Vineyard Microclimates

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Vineyard Topographic Analysis

Wind Machine Technology to Optimize Vineyard Conditions

Brock University

Château des Charmes

Lamoureux

REIF ESTATE WINERY

Glenlake Orchards and Vineyards

Joseph E. Pohorly Wines

Horizontal Control Point Locate

In February of 2000, Potential Differential Global Positioning (DGPS) base station locations were established and prioritized. These potential base station locations were selected based upon their

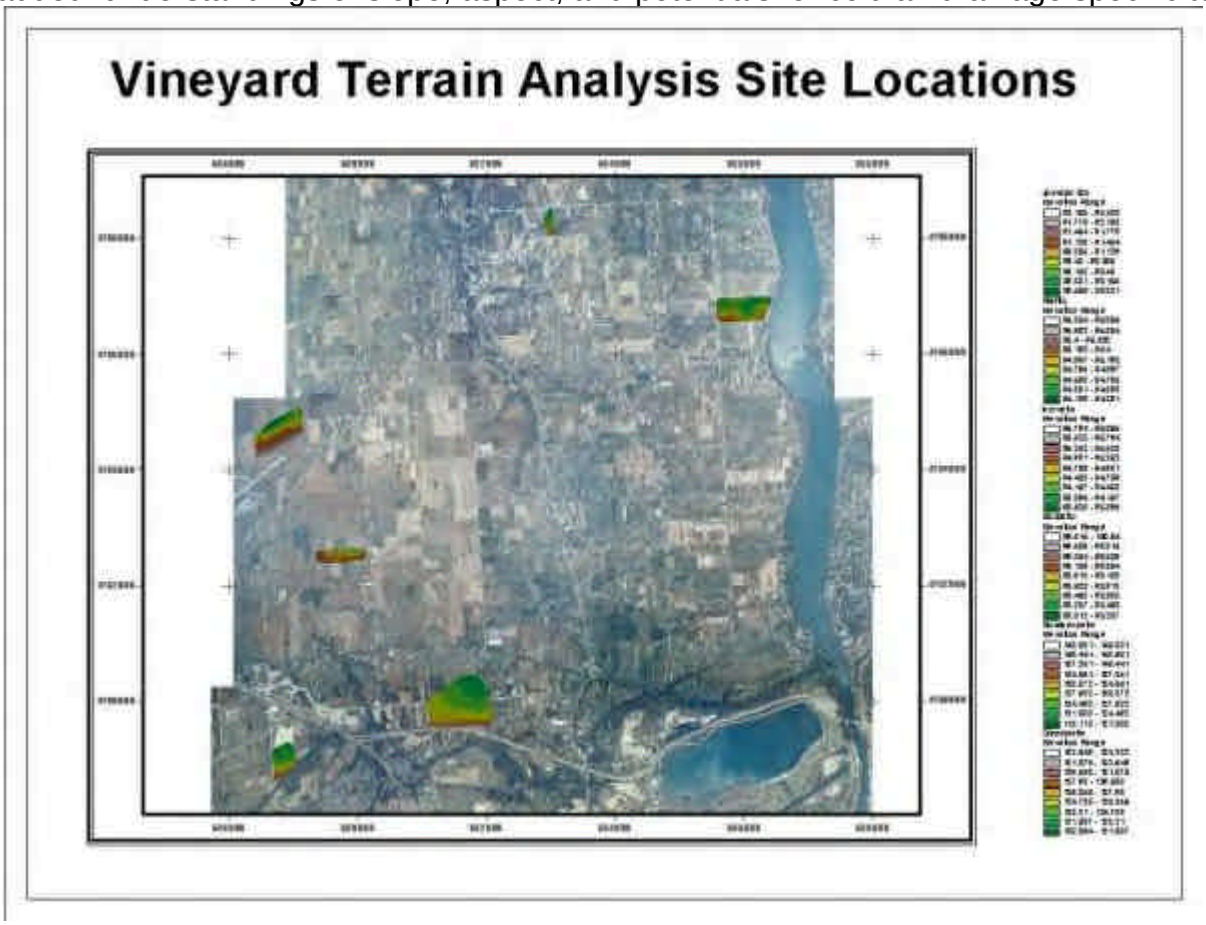
proximity to the vineyards that were to be mapped and the availability of access to geodetic control monumentation.

