

Huade Guan

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Education

Bachelor of Science in geochemistry, Peking University, China, 1990
Master of Science in geology, University of Texas at El Paso (UTEP), 2001
Ph.D. in hydrology, New Mexico Institute of Mining and Technology (NMT), 2005

Experience/Skills

- Teaching** High school teacher on Earth Sciences, NO.29 High School of Beijing (1990-1998); Teaching assistant, Difference in geochemical signals of springs between eastern / western slopes of Sandia Mountains, NM (NMT, summer 2002); Teaching assistant, Ground Water Hydrology (NMT, Fall 2003); Teaching assistant, Remote Sensing with Geoscience Applications (NMT, Spring 2005).
- Research** Research assistant, Lab & field experiments of virus fate and transport in groundwater, astrobiology (UTEP, 1999-2001); Research assistant, Mountain precipitation mapping, vegetation mapping, ET modeling, water partitioning on mountain hillslopes, mountain block recharge (NMT, 2001-present)
- Field work** Reactive barrier for viruses and bacteria in a constructed wetland (2001); Mountain springs sampling and analyses in Magdalena Mountains and Sandia Mountains (2001-2002); Vegetation spectral signature collections in Sevilleta and Magdalena Mountains (2003); Soil survey in Valles Caldera (2004)
- Skills** GIS (ARCGIS) and remote sensing (ERDAS), geostatistics (GSLIB), MATLAB and Fortran coding, numerical modeling (HYDRUS, FEHM, MODFLOW)

Publication

- **Mountain-block hydrological processes, hydroclimatology, ecohydrology, and remote sensing**
 - Wilson, J.L., and H. Guan, Mountain-block hydrology and mountain-front recharge, in *Groundwater Recharge in a Desert Environment: The Southwestern United States*, edited by J.F. Hogan, F.M. Phillips, and B.R. Scanlon, Water Science and Applications Series, vol. 9, American Geophysical Union, Washington, D.C., 113-137, 2004.
 - Guan, H., J.L. Wilson, and O. Makhnin, Geostatistical mapping of mountain precipitation incorporating auto-searched effects of terrain and climatic characteristics, *Journal of Hydrometeorology*, (in press) 2005.
 - Guan, H., E. Vivoni, and J.L. Wilson, Effects of atmospheric teleconnections on seasonal precipitation in mountainous regions of the southwestern U.S. -- A case study in northern New Mexico, *Geophysical Research Letter*, (in review) 2005.
 - Xie, H., J. M. H. Hendrickx, X. Zhou, E.R. Vivoni, H. Guan, Y.Q. Tian, and E. E. Small, Comparison of NEXRAD stage III and gauge precipitation estimates in central New Mexico, *Journal of the American Water Resources Association*, (in press) 2005.
 - Guan, H., J.L. Wilson, H. Xie, and X. Zhou, Assessment of the applicability of three common models for estimating fractional vegetation cover from remote sensing imagery in a semi-arid environment, in revision for *Remote Sensing of Environment*, 2005.

- Gutierrez-Jurado, H.A., E. R. Vivoni, B. J. Harrison, and H. Guan, Ecohydrological controls on soil pedogenesis in complex semiarid rangelands, *Journal of Hydrological Processes*, (accepted) 2005

- Microbial contaminants in groundwater and reactive barriers

- Guan, H., D. Schulze-Makuch, S. Schaffer, and S.D. Pillai, The effect of critical pH on virus fate and transport in saturated porous medium. *Ground Water*, 41(5):701-708, 2003.
- Schulze-Makuch, D., R. Bowman, S. D. Pillai, and H. Guan, Field evaluation of the effectiveness of surfactant modified zeolite and iron-oxide-coated sand for removing viruses and bacteria from ground water. *Ground Water Monitoring & Remediation* 23(4):68-74, 2003.
- Schulze-Makuch, D., H. Guan, and S.D. Pillai, Effects of pH and geological medium on bacteriophage MS2 transport in a model aquifer. *Geomicrobiology*, 20:73-84, 2003.
- Schulze-Makuch, D., S. D. Pillai, H. Guan, R. Bowman, et al., Surfactant modified zeolite can protect drinking water wells from viruses and bacteria. *EOS*, Transactions American Geophysical Union 83, no. 18, p. 193&200-201, 2002.

- Water issues in China

- Tao, X., and H. Guan, Risk Assessment on drinking water of rural areas in south China, *Safety and Environmental Engineering* (2003), no.3, 2003.

- Astrobiology

- Schulze-Makuch, D., H. Guan, L.N. Irwin, and E. Vega, Redefining life: An ecological, thermodynamic, and bioinformatic approach. In *Fundamentals of Life*, Elsevier Publ., p. 41-51, 2001.
- Schulze-Makuch, D., L.N. Irwin, and H. Guan, Search parameters for the remote detection of extraterrestrial life. *Planetary and Space Science*, 50, 675-683, 2002.

Software

- Matlab code of the TVET model

Honors and Members

- New Mexico Tech Graduate Student Association travel grant, Fall 2004, Spring 2005
- Allan Gutjahr Memorial Fellowship, NMT, 2003
- Outstanding poster presentation, SAHRA 2nd Annual Meeting, 2002
- Vernon G. & Joy Hunt Scholarship, UTEP, 2000-2001
- Outstanding contribution to the Research Exposition 2000, UTEP, 2000
- Student member, American Geological Union, 2000-

Services

- Judge for New Mexico State Science and Engineering Fair, 2004 and 2005