal of Geophysical Research-Atmospheres*, Volume 118, Issue 23, 2013, doi:10.1002/2013JD020478.
- Cintineo, John L.; Pavolonis, Michael J.; Sieglaff, Justin M. and Heidinger, Andrew K. **Evolution of severe and nonsevere convection inferred from GOES-derived cloud properties.** *Journal of Applied Meteorology and Climatology*, Volume 52, Issue 9, 2013, 2009–2023.
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- Wang, Chenxi; Yang, Ping; Nasiri, Shaima L.; Platnick, Steven; Baum, Bryan A.; Heidinger, Andrew K. and Liu, Xu. A fast radiative transfer model for visible through shortwave infrared spectral reflectances in clear and cloudy atmospheres. *Journal of Quantitative Spectroscopy and Radiative Transfer*, Volume 116, 2013, pp.122-131.
- Smith, Nadia; Menzel, W. Paul; Weisz, Elisabeth; Heidinger, Andrew K. and Baum, Bryan A. A uniform space-time gridding algorithm for comparison of satellite data products: Characterization and sensitivity study. *Journal of Applied Meteorology and Climatology*, Volume 52, Issue 1, 2013, pp.255-268.
- Foster, Michael, J and /Heidinger, Andrew. PATMOS-x: Results from a diurnally corrected 30-yr satellite cloud climatology. *Journal of Climate*, Volume 26, Issue 2, 2013, 414–425.
- Wang, Chenxi; Yang, Ping; Platnick, Steven; Heidinger, Andrew K.; Baum, Bryan A.; Greenwald, Thomas; Zhang, Zhibo and Holz, Robert E. Retrieval of ice cloud properties from AIRS and MODIS observations based on a fast high-spectral-resolution radiative transfer model. *Journal of Applied Meteorology and Climatology*, Volume 52, Issue 3, 2013, pp.710-726.
- Zhao, Tom X.-P.; Chan, Pui K. and Heidinger, Andrew K. A global survey of the effect of cloud contamination on the aerosol optical thickness and its long-term trend derived from operational AVHRR satellite observations. *Journal of Geophysical Research*, Volume 118, 2013, doi:10.1002/jgrd.50278

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- A. Evan, A. Heidinger and P. Knippertz, Analysis of winter dust activity off the coast of West Africa using a new 24-year over-water advanced very high resolution radiometer satellite dust climatology, *Journal of Geophysical Research-Atmospheres* **111**(2006a), pp. -.
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- A. Heidinger and G. Stephens, Molecular line absorption in a scattering atmosphere. Part III: Pathlength characteristics and effects of spatially heterogeneous clouds, *Journal of the Atmospheric Sciences* **59**(2002), pp. 1641-1654.
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- A.K. Heidinger, W.C. Straka, III, C.C. Molling, J.T. Sullivan and X. Wu, Deriving an inter-sensor consistent calibration for the AVHRR solar reflectance data record, *International Journal of Remote Sensing* **31**(2010b), pp. 6493-6517.
- G. Hong *et al.*, Detecting opaque and nonopaque tropical upper tropospheric ice clouds: A trispectral technique based on the MODIS 8-12  $\mu$ m window bands, *Journal of Geophysical Research-Atmospheres* **115**(2010).
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- H. Jacobowitz *et al.*, The advanced very high resolution radiometer Pathfinder Atmosphere (PATMOS) climate dataset - A resource for climate research, *Bulletin of the American Meteorological Society* **84**(2003), pp. 785-+.
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- C. Wang *et al.*, Retrieval of Ice Cloud Optical Thickness and Effective Particle Size Using a Fast Infrared Radiative Transfer Model, *Journal of Applied Meteorology and Climatology* **50**(2011), pp. 2283-2297.
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