

Jonathan M. Darnel

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Education:

University of Wyoming, MS Astrophysics; May 2005
Indiana University South Bend (IUSB), BS Physics; May 2002

Work Experience:

(Oct 1 2011 - present)

CIRES Professional Research Assistant at the University of Colorado (Boulder CO)
GOES-R SUVI Instrument Scientist

- Develop and assess impacts to instrument performance
- Publish detailed plans for instrument testing and calibration on-orbit
- Review instrument vendor requirements documents
- Design and implement calibration analysis tools for the GOES-R SUVI
- Research novel approaches to satellite and instrument intercalibration.

Develop implement GOES-R SUVI Level-2+ product algorithms.

- Research image processing methodologies for adaptation into the GOES-R SUVI Level-2+ code base
- Create proxy data and sample output
- Develop proof-of-concept code and implement that code in a demonstration environment.
- Review the status of algorithm development and the readiness for implementation
- Present at professional conferences

(1 Oct 2009 – 30 Aug 2011)

Support Scientist II for I.M. Systems Group (College Park, MD)

Providing Calibration/Validation support for NOAA on the GOES-R satellite

- Prepared white paper studies analyzing instrument performance
- Develop detailed plans for instrument calibration on-orbit
- Reviewed instrument vendor requirements documents
- Provided technical expertise to the government.
- Designed a set of calibration analysis tools for the GOES-R SUVI

(August 2003–May 2005)

Graduate Research Assistant at the University of Wyoming

- Performed astronomical data reduction and aperture photometry of Near InfraRed (IJKL' bands) data from Kitt Peak National Observatory (data taken in 2002).
- Wrote data tools in IDL and Perl for processing telescope data

(May, 2003 – August, 2003)

Graduate Research Assistant at Los Alamos National Lab

- Performed Population Synthesis Modeling using FORTRAN to simulate the evolution of binary star systems.

(May, 2001 – August, 2003)

Research Assistant at NASA Goddard Space Flight Center

- Wrote a simulation to model the interaction of ultra-high energy tau neutrinos within the atmosphere using PAW (a FORTRAN-esque software analysis package)

(May, 1998 – August, 2000)

Undergraduate Research Assistant at Purdue University

- Performed measurements of reflectivity upon various mirrors.
- Tested the response function of photo-multiplier tubes.
- Interpreted the results of atmospheric particle showers simulations.

Other Relevant Experience:

- Developed an atmospheric particle interaction model in C++ (2001)
- Developed a data-analysis package for processing astronomical data taken from the Wyoming InfraRed Observatory in IDL (2004)

Computer Experience:

Operating Systems:

GNU/Linux: 15+ years

MS Windows: 14+ years (95, 98, XP, 7)

Computer Programming:

C/C++: 7 years

FORTRAN: 2 years

Python: 7+ years

IDL: 5+ years

Bash shell scripting: 3+ years

Other:

LaTEX (for grants, papers, etc.)

Familiar with MS Office (Word, Excel, PowerPoint),

OpenOffice

Awards Received:

NOAA Customer Service Excellence Award - 2014

NOAA Customer Service Excellence Award - 2013

Poster Presentations:

Darnel, J, Boerner, P. Using the GOES EUVS to Track SDO/AIA Degradation. *Solar Heliospheric and Interplanetary Environment*, Stowe, Vermont. July, 2015.

Darnel, J., S, Hill, W. Denig. NOAA Solar Imagery Products for the GOES-R Era. *Solar Heliospheric and Interplanetary Environment*, Telluride, Colorado. June, 2014.

Darnel, J., S, Hill, W. Denig. Automatic Analysis of EUV Solar Features using Solar Imagery for the GOES-R SUVI. *CIRES Rendezvous*, Boulder, Colorado. May, 2013.

Darnel, J., S, Hill, W. Denig. Automatic Analysis of EUV Solar Features using Solar Imagery for the GOES-R SUVI. *AMS*, Austin, Texas. January, 2013.

Darnel, J., J. Green, W. Denig. Implementation of Space Environmental Anomalies Expert System Real Time. *Space Weather Week*, Boulder, CO. April, 2012.

Darnel, J., J. Green, W. Denig. Implementation of Space Environmental Anomalies Expert System Real Time. *CIRES Rendezvous*, Boulder, CO. April, 2012.

Hill, S., J. Darnel, C. Lauer, E. J. Rigler, J. Vickroy. Automated and Interactive Image Analysis at NOAA's Space Weather Prediction Center. *Solar Information Processing Workshop VI*, Bozeman, MT. July, 2012.

- Darnel, J. M. and Cao, Changyong. "Calibration Tool Development for the GOES-R Solar UltraViolet Imager", AMS, Seattle. January, 2011.
- Darnel, J. M., Rowland, William, Cao, Changyong. "Developing Calibration Support for the Space Weather Instruments for GOES-R", AMS, Annapolis. September, 2010.
- Darnel, J. M. and Cao, Changyong. "The Development of Calibration Tools for GOES-R SUVI", GOES-R Risk Reduction Review, Madison. 2010

Oral Presentations:

- Darnel, J. "*GOES-R SUVI Products*". GOES-VW Requirements Workshop, Boulder, Colorado. April, 2015.
- Darnel, J. "*Classification of Solar EUV Features*". SHINE Coronal Hole Workshop, Telluride, Colorado. June, 2014.
- Darnel, J. "*Using GOES-R data for Solar Observations*". Boulder Solar Day, Boulder, Colorado. March, 2013.

Peer-Reviewed Publications:

- Darnel, J. M. Kobulnicky, H.A. "The Massive Young Star Clusters of Extragalactic HII Regions", 2004, B.A.A.S., 203, 14. 24.
- Kobulnicky, H. A. et. al. "Discovery of New Low-Latitude Milky Way Globular Cluster Using GLIMPSE". The Astronomical Journal, Volume 129, Issue1, pp. 239–250. 2005.
- Buckalew et al. "Understanding Radio-Selected Thermal Sources in M 33: Ultraviolet, Optical, Near-Infrared, Spitzer Mid-Infrared, and Radio Observations". ApJS, 2005, 162, 329.