

Vineyards and Remote Sensing

Presented by-

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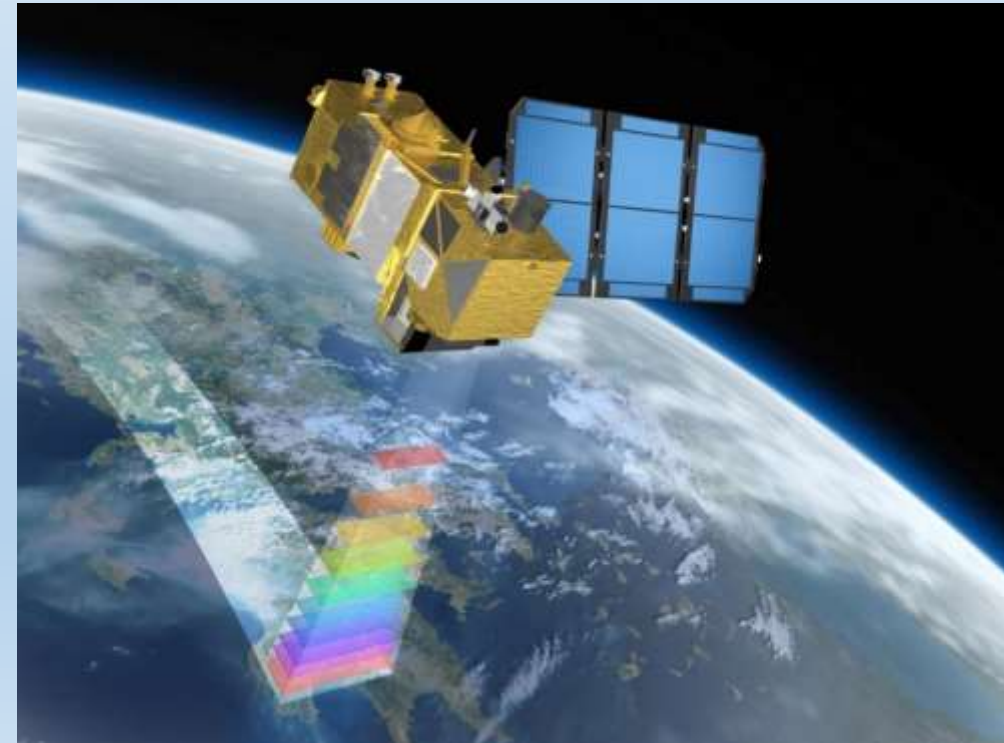
Enjoyer of Food and Water

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What is Remote Sensing?

- Remote sensing is the **science of obtaining information** about objects or areas from a distance, typically from aircraft or satellites.
 - Remote sensors collect data by detecting the energy that is reflected from Earth.
- Remote sensing has a wide range of applications:
 - Hazard and Resource management-
 - Floods
 - Food and water
 - Crop management



Where I come in, my research.

Find ways to communicate and apply remote sensing to inform on vineyard growth and health to viticulturalists.

Right now, is there a gap with applying remote sensing to crop monitoring.