Data Collection

In March of 2000, detailed Global Positioning Systems (GPS) surveys were undertaken at various Niagara Peninsula vineyards. Sub-centimeter vertical and horizontal survey accuracies were realized using a combination of a 4800 and 4700 series dual frequency Real-Time Kinematic (RTK) Differential GPS (DGPS) from Trimble Navigation.

Model Creation

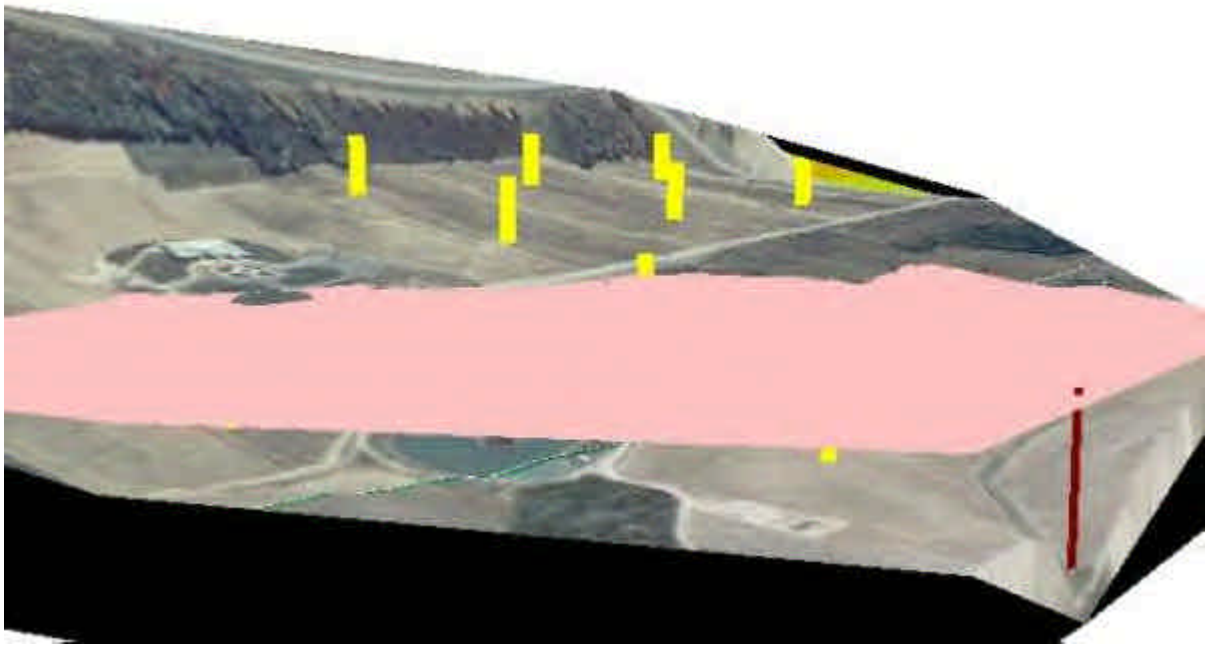
Digital Terrain Models (DTM) for each site were constructed. Centimetre level precision was obtained describing elevations above mean sea level. Arcview 3D Analyst TINs provide value added understandings of slope, aspect, and potentials for cold air drainage specific to each site.



17 Orthophotos were georeferenced and tiled to provide base mapping for the project. The 17 images were also cropped, resampled and reduced in colour depth to save disc space and processing time. All TINs on top of the

complete tiled image base map provide understanding of location on the Niagara peninsula as well as proximity to meso-scale climatic impacting features such as: Lake Ontario, Niagara River, and the Niagara Escarpment.

The smaller pieces of the converted orthophotos were used as drapes to add visual value to contour maps for each site as well as 3D visualization for each vineyard surveyed.



Further information regarding the topographic analysis portion of this project can be obtained by contacting Mr. Andrew Cox at andrewcoxgis@hotmail.com

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