



# PEGASUS Environmental

## SOIL SURVEYS & 3D MAPPING

EC MAPPING • ELEVATIONS • SOIL PROFILE • SOIL AUDIT •  
SOIL ANALYSIS • SOIL RECOMMENDATIONS

Pegasus Environmental Ltd.

585.987.5780

www.pegasusec.net

### About Pegasus Environmental

Pegasus Environmental was born out of agriculture, ten years ago. It's foundation was based on these concepts:

1. Integrated Pest Management is the ecologically sound method to raise a crop; be it corn, beans, turf, apples, or grapes.
2. To best accomplish this, the Manager will need every resource available to make the most environmentally prudent, yet cost effective decisions.

Pegasus Environmental turned to aerial remote sensing: the ability to "sense" a condition not visible to the naked eye, from the acquisition of images depicting various spectral bands. This would give the manager the ability to apply different regimens to specific locations, thus reducing the total amount of chemical application; cost effective, and prudent.

In it's quest to map changes in soil conditions, we embarked to find any means possible, to detect soil variations, and display them as a comparison to our "aerial images"; this is called "ground truthing".

In so doing, we found a system utilizing Electrical Conductivity, a geophysical approach, that detects minor soil differences. The implements sends out an electrical charge, directed into the ground, and receives it back in another diode, and measures the resistance of the soil it passed through.

Electrical Conductivity, [EC], proved to be extremely accurate, and much more penetrating than anything we could come up with from the air. And, as importantly, it is much more "cost effective" than supporting air-borne equipment.

The marriage of this soil data with GPS, gives us very easily understood soil maps. Layering this information over the results of soil sampling, yield superior information with which to make very accurate decisions.

The applications are far reaching: from more

correct growth management, to environmental compliance; from new construction decisions, to best applications for existing entities. And water management, a must.

We, at Pegasus Environmental, Co, look forward to helping you enhance your profits and beautification, synergistically, with the environment. Why fight with what you have to work with?

Complete soil and tissue analysis; elevations; depth or top soil; and, recommendations, available.

Try the Pegasus advantage!

Sincerely,  
Zeke Hurd,  
President



## What is Soil Electrical Conductivity?

Soil electrical conductivity, which is known as EC, is the ability of soil to conduct electrical current. EC is expressed in milliSiemens per meter (mS/m). Traditionally, soil scientists used EC to measure soil salinity. However, EC measurements also have the potential for estimating variation in some of the soil physical properties in a field where soil salinity is not a problem. Recent developments in EC sensors and their ability to produce EC variation maps has attracted much attention among producers about potential applications of this sensor for improving field management.

## What Soil Properties Affect Soil EC?

- Soil Properties
  - salinity
  - clay content/cation exchange capacity (CEC)
  - pore size, shape, and distribution
  - clay type
  - soil moisture
  - temperature
  - depth variation of any of the above

## How We Create an EC map

As a light weight vehicle equipped with an EC measuring device drives through the field, data are collected at one-second intervals. The data are recorded in a file and stored on a PCMCIA card. An EC data file has four columns. The first and second columns contain longitude and latitude information. The third and fourth columns contain EC data and altitude respectively. Figure 1 shows a plot of raw EC data. It shows where the vehicle was in the field as it drove through the field, and the color shows the EC variation for shallow depths. A software program is used to create the EC map.

Figure 1

