

Tim Jones, PhD

J&L Enterprises
613 Lenox
Las Cruces, New Mexico 88005

tljones@chicogordo.com

505.650.6327 (cell)

SCIENTIFIC PROGRAMMER, SOIL & ENVIRONMENTAL SCIENTIST Environmental & Regulatory Analysis • Computer Modeling & Data Synthesis

Multidisciplinary researcher with highly developed problem-solving and computational skills. Professional level communication and writing skills. Success in teaching, research, and project management in the areas of scientific computer programming, analysis of experimental data, and dynamic web programming; agricultural and natural water balance monitoring and modeling, soil remediation, environmental analysis and regulatory compliance. Innovative, resourceful and persuasive; able to organize, analyze, and summarize data into technically rigorous yet understandable messages. Multidisciplinary skills and perspective promote rigorous and scientifically credible analyses. Enthusiastic and motivational leader adept at building, and participating in high performance teams, promoting new concepts, methodologies and technical effectiveness. Published research author and successful at obtaining funding through competitive grants.

COMPUTER SKILLS

Programming Skills		
Desktop	Web	PalmOS
BASIC, Liberty Basic	DHTML (Javascript, CSS, HTML, XML)	NS Basic
C, C++, C#	PHP, Perl	Pocket C
Pascal	MySql	
VBA for Excel		

PC Desktop Skills	
System Management	System Maintenance
Windows 2000 & 2003 Server	All Windows versions: hardware and software installation, troubleshooting, networking.

Scientific Programming:

Began scientific programming with UCSD Pascal, 1980. Equal experience in developing data processing/visualization programs and transport simulation models. Use custom computer programs to analyze data instead of spreadsheet programs. PhD dissertation (Jones 1989) based on water-transport model written in Pascal. Have taught graduate level classes in soil physics

based on soil heat and water simulation modeling using programs written in BASIC and VBA for Excel (1990 – 2004). Scientific programming for PalmOS devices since 1999, using NSBasic (visual basic) and pocketC (<http://palmscience.chicogordo.com>).

Web Development:

Current web development includes the design and programming of dynamic, n-tier web sites and web applications for business and science. Primary tools are DHTML (Javascript, HTML, XML), CSS, PHP, and MySQL. See <http://jandl.chicogordo.com> for current desktop and web programming projects.

Historically, I created first academic department (Agronomy and Horticulture) web pages in the College of Agriculture and Home Economics (1995) and maintained these pages through 2001 (process turned over to student programmers). Maintained suite of soil-physics and K-12 outreach web pages since 1998 (<http://soil-physics.nmsu.edu>). I have created several web-based conference registration pages (they have since been decommissioned), and two interactive bibliographic search pages (<http://soil-physics.nmsu.edu/cpi>, <http://soil-physics.nmsu.edu/molbio>) using PHP/MySQL. I also created interactive study aids for soil science using Java Script (<http://webscience.chicogordo.com>), and implemented various interactive web pages (listserve subscription, message boards, guest book) using cgi-Perl (Active Perl).

System Management – Computer Maintenance:

Created (1998) and maintained (June 2004) web, ftp, and file server supporting research and teaching colleagues and office staff (over 100 users). Operating system began as NT 4.0 and is currently Windows 2003 server (<http://soil-physics.nmsu.edu>).

Led the departmental transition to the Internet beginning in 1994. This included coordination of Ethernet cabling and software installation. Serve as de-facto computer support person for our department. This has included coordination of departmental software licenses, computer maintenance and repair, computer “crash” debugging, antivirus screening and recovery, advising on hardware and software purchases.

CAREER TRACK

J&L ENTERPRISES
Environmental Consulting and Computer Services
OWNER

Las Cruces, New Mexico
<http://jandl.chicogordo.com>
June 2004 – present

Responsibilities: Upgrade minimal consulting activities started at NMSU into full-time business. Areas of expertise include nuclear waste management, water use and contamination problems in agriculture, scientific programming, and web design/web page management.

Business Activities:

- General web page design and programming (e.g., <http://www.lctennis.com>, <http://www.dc-computers.com>, <http://www.theraseek.com>).
- Web page design and implementation of a web-based information system for Weeds of New Mexico. Includes searchable bibliography, user editable database of web links, online and downloadable scientific articles implemented with PHP/MySQL on a Windows 2003 server. (client: NMSU address: <http://weeds.nmsu.edu>)

- Director of web technology for Tavgon Mobile Products. Web page development including member login, PHP session recording, product catalog, and shopping cart [in development].

NEW MEXICO STATE UNIVERSITY
ASSISTANT (1989)/ASSOCIATE (1996) PROFESSOR

Las Cruces, New Mexico
Dec 1989 – May 2004

Responsibilities: Provide excellence in designing and teaching both undergraduate and graduate-level college courses in soil physics, introductory soils, laboratory methods, computer modeling, and professional development. Mentor graduate students pursuing MS and PhD degrees. Develop and oversee research projects utilizing field data collection, computer models, and quantitative skills to support conclusions. Provide computational and soil science support to faculty colleagues, research assistants and students in civil engineering, agronomy, plant pathology, and horticulture. Publish peer-reviewed research papers and present findings to appropriate audiences in both academic and non-academic environments. Obtain supplemental grant funding to support technical staff, equipment, graduate students and travel.

