

John Clover

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Objective

Currently seeking a full time position where I can utilize my problem solving abilities and technical skills in a fast paced, diverse environment.

Experience

STAFF RESEARCH ASSOCIATE, CENTER FOR ASTROPHYSICS AND SPACE SCIENCES, LA JOLLA, CA 2006-PRESENT

Projects

Background Sky, Zodiacal Light and Gegenschein model

Created new versions of long term and time varying background sky, including the sidereal background, and implemented an analytical model of the Zodiacal dust and Gegenschein. These portions of the bright sky are removed to enhance the signal of the Thomson scattered white light from the Sun.

Epsilon Aurigae, Citizen Sky Campaign

Used stellar data from the SMEI all sky imager to create a long term time series of the varying brightness of several stars, including epsilon Aurigae which eclipses once every 27 years. The SMEI instrument provided data closer to the Sun than ground observers were able to observe with a much higher cadence. This work was done without funding and contributed to the Citizen Sky campaign and to several posters at the Winter 2011 American Astronomical Society conference in Seattle, WA.

Implementing UCSD Space Weather Models at the Community Coordinated Modeling Center (CCMC) at Goddard Space Flight Center

Helped implement three separate UCSD tomographic 3D solar wind reconstruction programs at the CCMC for use in space weather forecasting. Created several custom Python scripts to wrap existing Fortran programs and to manage data input and output.

Real Time Pipeline for Data Processing

Moved existing cron based data pipeline to an inotify event based system written in Python to reduce data reduction latency by up to 3 hours. Data is now processed immediately as it arrives from Air Force servers and composite images are available in as little as 20 minutes after the arrival of the last frame for an orbit.

Hardware Deployment

Replaced fifteen Pentium 4 systems with three servers and redistributed the work load, reducing data processing time by a factor of 10. Designed and built a dual Xeon server for high resolution 3D tomography.

Comet Tail Analysis

As an undergrad, created a new technique to measure the solar wind speed using the plasma tails of comets in high temporal and spatial resolution sky images, leading to two separate publications with analysis of four comets from two separate spacecraft.

UCSD codebase

Responsible for maintaining and implementing bug fixes of 20 year old IDL, Fortran and script code bases for the Solar and Heliospheric Physics group at UCSD. Documentation available online: http://ips.ucsd.edu/help/smei/pro_frames.html

Radio Telescope Data

Converted data from the EISCAT radio telescopes in Europe and the Ooty radio telescope in Ootacamund, India for use with the UCSD tomographic solar wind reconstruction programs to reconstruct the solar wind speed and density in 3D.

TECHNICAL DEVELOPER / QUALITY ASSURANCE, RED HAT, INC, DURHAM, NC 1999-2002

- Tested client and server functionality of Red Hat's python based tool "up2date" which provides package management and system update functionality to Red Hat Linux.
- Provided advanced server support for Red Hat Linux systems.
- Created customized Linux based solutions for clients.
- Provided telephone and internet based support for basic installation and advanced configuration of Red Hat Linux.

Education

UC San Diego, La Jolla, CA — Bachelor of Science in Physics, 2008

Skills

- Operating Systems: Linux (17 years of experience, primarily Red Hat based), Mac OS X, Windows
- Services: Apache, Bind, Sendmail, NFS
- Languages: C, Python, Bash, JavaScript

Publications

First Authorship

2010-04 J.M. Clover, B.V. Jackson, A. Buffington, P.P. Hick and M.M. Bisi
Solar wind speed inferred from cometary plasma tails using observations from Stereo HI-1
Astrophys. J. 713 (1), 394–397, April 2010
<http://dx.doi.org/10.1088/0004-637X/713/1/394>

Comet Related

2011 J. Li, D. Jewitt, J.M. Clover and B.V. Jackson
Outburst of Comet 17P/Holmes observed with the Solar Mass Ejection
Astrophys. J., 728, January 2011
<http://dx.doi.org/10.1088/0004-637X/728/1/31>

