

## DARREN L. JACKSON

### Cooperative Institute for Research in Environmental Sciences

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## PROFESSIONAL EXPERIENCE

### Senior Associate Scientist

2004-2022

*CIRES & NOAA Physical Sciences Laboratory, Boulder, CO, 2020*

- Evaluating NLDAS and National Water Model (NWM) soil moisture and Evaporative Demand Drought Index data for the early warning of drought in the Midwest Drought Early Warning System
- Evaluating PSL soil moisture station data used to assess the predictability of soil moisture in northern California
- Analyzing subpixel variability of satellite-derived ocean surface products for the ATOMIC field project
- Serving as a CIRES Supervisor since 2011

*CIRES & NOAA Earth System Research Laboratory, Physical Sciences Division, Boulder, CO 2005-2020*

- Constructed and evaluated soil moisture percentile data set from the NWM used for the development of prototype drought monitor products by NOAA Office of Water Prediction (2018-2020)
- Served as the CIRES team lead for the Hydrometeorology Observations and Processes Team (2015-2018)
- Developed and validated algorithms of intercalibrated satellite-derived near-surface temperature and specific humidity and extend product time series to 1987-2016 time period (2015-2018)
- Managed dropsonde funding for NOAA SHOUT field campaign and assist in the field as dropsonde operator and mission scientist (2015-2017)
- Constructed climatology of atmospheric rivers (ARs) from satellite and reanalysis data sets and study impact ARs have on extreme precipitation (2014-2016)
- Developed method that using satellite retrievals to derive gas transfer velocity at ocean surface using COARE gas transfer model and developed propagation of errors model to characterize transfer velocity error (2011-2014)
- Developed method to remove diurnal and inter-satellite biases from HIRS observations (2006-2008)

*CIRES & NOAA Environmental Technology Laboratory, Boulder, CO 2004-2005*

- Developed multi-instrument retrieval of near-surface temperature and specific humidity using satellite microwave observations
- Examined interannual variations between HIRS upper tropospheric water vapor radiances with those derived from GFDL climate model simulations and reanalysis products
- Developed optimal interpolation method for blending SST observations derived from infrared and microwave satellite observations

### Associate Scientist III

*CIRES & NOAA Environmental Technology Laboratory, Boulder, CO*

1999-2004

- Developed code to limb correct, cloud-clear, and retrieve cloud parameters using 23 years of TOVS/ATOVS 1b data
- Developed upper tropospheric humidity (UTH) retrieval, processed 20 years of UTH data, and performed trend analysis and significance testing on UTH data

### Professional Research Assistant

*CIRES & NOAA Climate Diagnostic Center, Boulder, CO*

1994-1999

- Processed and analyzed the NESDIS HIRS Operational sounding clear column radiance data
- Performed intercomparison of upper tropospheric humidity from TOVS, SSM/I, SAGE, and radiosonde data and compared these observed data to climate model simulations

## EDUCATION

Colorado State University, Master of Science, Atmospheric Science, GPA 3.9/4.0

1989 – 1992

Iowa State University, Bachelor of Science, Meteorology, GPA 3.7/4.0, Graduated with Distinction and Honors

1985 – 1989

## TECHNICAL SKILLS

- Expertise using UNIX, Linux, and Microsoft OS
- Extensive experience with IDL, FORTRAN, C, Bourne, Bash, Perl
- Expertise analyzing large data sets from satellite, reanalysis, and model data
- Expertise using *in situ* data to evaluate satellite and model data sets
- Expertise with statistical processing, characterizing error, and trend analysis
- Proficiency with Microsoft Office products
- Experience in writing journal articles and preparing oral and poster presentations for conferences

## PROFESSIONAL MEMBERSHIPS

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|---|--------------------|
| <b>American Meteorological Society</b><br>Attend various scientific conferences and served as reviewer for various journals | <b>1986 – 2020</b> |
| <b>American Geophysical Union</b><br>Attend various scientific conferences and served as reviewer for various journals      | <b>1999 – 2020</b> |

## PROFESSIONAL SERVICE

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|--|--------------------|
| <i>CIRES Member's Council</i><br><b>Representative</b><br>Attended CIRES Executive and Fellows' Meetings discussing the interests of CIRES members and providing a conduit between CIRES members and CIRES administration.                                       | <b>2005 – 2008</b> |
| <b>CIRES Awards Committee</b><br>Served on committee that conducted the advertisement, evaluated nominations, and selected winners of the CIRES science and service awards and served as Chairperson in 2007   | <b>2006 – 2007</b> |
| <b>Executive/Fellows Meeting Representative</b><br>Attended CIRES Executive and Fellows' Meetings as representative of the CIRES Members' Council. Reported to CMC the topics of the these meetings and brought forward to the meetings CIRES membership issues  | <b>2008</b>        |
| <b>Reviewer for Professional Journals</b><br>Served as reviewer for Journal of Geophysical Research, Geophysical Research Letters, Journal of Oceanography, Journal of Climate, Journal of Applied Remote Sensing, Journal of Atmospheric and Oceanic Technology | <b>2000-2020</b>   |

## AWARDS

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|--|-------------|
| <b>NOAA Research Employee of the Year</b><br>Award given to several PSD members for rapidly implementing and supporting a complex, multi-platform, multi-organizational field campaign to observe a rare, high-intensity El Niño event   | <b>2017</b> |
| <b>NOAA Bronze Medal Award</b><br>Award given to PSD members supporting the multi-platform and multi-organizational field campaign of a rare and high-intensity El Nino event. I served as a NOAA SHOUT/ENRR mission scientist for Global Hawk operations.                             | <b>2017</b> |
| <b>NASA Group Achievement Award</b><br>Awarded to the Hurricane and Severe Storm Sentinel (HS3) for outstanding achievements of the HS3 airborne mission to investigate the factors influencing hurricane intensity change. I served as a dropsonde operator during flight operations. | <b>2015</b> |

## COMMUNITY SERVICE &amp; OUTREACH

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|---|-------------|
| • Conducted water cycle presentations at Prospect Ridge Academy, Broomfield, CO     | 2012 – 2017 |
| • Served as Boy Scout Committee Member for Troop 69 in Louisville, Colorado         | 2010 – 2015 |
| • Board Member of Commerce Children's Center (Secretary and President), Boulder, CO | 2008 - 2009 |
| • Conducted weather presentations at Peak to Peak Charter School, Lafayette, CO     | 2002 - 2006 |