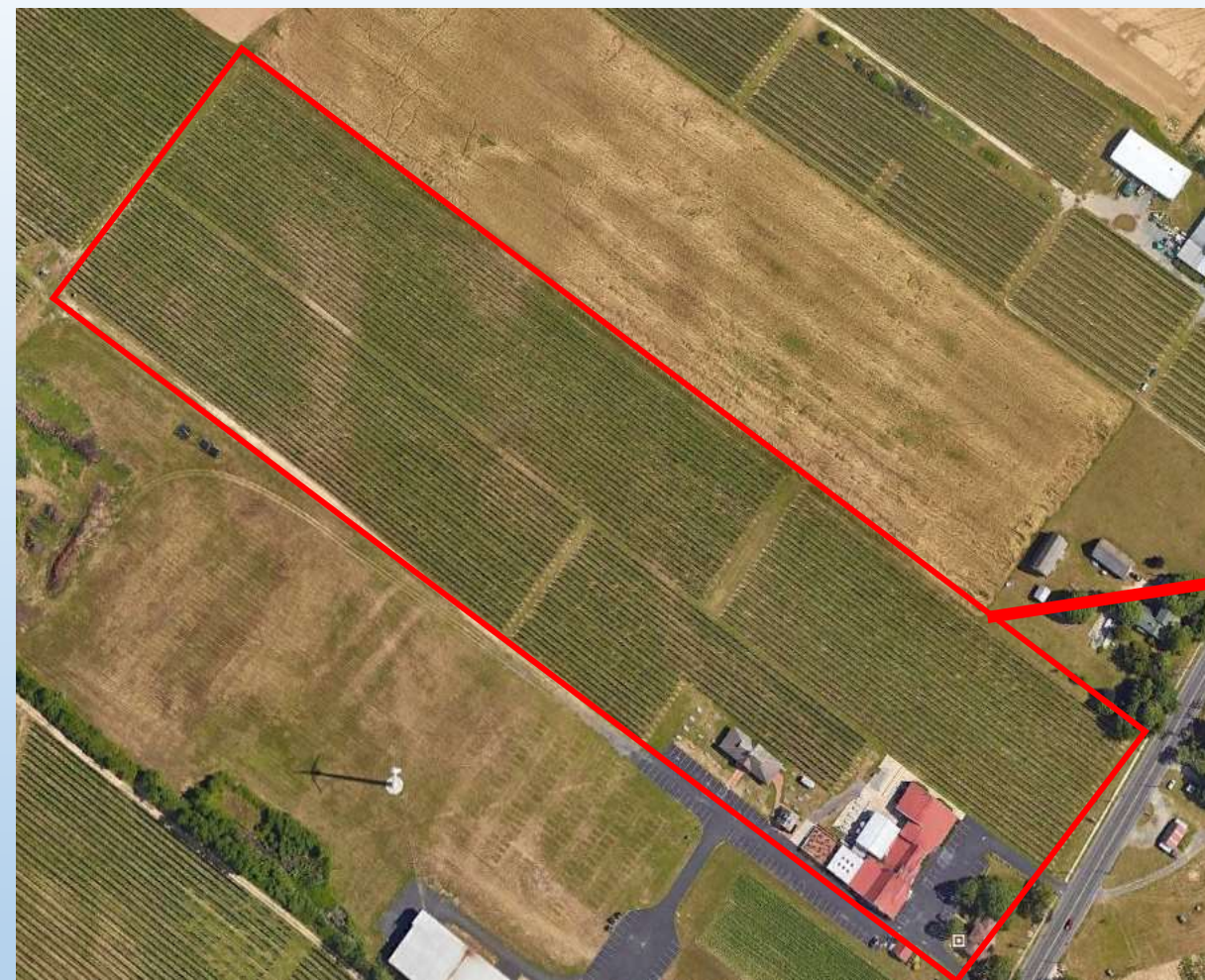
Remote Sensing Data

Communicate and Apply

The goal of my vineyard work

- Create a grapevine database-
 - Info. on height, plant and soil moisture content, etc.
- Link this information to satellite measurements.
 - Is there a relationship?
 - Can satellite measurements tell us the health and growth of the grapevines?
- Develop a map that can inform vineyard growers on the health of their grapevines-
 - What areas need to be managed differently.
 - Develop a map that shows that
 - shows within field grapevine variability.





Google Earth image of the Chardonnay field.