2008-04 A. Buffington, M.M. Bisi, J.M. Clover, P.P. Hick, B.V. Jackson and T.A. Kuchar
Analysis of plasma-tail motions for comets C/2001 Q4 (NEAT) and C/2002 T7 (LINEAR) using observations from SMEI
Astrophys. J. 677, 798–807, April 2008
<http://dx.doi.org/10.1086/529039>

Variable Star Related

2010-11 R. Hounsell, M.F. Bode, P.P. Hick, A. Buffington, B.V. Jackson, J.M. Clover, A.W. Shafter, M.J. Darnley, N.R. Mawson, I.A. Steele, A. Evans, S.P.S. Eyres and T.J. O'Brien
Exquisite nova light curves from the Solar Mass Ejection Imager (SMEI)
Astrophys. J. 724 (1), 480–486, November 2010
<http://dx.doi.org/10.1088/0004-637X/724/1/480>

The Astrophysical Journal

2010-12 B.V. Jackson, A. Buffington, P.P. Hick, J.M. Clover, M.M. Bisi and D. Webb
SMEI 3D reconstruction of a coronal mass ejection interacting with a corotating solar wind density enhancement: the 2008 April 26 CME
Astrophys. J. 724 (2), 829–834, December 2010
<http://dx.doi.org/10.1088/0004-637X/724/2/829>

2010-06 M.M. Bisi, B.V. Jackson, P.P. Hick, A. Buffington, J.M. Clover, M. Tokumaru and K. Fujiki
Three-dimensional reconstructions and mass determination of the 2008 June 2 LASCO coronal mass ejection using STELab IPS observations
Astrophys. J. Lett. 715 (2), L104–L108, June 2010
<http://dx.doi.org/10.1088/2041-8205/715/2/L104>

Zodiacal Dust/Gegenschein

2009-09 A. Buffington, M.M. Bisi, J.M. Clover, P.P. Hick, B.V. Jackson, T.A. Kuchar and S.D. Price
Measurements of the Gegenschein brightness from the Solar Mass Ejection Imager (SMEI)
Icarus 203, 124–133, September 2009
<http://dx.doi.org/10.1016/j.icarus.2009.04.007>

Journal of Geophysical Research

2008-12 B.V. Jackson, M.M. Bisi, P.P. Hick, A. Buffington, J.M. Clover and W. Sun
Solar Mass Ejection Imager 3–D reconstruction of the 27–28 May 2003 coronal mass ejection sequence
J. Geophys. Res. 113, A00A15, December 2008
<http://dx.doi.org/10.1029/2008JA013224>

2008-10 M.M. Bisi, B.V. Jackson, P.P. Hick, A. Buffington, D. Odstrcil and J.M. Clover
Three-dimensional reconstructions of the early–November 2004 Coordinated Data Analysis Workshop geomagnetic storms: Analyses of STELab IPS speed and SMEI density data
J. Geophys. Res. 113, A00A11, October 2008
<http://dx.doi.org/10.1029/2008JA013222>

Journal of Atmospheric and Solar-Terrestrial Physics

2010-11 B.V. Jackson, M.S. Hamilton, P.P. Hick, A. Buffington, M.M. Bisi, J.M. Clover, M. Tokumaru and K. Fujiki
Solar Mass Ejection Imager (SMEI) 3–D reconstruction of density enhancements behind interplanetary shocks: in-situ comparison near Earth and at STEREO

J. Atmospheric and Solar-Terrestrial Physics (in press), November 2010
<http://dx.doi.org/10.1016/j.jastp.2010.11.023>

2010-11 B.V. Jackson, P.P. Hick, A. Buffington, M.M. Bisi, J.M. Clover, M. Tokumaru, M. Kojima
and K. Fujiki
Three-dimensional reconstruction of heliospheric structure using iterative tomography: a re-
view
J. Atmospheric and Solar-Terrestrial Physics (in press), November 2010
<http://dx.doi.org/10.1016/j.jastp.2010.10.007>