



JACQUELINE K. TELFORD

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SUMMARY

Dr. Telford has applied statistical methods in solving real-world problems in the engineering and scientific fields for 20 years. She has made important contributions throughout Johns Hopkins University. These areas include minimum sample size test plans, experimental designs, estimating accuracy and reliability of missile systems, and biomedical engineering. Among all departments of the Applied Physics Laboratory, she is a well-known statistical consultant.

EDUCATION

Ph.D. in Statistics, North Carolina State University, 1979.
M.S. in Statistics, North Carolina State University, 1975.
B.S. in Mathematics (*cum laude*), Miami University, Ohio, 1973.

PROFESSIONAL EXPERIENCE

- 1983 – present Johns Hopkins University Applied Physics Laboratory Laurel, MD
- Completes 40 to 50 statistical consulting projects each year.
 - Develops for strategic and tactical weapon systems statistical methods of data analysis for estimating reliability, accuracy, and damage effectiveness.
 - Provides appropriate statistical analysis for biomedical projects.
 - Developed reduced sample size testing for destructive tests of Navy missile systems, resulting in direct cost savings of \$180 million per year.
 - Developed specifically requested statistical analyses and data visualization techniques for Navy Congressional budget hearings.
 - Applied multivariate factor analysis to a “360°” survey questionnaire to remove the redundant questions and developed graphical reports using data visualization techniques on the survey results to allow rapid comparisons.
 - Implemented multivariate discriminant analysis on a Ballistic Missile Defense project to both make maximum use of data to rapidly identify incoming warheads.
 - Promoted in 1996 from Senior Professional Staff to Principal Professional Staff.

1978 – 1983 U.S. Nuclear Regulatory Commission Rockville, MD

- Managed technical assistance contracts, wrote a technical journal article and NRC Regulatory Guides, and developed new Federal regulations.
- Developed a custom management information system to systematically monitor and analyze the NRC’s inspection program data.
- Developed inspection procedures based on periodic physical inventories and material balances to resolve inventory differences for improved control and accountability of licensee’s special nuclear material (e.g., high enriched uranium).
- Participated in ANSI and ATSM writing committees which produced two national standards, “Nondestructive Assay Measurement Control and Assurance” and “Standard Practice for Sampling Special Nuclear Materials in Multi-Container Lots”.
- Participated at selected nuclear fuel fabrication plants in on-site inspections focused on the statistical propagation of the variance of inventory difference.

1973 – 1977 North Carolina State University Raleigh, NC

- Taught introductory statistics to undergraduate students.

PUBLICATIONS

“Sensitivity Analysis Using Design of Experiments in Ballistic Missile Defense,” *Proceedings of the Seventh Annual U.S. Army Conference on Applied Statistics* (2001).

“Automated Cardiac Auscultation for Detection of Pathologic Heart Murmurs,” *Pediatric Cardiology*, vol. 23, pp. 373-379 (2001).

“In-vivo measurement of tumor conductivities with the magnetic bioimpedance method,” *IEEE Transactions on Biomedical Engineering*, vol. 47, pp. 1403-1405 (2000).

“TBMD in JWARS: How Much Detail is Appropriate?,” *Proceedings of the Summer Computer Simulation Conference* (2000).

“Discrimination of Theater Ballistic Missile Objects Using Radar Measurements,” *Proceedings of the AIAA Missile Sciences Conference*, vol. 1, pp. 262-269 (1998).

“Missile Service Life Predictions Using Limited Field Test Results,” *Proceedings of AIAA Missile Sciences Conference*, vol. 1, pp. 862-869 (1996).

“The Number of Tests Needed to Detect an Increase in the Proportion of Defective Devices,” *Johns Hopkins APL Technical Digest*, vol. 13, pp. 326-331 (1992).

“Selecting Among Probability Distributions Used in Reliability,” *Technometrics*, vol. 24, pp. 59-65 (1982).

“Dissolution Half-Times of Single Source Yellowcake in Simulated Lung Fluids,” *Health Physics*, vol. 42, pp. 469-477 (1982).

PROFESSIONAL MEMBERSHIP

American Statistical Association, 1974 to present.