

## **A DATA FARMER'S ALMANAC**

Susan M. Sanchez

Naval Postgraduate School  
1 University Circle  
Operations Research Department, GL-273  
Monterey, CA 93943-5219, USA

### **ABSTRACT**

An almanac conveys practical advice in the form of useful facts, advice, and forecasts. Data farming encapsulates the notion of purposeful data generation from simulation models. It uses large-scale designed experiments to facilitate growing simulation output in an efficient and effective fashion, and enables us to explore massive input spaces, uncover interesting features of complex response surfaces, and explicitly identify cause-and-effect relationships. In this presentation, I will weave the two halves of the title together as I recount some key concepts and developments in simulation experimentation, along with experiences and advice drawn from my own data-farming journey.

### **AUTHOR BIOGRAPHY**

**SUSAN M. SANCHEZ** is a Professor in the Operations Research Department at the Naval Postgraduate School in Monterey, California, USA, where she holds a joint appointment in the Graduate School of Business & Public Policy. Her research interests include the design and analysis of large-scale simulation experiments, robust design, and applied statistics, with application to military operations, manufacturing, and health care. She established and serves as Co-director of NPS's Simulation Experiments & Efficient Designs (SEED) Center for Data Farming. Over the last decade, the SEED Center has done research for the U.S. Armed Forces and many leading defense organizations in the U.S. and allied countries. Recognition for her contributions includes an INFORMS Koopman Prize and a NATO Scientific Achievement Award. Throughout the years, Dr. Sanchez has been active in the simulation community, where she has served as an officer in her professional society, on the Board of Directors for the Winter Simulation Conference, and on the editorial boards of several flagship journals.