Kenneth J. Hurst

WORK ADDRESS:

Mail Stop 126-347
Jet Propulsion Laboratory
4800 Oak Grove Dr.
Pasadena, CA 91109
[818] 354-6637

HOME ADDRESS:

PO Box 869
Lebec, CA 93243-0869
[805] 248-6654
FAX [805] 248-6308

EDUCATION:

Columbia University, New York, New York Title of thesis: "The Measurement of Vertical Crustal Deformation"	PhD Geology, October, 1987
Columbia University, New York, New York	MPh Geology, 1987 MA Geology, 1982
Earlham College, Richmond Indiana	BA Geology, 1980 BA Physics, 1980

EMPLOYMENT EXPERIENCES:

• April 2002 to present - acting Group Supervisor, Machine Learning Systems Group, Jet Propulsion Laboratory

I am charged with providing the intellectual leadership and management of the MLS group. The largest single time consumer in this job is the ECAP review process.

• March 26 2001 to present - Group Supervisor, Data Understanding Systems Group, Jet Propulsion Laboratory

I am charged with providing the intellectual leadership and management of the DUS group.

I am continuing my involvement with SCIGN, remaining active on the SCIGN analysis committee and the SCIGN coordinating board.

• January 1990 to March 2001 - Member of the Technical Staff - Jet Propulsion Laboratory

A participant in the General Earthquake Model (GEM) initiative. I have been involved in laying the foundations for building a web-based, distributed earthquake modeling environment.

A member of the Southern California Integrated Geodetic Network (SCIGN) analysis team at JPL. I have been the principal architect of the current JPL solution for the network. I have served on the SCIGN analysis committee which compares and coordinates the analysis at JPL, SIO and USGS.

Member of a 3 person team to port the GIPSY-OASIS II software to the Linux-PC platform.

Principal Investigator of Parkfield Rapid Static GPS experiment under sponsorship of NASA-DOSE program. This experiment had two goals. The first is to demonstrate that the Rapid Static Survey technique can be a reliable tool for crustal deformation research, and the second is to measure the deformation field around Parkfield with unprecedented spatial detail.

Principal organizer of conversion/rewrite of GIPSY-OASIS II GPS analysis software to run under UNIX, and general release of the software to other research institutions. GIPSY-OASIS II is recognized as one of the best high-precision GPS analysis packages in the world. It was selected as 1 of 5 runners-up in the 1995 NASA software of the year award. Since the conversion/rewrite, we have demonstrated a 5 fold improvement in precision. We are now achieving precisions of a few parts in 10^{-9} of the baseline length.

Co-organizer and designer of the first class on the theory and use of GIPSY-OASIS II. The first class was given at Haystack Observatory, Massachusetts. It was taught by myself and two other members of our group October 21-27, 1992. Since then the class has been given at the

Technical University, Delft, The Netherlands, March 29 - April 2, 1993; the Chalmers University, Goteborg, Sweden, April 5-9 1993; the Jet Propulsion Laboratory, Pasadena, California, June 7-11, 1993; the University Navstar Consortium (UNAVCO), Boulder Colorado, July 19-23, 1993; the Goddard Space Flight Center, Greenbelt Maryland, May 16-20, 1994; the University of Washington, Seattle Washington, August 22-26, 1994; the Geographical Survey Institute, Tskuba Japan Aug 7-11 1995; the Hawaiian Volcano Observatory - USGS, Kileuea Hawaii, Oct 2-6, 1995; the Caltech Geology department July 17-21, 1995; Caltech CCO Aug 26-30, 1996; Caltech CCO Jun 16-20, 1997; IBGE, Rio de Janerio Brazil, Sep 22-26, 1997; CONAE, Buenos Aires Argentina, Sep 29-Oct 3, 1997; IEEC, CSIC Barcelona Spain June 8-12 1998; Caltech CCO Aug 1998; Geographical Survey Institute Japan, November 9-12 1998

Vice-chair of the JPL Library Users Committee. This committee was formed to review the role of the JPL library in light of changing technologies and requirements for information. I was one of the original members of this committee. We worked with the JPL library staff, Caltech library staff, and members of the JPL community. A report came out of this activity which contained a new statement of the role of the library in the JPL community, and a plan for overhauling the existing library to fill that role. Many of these recommendations are now being implemented. I was asked to serve as vice chair shortly after the report was submitted.

Part of a team to design and implement an automated processing system for analysis of data from a network of 800-1000 GPS stations installed for the Geographical Survey Institute of Japan. The system is operating and proven itself capable of processing all data from every station every day.

One of the organizers of the Landers 1992 and Northridge 1994 JPL earthquake response, including collection and analysis of GPS data, and modeling of deformation associated with the rupture.

Analysis of Rapid Static Survey GPS data collected following the October 1989 Loma Prieta earthquake, and modeling of the measured post-seismic deformation.

Member of the CONAN receiver software development team. This software is used in Rogue and TurboRogue GPS receivers for communication and remote operation.

- January 200 to present - part-time faculty California State University Northridge

  I am teaching a junior level undergraduate course in introductory earth science for people who are getting their teaching credential for K-6 grade. The syllabus for the class is available at http://www.csun.edu/˜kjh60015/es300

- June 1992 to Dec 1994 - Independent Consultant

  Finished the analysis of the 1988 Southern Aegean GPS survey. Hired by Kim Kastens, Lamont-Doherty Geological Observatory, Columbia University.