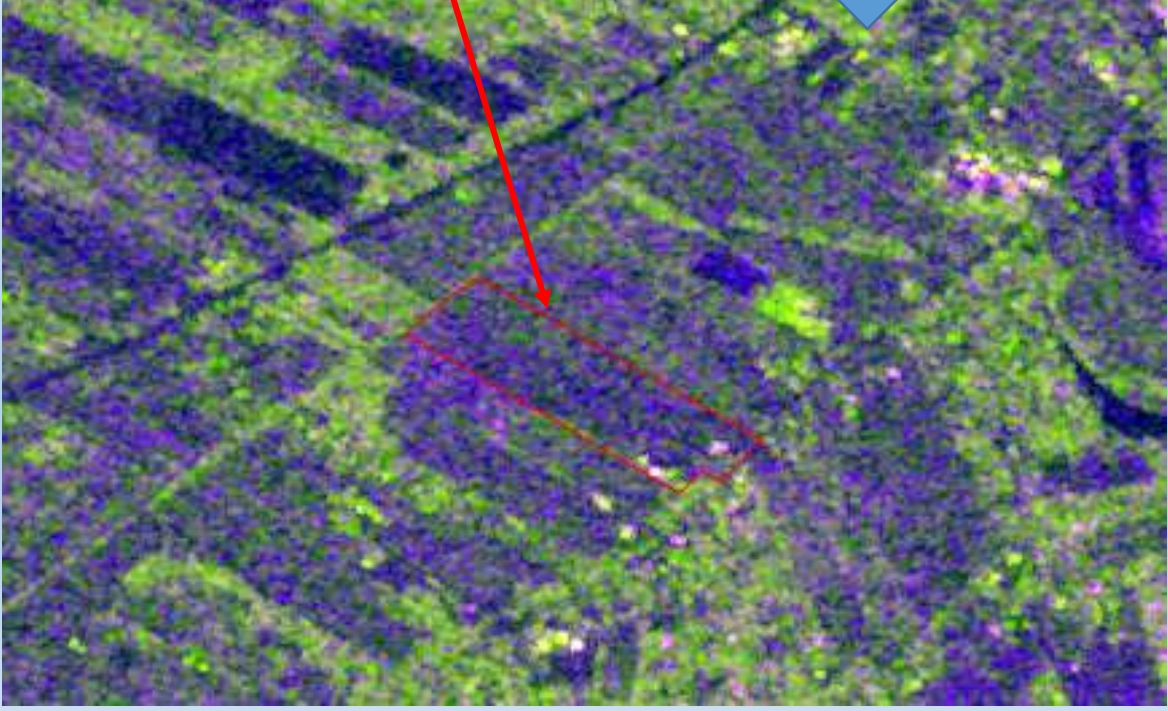
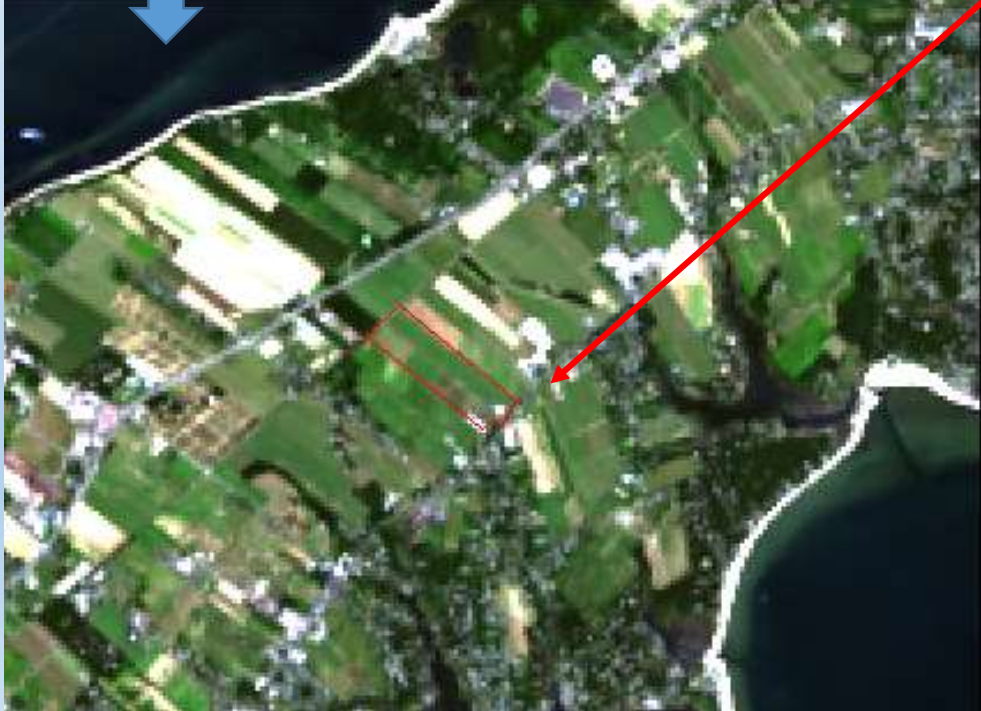


