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Alternative Sources of Accurate Agriculture Topography

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Alternative Sources of Accurate Agriculture Topography

Cedar Valley Innovation LLC, Waterloo, Iowa

Problem Statement

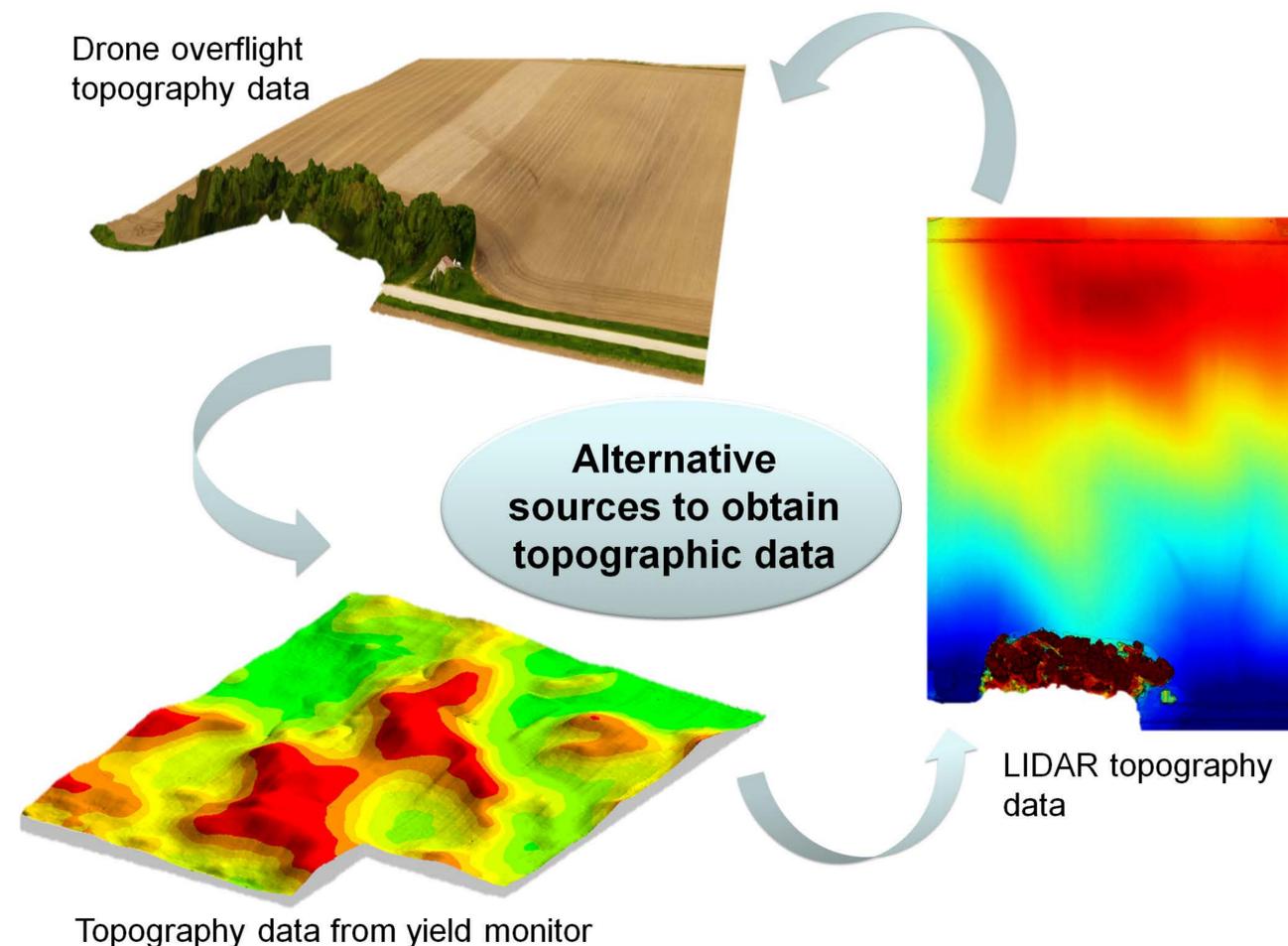
- The goal is to measure the relative accuracy of alternate methods to create topographic data of agriculture fields for water flow and related analyses

Objectives

- Understand alternate methods of gathering topographic data
 - LIDAR Data
 - Public Domain sources
 - Drone overflights and analysis
 - Data gathered by yield monitoring system
- Compare the accuracy, logistics, and cost of the alternate methods
- Demonstrate the complete data and workflow to complete a water flow analysis

Methods

- TSM 433 - Utilize SMS Software to analyze data from yield monitor
- Use drone overflights to create 3-D topographical map of a field
- Use of public domain sources to gather data
- TSM 324 – Analyze LIDAR data



Scope

- Methods of measuring topography data on row crop field
- Analyze accuracy of elevation throughout the field and be able to conduct a water flow analysis

Major Outcomes

- Collect data from an actual field in commercial farm production
 - Compare the differences in topography results
 - Show the differences, if any in resulting water flow analysis
 - Show the differences, if any in soil relocation
- Design a workflow diagram that a modern grower or crop advisor can use to duplicate the process on his or her own land

Proposed Solutions

- Utilize data gathered from an actual field to find the most accurate topographical results to show water flow analysis and soil relocation analysis

Benefit to Client

- To improve the effectiveness of water management practices and decrease soil erosion through accurate topography data