Research Team Accomplishments:

- Co-authored 14 peer-reviewed journal articles, 27 conference presentations, 2 technical reports, 1 extension report (*publication bibliography at: <http://www.chicogordo.com/tljones>*)
- Developed improved physical interpretation and mathematical analysis of dynamic penetrometer data (Herrick and Jones 2002).
- Measured several years of Pecan water balance data which showed: a) irrigations could be reduced by up to a factor of 2 without damaging yield (Sorensen and Jones 1999), b) needle-type sap flow gauges were ineffective in monitoring Pecan tree transpiration (Sorensen et. al. 1999), c) whole-tree leaf biomass can be estimated using nondestructive leaf area measurements combined with measured specific leaf area (Frias-Ramirez and Jones.1998 – presentation).
- Developed and demonstrated new technique for applying collar-type sap flow gauges to desert (i.e., low transpiring) vegetation. Technique prevented heat damage to stems occurring with traditional techniques under low transpiration rates (Montes-Helu and Jones 1995).
- Monitored soil disturbance from military-tank training maneuvers and the effect on soil water balance. These data concluded that the effect on water balance was short-term and resulted from damage to vegetation rather than long-term changes in soil properties (Jones, Montes-Helu, Xie, and Galt 1999 – technical report). Demonstrated the use of a surface neutron probe to uncover near-surface changes in water storage not detected with traditional down-well probes.
- Proposed new definitions for soil textural classes to eliminate overlap between classes under current definitions (unpublished).
- Developed scientific applications for PalmOS devices (<http://palmscience.chicogordo.com>).

Teaching Accomplishments:

- Mentored 4 MS and 3 PhD students as major professor and >25 other graduate students as member of research committee.
- Developed rigorous courses in soil physics, computer modeling, and introductory soils that develop extensive computational and visualization skills. Incorporated the use of computer transport models, mathematical software such as Mathcad and Excel while promoting *back-of-the-envelope* estimation skills.
- Developed interactive, web-based teaching aids (<http://webscience.nmsu.edu>) as well as web-based course syllabi, lecture notes, practice exams, and supplemental material.

Assignments:

1991 – Consultant to Nuclear Waste Technical Review Board - review of vadose-zone hydrologic research at the proposed high-level waste repository at Yucca Mountain, Nevada.

BATTELLE NORTHWEST LABORATORIES *and*
ROCKWELL HANFORD OPERATIONS
RESEARCH SCIENTIST

Richland, Washington
1980 - 1989
1977 - 1980

Responsibilities: Conduct quality research on soil characterization, water balance monitoring and modeling, and leaching of waste from solidified waste forms relevant to the management of low-level radioactive waste. Apply research results to the development and implementation of regulations 10 CFR Part 61 (NRC commercial waste) and DOE O 435 (formerly DOE Order 5820.2A - defense waste). Obtain 100% of funding through competitive grants primarily with the Nuclear Regulatory Commission (NRC), and the Department of Energy (DOE).

Research Team Accomplishments:

- Co-authored 3 peer-reviewed journal articles, 9 conference presentations, and 14 technical reports. (*publication bibliography at: <http://www.chicogordo.com/tljones>*)
- Completed MS thesis in soil physics (Jones 1983), PhD coursework and dissertation (Jones 1989) in soil physics.
- Maintained and analyzed field water balance data from three separate lysimeter studies. This research contributed to proving conclusively that groundwater recharge was occurring, under natural climatic conditions at the Hanford Site. This fact had been rigorously denied by the waste management community since the early 1970's, and the final proof of this recharge was a major turning point in the design and management of radioactive wastes at the Hanford Site (Jones 1978, Jones et. al. 1980, Jones and Gee 1984, Jones et. al. 1988, - technical reports; Jones 1989 – PhD Dissertation).
- Determined from field lysimeter experiments that tritium and radioactive cobalt would leach from solidified low-level waste forms. Waste solidification provided essentially no retardation of release or movement of these species. Cobalt is most likely moving as an organic complex (Jones and Serne 1995; Jones et. al. 1988, Jones and Serne 1994 – technical reports). These results are unique and important because they show the dependence of soil type on transport. Similar experiments at the Savannah River

Laboratory using a different soil, one rich in sesquioxide minerals, showed no transport of cobalt.

- Demonstrated that estimation of soil Permanent Wilting Point (-15 bar water content) is not accurately measured using traditional ceramic 15 bar pressure plates (Jones et al. 1990). Traditional techniques are likely measuring -5 bar water contents instead of -15 bar values.
- Development and evaluation of water transport models for predicting field water balances (Gee et al. 1981, Fayer et al. 1986, – technical reports; Jones 1989 – PhD Dissertation).

Special Assignments:

1988 – Member of Nuclear Regulatory Commission (NRC) licensing review team evaluating the design of engineered barriers used in the disposal of uranium mill tailings, Shiprock, NM.

LEARNING CREDENTIALS

PH.D. IN SOIL PHYSICS, 1989

Washington State University – Pullman, WA

G.S. Campbell - advisor

MASTER OF SCIENCE IN SOIL PHYSICS, 1983

Washington State University – Pullman, WA

G.S. Campbell - advisor

BACHELOR OF ARTS IN MATHEMATICS, 1977

Eastern Washington State College - Cheney, Washington

AWARDS AND HONORS

First Place in the Best Paper Award – 1993 Gulf Southwestern Section of ASEE annual meetings, Austin, Texas, April 1-2, 1993.

Jones, T.L., A. Ghassemi, and R.K. Bhada. American Chemical Society's sponsored SEED program; A successful example. Proceedings 1993 Centennial Meeting of the Gulf-Southwest Section of ASEE, April 1-2, Austin, Texas.

Board of Directors (Director at Large) New Mexico Academy of Science, 1998 – 2002.

Board of Directors (Director of Technology) New Mexico Academy of Science, 1998 – 2004.

Academic Excellence Award from Study Web (study web is no longer in existence) 1999 - for tutorial web pages on the topics of: 1) mathematical log functions, 2) scientific units, and 3) web page creation using HTML.