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EDUCATION

Ph.D. Environmental Sciences and Engineering, Virginia Tech, Blacksburg. June 1978.

M. Sc. Geology (Geochemistry), University of Delaware, Newark. June 1976.

BA Geology, University of Rochester, Rochester NY. June 1973.

CURRENT POSITION

Owner and Principal Scientist, Practical Stats (www.practicalstats.com).

Statistical consultant. Designs and conducts training courses in environmental statistics for scientists. As a 'subcontractor', performs data analysis, provides unbiased review and advice on statistical models and reports, performs vulnerability analysis, trend analysis and regression modeling.

Current projects have included a real-time groundwater vulnerability model using logistic regression for the probability of contamination. The user can mouse over an area, change the land-use or other input parameters and see the resulting change in probability onscreen. I developed the numerical probability model. Other projects include analysis of organic contaminant transport in surface waters in an urban-suburban setting, and devising a groundwater monitoring plan for a waste site based on the USEPA's Unified Guidance, of which I was a technical reviewer.

I have published statistical analyses of mercury, arsenic and other trace elements, nutrients, herbicides, MTBE and perchlorate in water. For 30 years I have pioneered work in environmental studies, including studies of precipitation chemistry and nonpoint sources in 1978, load estimation programmed on a 'personal computer' in 1982, and methods for interpretation of nondetect data in the 1980s. More recently I developed a cost-effective design for a national survey of soil geochemistry.

NOTABLE RECENT ACCOMPLISHMENTS

TEXTBOOK ON INTERPRETING ENVIRONMENTAL DATA WITH NONDETECTS

The methods in my textbook *Nondetects And Data Analysis* (Wiley, 2005) are changing the way that trace-contaminant data in water, air, rocks, soil, and biota are interpreted. See reviews of the book from statistical and environmental journals in the *Books* directory of this disc.

DISTINGUISHED ACHIEVEMENT AWARD, AMERICAN STATISTICAL ASSOCIATION

I received the Distinguished Achievement Award from the Section on Statistics and the Environment, American Statistical Association, August 2003. *This award is given to only one or two statisticians each year who have made an impact on the theory or practice of environmental statistics.*

HONORS

Distinguished Service Award, US Department of the Interior, 2007. Highest award given by the Dept. of Interior.
Meritorious Service Award, US Department of the Interior, 1996

PREVIOUS PROFESSIONAL EXPERIENCE

Statistician, US Geological Survey (11/2001 - 4/2008)

Lead scientist on data analysis methods, statistical modeling and experimental design. I developed new methods for modeling and data analysis, and incorporated newly-developed methods from other disciplines to improve the statistical protocols used within the U.S. Geological Survey.

Associate Regional Geologist, Central Region, USGS (05/01 – 11/01)

As the Associate Regional Geologist, I led the annual science planning process for geologists in the USGS Central Region. I worked with other Federal agencies (NPS, BLM, EPA) and State Geologists to develop opportunities for joint work

Chief, Trace Element Synthesis, USGS National Water Quality Assessment (NAWQA) Program (02/97-05/01)

Created and headed a team to interpret trace element data for the USGS national program. Our results on arsenic in groundwater across the United States were used by many agencies and reported on in many news outlets, including CNN. Helped to design a cooperative study with the NCI investigating cancer occurrences in relation to arsenic concentrations in the public and private drinking water supplies of New England.

Coordinator, USGS Drinking Water Initiative (11/95-01/97)

Promoted USGS activities related to drinking water. Developed methods for using logistic regression in ground water vulnerability studies, and taught these techniques to other USGS scientists. Worked closely with the Association of State Drinking Water Administrators (ASDWA), US EPA's Office of Ground Water and Drinking Water, the American Water Works Assoc. (AWWA), the National Association of Water Companies (NAWC), the Centers for Disease Control and Prevention, and other health officials and organizations.

Chief, Nutrient National Synthesis Team, USGS NAWQA Program (11/91-11/95)

Designed activities that a Synthesis Team would pursue, presented the planning to the National Science Foundation's Review Committee for NAWQA, and hired the staff for the Team. I designed the Retrospective Study effort of the NAWQA Program, guiding NAWQA scientists on use of statistics to interpret data prior to embarking on new sampling.

Hydrologist, Branch of Systems Analysis, USGS (07/82-11/91)

Hydrologist, Ohio District, USGS (07/78-07/82)

OTHER CAREER ACCOMPLISHMENTS

INTERNATIONAL TRAINING COURSES

CHINA, 1988 – Invited to deliver lectures on interpretation of water quality data to eight offices of the Ministry of Water Resources, Peoples Republic of China. As a result of these lectures, a formal agreement was established to teach an entire course on the topic two years later.

CHINA 1990 – Two-week training course on applied statistics in Beijing, China, June 1990. Scientists from the Ministry of Water Resources offices throughout China were selected to attend the course. I designed the course, prepared all materials, and taught the course through an interpreter, a professor from Beijing University.

