

1032-62-193

**Daniel M. Tartakovsky** (dmt@ucsd.edu), Department of Mechanical, and Aerospace Engineering, 9500 Gilman Dr., La Jolla, CA 92093, **Brendt Wohlberg\*** (brendt@t7.lanl.gov), Theoretical Division, Group T-7, MS B284, Los Alamos, NM 87545, and **Alberto Guadagnini** (alberto.guadagnini@polimi.it), DIIAR, Piazza L. Da Vinci, 32, Milano, CA, Italy. *Nearest neighbor classification for facies delineation.*

Geostatistics have become the dominant tool for probabilistic estimation of properties of heterogeneous formations at points where data are not available. Ordinary kriging, the starting point in development of other geostatistical techniques, has a number of serious limitations, chief among which is the intrinsic hypothesis of the (second order) stationarity of the underlying random field. Attempts to overcome this limitation have led to the development of ever more complex flavors of kriging. We pursue an opposite strategy that consists of finding the simplest possible technique that is adequate for the task of facies delineation. Guided by the principle of parsimony, we identify Nearest Neighbor classification (NNC) as a viable alternative to geostatistics among deterministic techniques. We demonstrate that when used for the purpose of facies delineation, the NNC, which has no fitting parameters and operational assumptions, outperforms indicator kriging, which has several parameters. (Received August 21, 2007)