

CIRA

Postdoctoral Fellows

DECEMBER 2008



David F. Baker



Ph.D., Princeton University, Atmospheric and Oceanic Science, 2001
CIRA Postdoctoral Fellow in Fort Collins, CO

Research Interests:

- ❖ Global Carbon Cycle
- ❖ Data Assimilation / Estimation Theory
- ❖ Atmospheric Tracer Transport
- ❖ Climate Dynamics

Current Research Projects:

Development of a variational data assimilation method to estimate fine-resolution surface CO₂ fluxes (sources and sinks) from column CO₂ concentration measurements from the Orbital Carbon Observatory (OCO). The flux product will be used both to identify systematic errors in the OCO measurements and to provide carbon cycle scientists with a near-real-time view of the OCO results.

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Yong Chen



Ph.D., Atmospheric Sciences, University of California, Los Angeles, 2005
CIRA Postdoctoral Fellow in Camp Springs, MD

Research Interests:

- ❖ Radiative Transfer
- ❖ Satellite Remote Sensing
- ❖ Cirrus Cloud Characteristics

Current Research Projects:

Development of the Community Radiative Transfer Model (CRTM) for visible, infrared, and microwave under various atmospheric (clear, aerosol, and cloudy sky) and surface conditions. Integration of new radiative transfer components into CRTM. Validation of CRTM using satellite observation data, and supporting satellite data assimilation in numerical weather prediction models.

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Prasanjit Dash



Ph.D., MSA Group Faculty of Physics, University of Karlsruhe, 2004
CIRA Postdoctoral Fellow/STAR Visiting Scientist in Camp Springs, MD

Research Interests:

- ❖ Algorithm development and implementation in the terrestrial infrared (TIR) for Land Surface Temperature (*LST*) and *Emissivity*
- ❖ Sea Surface Temperature (*SST*) estimation
- ❖ Automated QC/QA tools for SST products based on statistical consistency checks
- ❖ Radiative Transfer Modeling and *Information Content Analysis* in TIR channels employing MODTRAN band model
- ❖ Time-series statistical homogeneity analysis for *LST validation site identification*

Current Research Projects:

QC/QA post-processor for SST products (IDL code + Unix scripts). Developed a robust and generic QC/QA post-processor for quality control purposes of SST products.

Information content analysis in TIR channels using MODTRAN (FORTRAN, IDL, Scripts). Information content analysis of signal in TIR channels towards SST retrieval based on simulated satellite signal for different atmospheres, observation conditions, and modeled emissivity values. As a test-sensor, AVHRR-3 onboard MeTOp-A was considered.

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Min-Jeong Kim



Ph.D., Atmospheric Sciences, Univ. of Washington, Seattle, 2004
CIRA Postdoctoral Fellow in Camp Springs, MD

Research Interests:

- ❖ Remote sensing of cloud and land surface using multisensors board in satellites
- ❖ Radiative transfer modeling for cloudy atmosphere
- ❖ Radiance data assimilation using WRF models to see the impact of satellite observations on numerical weather model predictions

Current Research Project:

- ❖ GOES-R proxy data applications

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XingMing Liang



Ph.D., Atmospheric Sciences and Remote Sensing, Saga University, Japan, 2005
CIRA Postdoctoral Fellow in Camp Springs, MD

Research Interests:

- ❖ Long-term Monitoring Aerosol Optical and Micro-physical Properties
- ❖ Radiative Transfer
- ❖ Atmospheric Sounding
- ❖ Sensor Calibration and SST Retrieval.

Current Research Project:

Dr. Liang works with the NOAA/NESDIS/STAR Sea Surface Temperature (SST) team on GOES-R, National Polar Orbiting Environment Satellite System (NPOESS) and MetOp SST Projects. His initial focus is evaluation of the Community Radiative Transfer Model (CRTM) and exploring its potential for cloud screening in Advanced Very High Resolution Radiometer (AVHRR) and Spinning Enhanced Visible and Infrared Imager (SEVIRI) data, and for SST retrievals. A long-term research project is developing physical SST retrieval from the Visible and Infrared Imaging Radiometric Suite (VIIRS) onboard NPOESS and Advanced Baseline Imager (ABI) onboard future GOES-R Satellites.

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Wei Shi



Ph.D., Physical Oceanography, North Carolina State University, 2002
CIRA Postdoctoral Fellow in Camp Springs, MD

Research Interests:

- ❖ Ocean color algorithm and application,
- ❖ Marine ecosystem study

Current Research projects:

Ocean Color algorithm development and evaluation. Ocean Color product application in coastal regions.

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Armin Sorooshian



Ph.D., Chemical Engineering, California Institute of Technology (Caltech), 2008
CIRA Postdoctoral Fellow in Boulder, CO

Research Interests:

- ❖ Aerosol-Cloud-Precipitation Interactions
- ❖ Satellite Remote Sensing
- ❖ Secondary Organic Aerosol
- ❖ Aerosol Hygroscopicity
- ❖ Aerosol Instrumentation

Current Research Projects:

Using a combination of remote sensing measurements, in-situ measurements, and modeling to tackle a variety of topics, including the influence of ocean biota emissions on aerosols and maritime cloud properties.

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Feng Xu



Ph.D., Electronic Engineering, Fudan University, China, 2008
CIRA Postdoctoral Fellow in Camp Springs, MD

Research Interests:

- ❖ Infrared satellite remote sensing for oceans
- ❖ Microwave scattering modeling in natural media
- ❖ Synthetic aperture radar remote sensing

Current Research Projects:

Error characterization of satellite sea surface temperature (SST) in retrieval space for ACSPO. Quality control of in-situ observation of sea surface temperature for calibration and validation of GOES-R SST.

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Hao Zhang



Ph.D., Physics, University of Miami, 2004
CIRA Postdoctoral Fellow in Camp Springs, MD

Research Interests:

- ❖ Atmospheric and ocean optics
- ❖ Bi-directional reflectance distribution function (BRDF)
- ❖ Raman, infrared and fluorescence spectroscopy

Dr. Hao Zhang received his PhD in physics and stayed on as a postdoc in Atmospheric and Ocean Optics Group at the University of Miami Physics Department. He had been working on the measurement of the bi-directional reflectance distribution function (BRDF) of closely-packed particulate surfaces such as benthic sediment floors with Dr. Kenneth J. Voss from 1999 to 2006.

Current Research Projects:

Dr. Zhang joined CIRA on Oct. 2, 2006, and has since been working with Dr. Menghua Wang at NOAA/NESDIS/STAR located in Camp Springs, Maryland to develop and evaluate algorithms for ocean color remote sensing. Dr. Zhang will be working on both the satellite data from various ocean color sensors (e.g., SeaWiFS, MODIS, and VIIRS) and ground in situ measurements for algorithm development and product evaluation.

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