  Analysis of 1989 Northern Aegean GPS survey. Hired by Kim Kastens, Lamont-Doherty Geological Observatory, Columbia University.

- August 1988 to December 1989 - Post-doctoral Research Scientist - LDGO, Columbia University

  Co-leader of 1989 Northern Aegean GPS survey. The Aegean GPS project is aimed at understanding where and how back-arc spreading occurs.

  Planning, organization, and analysis of 1988 Southern Aegean GPS survey.

- June 1988 to August 1988 - Research Assistant - LDGO, Columbia University

  Planning for 1988 Southern Aegean GPS survey.

- October 1987 to April 1988 - Research Associate - University of Colorado

  Analysis of the effect of atmospheric water vapor on the vertical accuracy of relative positioning with the Global Positioning System.

- July 1987 to September 1987 - Professional Research Assistant - University of Colorado

  Assisted with organization of the first South Iceland GPS survey. This project is characterizing the spatial and temporal pattern of deformation around an active spreading center.

- 1983 to 1987 - Graduate Research Assistant (Seismology) - Columbia University

  Analysis of the effect of atmospheric water vapor on the vertical accuracy of relative positioning with the Global Positioning System.

  Spirit leveling field work and analysis to monitor vertical crustal deformation in the Shumagin Islands, Alaska.

  Design and installation of, and analysis of data from, sea-level gauges in the Shumagin Islands, Alaska to monitor vertical crustal deformation. A network of these gauges continues to monitor deformation in this seismic gap.

  Development of a hydrostatic leveling system for high speed precision leveling without slope-dependent errors. Current optical leveling is susceptible to systematic errors induced by temperature gradients near the ground. The hydrostatic level exploited the local maximum in the temperature-density curve for water at 4 degrees C to achieve a pressure medium with constant density to within less than 1 ppm. The ultimate goal of producing a system with superior performance to optical leveling was thwarted by unforeseen deficiencies of the pressure gauges.

  Installation and analysis of data from extensometers across the Babojan fault, People's Republic of China.

  Subsurface radar profiling in the Adirondack region in N.Y. to look for lake bottom sediment structures related to earthquakes.

- 1981 to 1982 - Graduate Teaching Assistant (Geology) - Columbia University

  Taught the laboratory portion of the Historical Geology Course with Dr. John Sanders.

- 1984 and 1985 - Singer-Kearfot. Noise measurements on gyroscope test platforms

  Hired as a consultant to characterize the tilt noise spectra of isolated piers at Singer-Kearfot which were being used in testing the stability of gyroscopes.

- 1980 to 1981 - Graduate Research Assistant (Seismology) - Columbia University

  Spirit leveling field work and analysis to monitor vertical crustal deformation in the Shumagin Islands Alaska.

- Summer 1980 - Research Assistant - Columbia University

  Used hypocenter locations and converted phases to examine the nature of the dipping slab in the Caribbean subduction zone. I concluded that the data most favored a tear in the slab rather than a continuous, warped slab.

- Fall 1979 to Spring 1980 - student volunteer - Earlham College

  Design, fabrication, and use of a coring device to obtain sediment cores for pollen analysis from the bottom of Lima bog in Wisconsin. This coring device was used to retrieve a nearly continuous core from about 2 m below the sediment-water interface to the bottom of the bog deposits at 19.5m. This was almost twice the depth that earlier attempts to core the bog had achieved. The core was subsequently used to investigate the extent and timing of the retreat of the Wisconsin ice sheet.

- 1978 to 1980 - Master Carpenter - Joseph Moore Museum, Earlham College

PROFESSIONAL AFFILIATIONS:
Geological Society of America
American Geophysical Union
Seismological Society of America
National Association of Geoscience Teachers

AWARDS:

Co-recipient of NASA Group Achievement Award for the Southern California Integrated GPS Network Team May 2000.

Merit Bonus Award for contributions to the analysis of the SCIGN data, June 2000.

Co-recipient of NASA Group Achievement Award for the GSP Calibration Tracking System / Kalman Earth Orientation Filter Earth Rotation Measurement Team, May 1999.

NASA Award for Excellence, April 1996.

Co-recipient of runner-up award in NASA software of the year competition 1995.

Co-recipient of NASA Group Achievement award for Global Positioning System Geodesy Development, Jet Propulsion Laboratory, 1994.

Co-recipient of NASA Group Achievement award for development of the GIPSY-OASIS GPS analysis software Jet Propulsion Laboratory 1992.

Departmental honors in Geology, Earlham College 1980.

All college honors, Earlham College 1980.

Recipient of Anna Hubbard Grave, Thomas Clarkson Grave honorary scholarship for graduate work in science, Earlham College 1980.

OTHER ACTIVITIES, HOBBIES, and INTERESTS:

Scoutmaster, Boy Scouts of America Troop 515 May 1999 - present

American Youth Soccer Organization coach Aug 1996 - Dec 1999.

Cub Scout Webelos den leader 1997- 1999.

Training Officer for Santa Clarita Search and Rescue Team, Santa Clarita CA June 1995-1999.

Member of Santa Clarita Search and Rescue Team, Santa Clarita CA 1991-present.

Emergency Medical Technician, 1986-present

Clerk, San Fernando Monthly Meeting of Friends, (Quakers) Sylmar, CA 1992-1996