ISRAEL, 1999 – One-week training course on applied statistics to scientists from Israel, the West Bank, Gaza, and Jordan, as part of the Multilateral Working Group on Water Resources of the Middle East Peace Process. Culminated in a joint report on the Region's water supplies, one of a very few jointly-authored reports between scientists from throughout the Middle East.

CYPRIT SCIENTISTS, 2001 - 2002 -- Planned and conducted two week-long training courses on applied statistics to Cypriot (both Greek and Turkish heritage) scientists, held in Europe.

RECENT INVITED LECTURES

2008	<i>Nanostatistics</i>	American Statistical Assoc. National Conference
2007	<i>Correctly Handling Nondetect Data</i>	NARPM Training Conference, US EPA
2007	<i>Nondetects And Data Analysis</i>	Umweltbundesamt (German Environment Agency)

- 2006 *Analysis of Environmental Data With Nondetects* American Stat. Assoc. National Conf.
 2005 *Interpreting Data with Nondetects* Managing Quality Systems, US EPA National Conf.
 2004 *UCL95 for data below detection limits* California Dept. of Toxic Substances Control
 2002 *Touring data in one to three dimensions* Groundwater Resources Association of California

ASSOCIATE EDITOR

Water Resources Research, 1994-96
 Environmental and Ecological Statistics, 1992-94

SELECTED PUBLICATIONS (a full list of publications is available on request)

1. Helsel, D.R., 2010, Summing Nondetects. *Integrated Environ Assess and Monitoring* 6, 361-366.
2. Helsel, D.R., 2010, Much Ado About Next to Nothing: Incorporating Nondetects in Science. Invited Commentary, *Annals of Occupational Hygiene* 54, 257-262.
3. Helsel, D.R., 2005. *Nondetects And Data Analysis: Statistics for censored environmental data*. John Wiley and Sons, New York. 250 p.
4. Helsel, Dennis. R. and Robert M. Hirsch, 2002, *Statistical Methods in Water Resources, USGS Techniques of Water Resources Investigations, Book 4, Chapter A3*, 510 p.
5. Helsel, D.R., 2008. Detection Limits, in Brian Everitt and Ed Melnick, eds., *Encyclopedia of Quantitative Risk Analysis and Assessment*. Wiley.
6. Ayotte, J.; Argue, D.; McGarry, F.; Degnan, J.; Hayes, L.; Flanagan, S.; and Helsel, D., 2008. Methyl tert-Butyl Ether (MTBE) in Public and Private Wells in New Hampshire: Occurrence, Factors, and Possible Implications. *Environmental Science and Technol.* 42 (3), 677-684.
7. Helsel, D.R. and Frans, L.M., 2006. The Regional Kendall test for trend. *Environmental Science and Technol.* 40 (13), 4066 - 4073.
8. Helsel, D.R., 2005. More Than Obvious: Better methods for interpreting nondetect data. *Environmental Science and Technol.* 39 (20), 419A-423A.
9. Lee, L, and D. R. Helsel, 2005. Baseline models of trace elements in drinking water of the United States. *Applied Geochemistry* 20, 1560-1570.
10. Focazio, M.J., T. E. Reilly, M. G. Rupert, and D. R. Helsel, 2003; Assessing ground-water vulnerability to contamination: Providing scientifically defensible information for decision makers, *USGS Circular* 1224, 40 p.
11. Welch, A.H., D. B. Westjohn, D. R. Helsel and R. B. Wanty, 2000, Arsenic in Ground Water of the United States: Occurrence and Geochemistry, *Ground Water* v. 38 (4), 589-604.
12. Francy, D.S., D.R. Helsel, and R. A. Nally, 2000, Occurrence and Distribution of Microbiological Indicators in Groundwater and Stream Water, *Water Environment Research*, vol. 72 (2), 152-161.
13. Nolan, B.T., Ruddy, B.C., Hitt, K.J., and Helsel, D.R., 1997, Risk of Nitrate in Groundwaters of the United States --A National Perspective, *Environ. Sci. Technol.* 31, 2229-2236.
14. Mueller, D.K., and Helsel, D.R., 1996, Nutrients in the Nation's water--Too much of a good thing?: *U.S. Geological Survey Circular* 1136, 24 p.

15. Hirsch, R. M., Helsel, D. R., Cohn, T. A. and Gilroy, E. J., 1993, Statistical Analysis of Hydrologic Data, Chapter 17 in the *Handbook of Hydrology*, David R. Maidment, Editor in Chief, McGraw-Hill, Inc., New York.
16. Helsel, Dennis R., 1990, Less Than Obvious: Statistical Treatment of Data Below the Detection Limit, *Environmental Science and Technology* 24(12), 1766-1774.
17. Helsel, Dennis R., 1987, Advantages of nonparametric procedures for analysis of water quality data, *Journal Hydrological Sciences*, 32(2), 179-190.