Co-Kriging Spatially Significant Soil Variables Using Imagery and Yield Data. (S04-curless113007-Oral)

Authors:
- J.K.Curless* - *Univ. of Wisconin-Madison*
- L.K.Binning - *Univ. of Wisconsin-Madison*
- J.M.Norman - *Univ. of Wisconsin-Madison*

Abstract:
The ability to predict fertility concentrations and its spatial distribution provides valuable information for managing fertility and yield variations within agricultural fields. To gain an understanding of plant and soil nutrient variability and how they influence (Zea mays) and (Glycine max) yields, a research study was conducted on a dry land production field in Northern Illinois. Research began in 1998 and continued through 2000 growing season near Shabbona, Illinois in a 25 ha production field. A soil sampling grid of 0.068 ha was established in 1998 on the production site. The grid assignment continued for the duration of the study for plant and soil samplings. Geostatical methods were used to analyze the dynamics of plant tissue, soil samples, soil conductivity, and yield for each season via spatial regression using SPlus. The analysis conducted proved to be a useful tool in detecting spatial variability of soil fertility concentrations and their influences on yield productivity. The spatially significant variables were CoKriged using correlated hyper spectral and multi spectral bands.

Corresponding Author Information:

Joe Curless   phone: 608-262-6965
University of Wisconsin   e-mail: jkcurless@students.wisc.edu
1575 Linden Dr.
Madison, WI 53706-1514

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