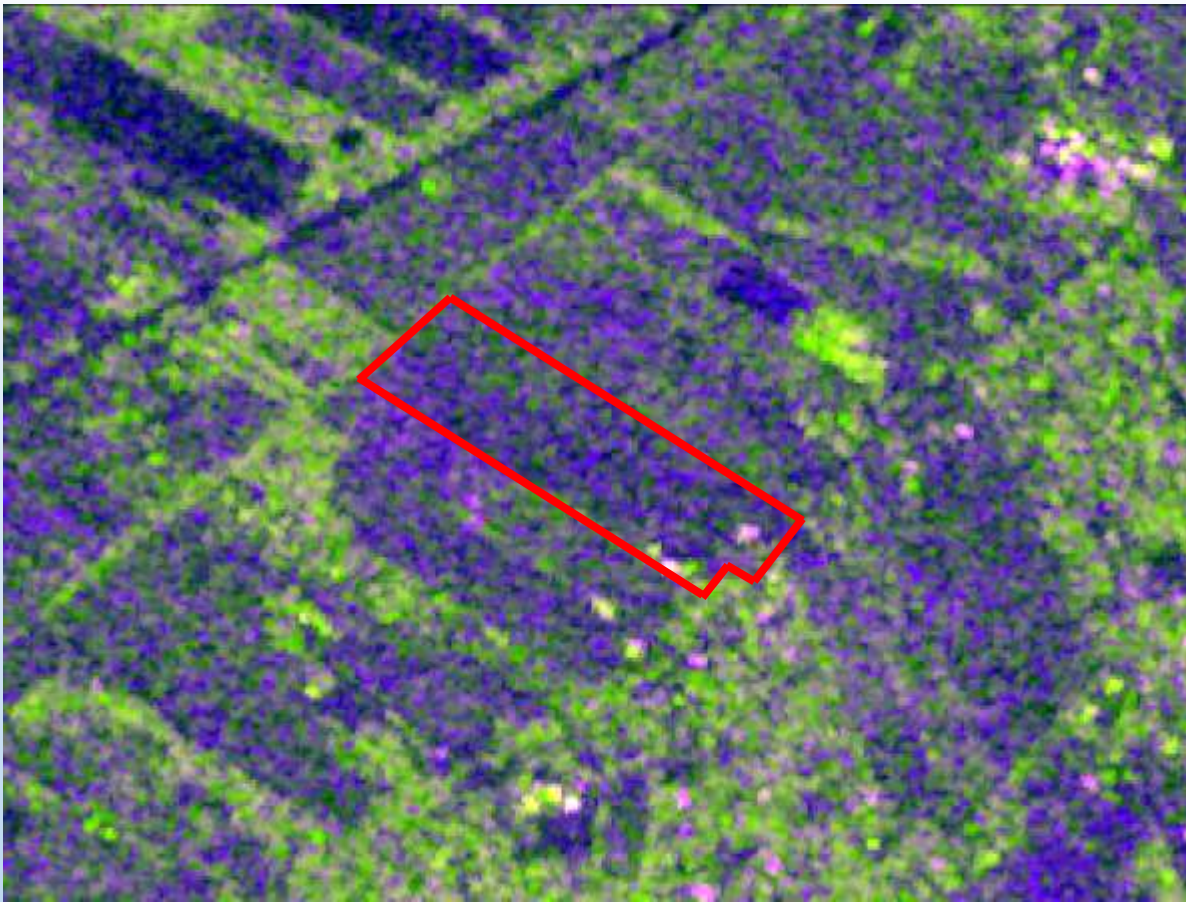
Landsat-8 satellite optical image of area around vineyard and the chardonnay field.



Landsat-8 optical image

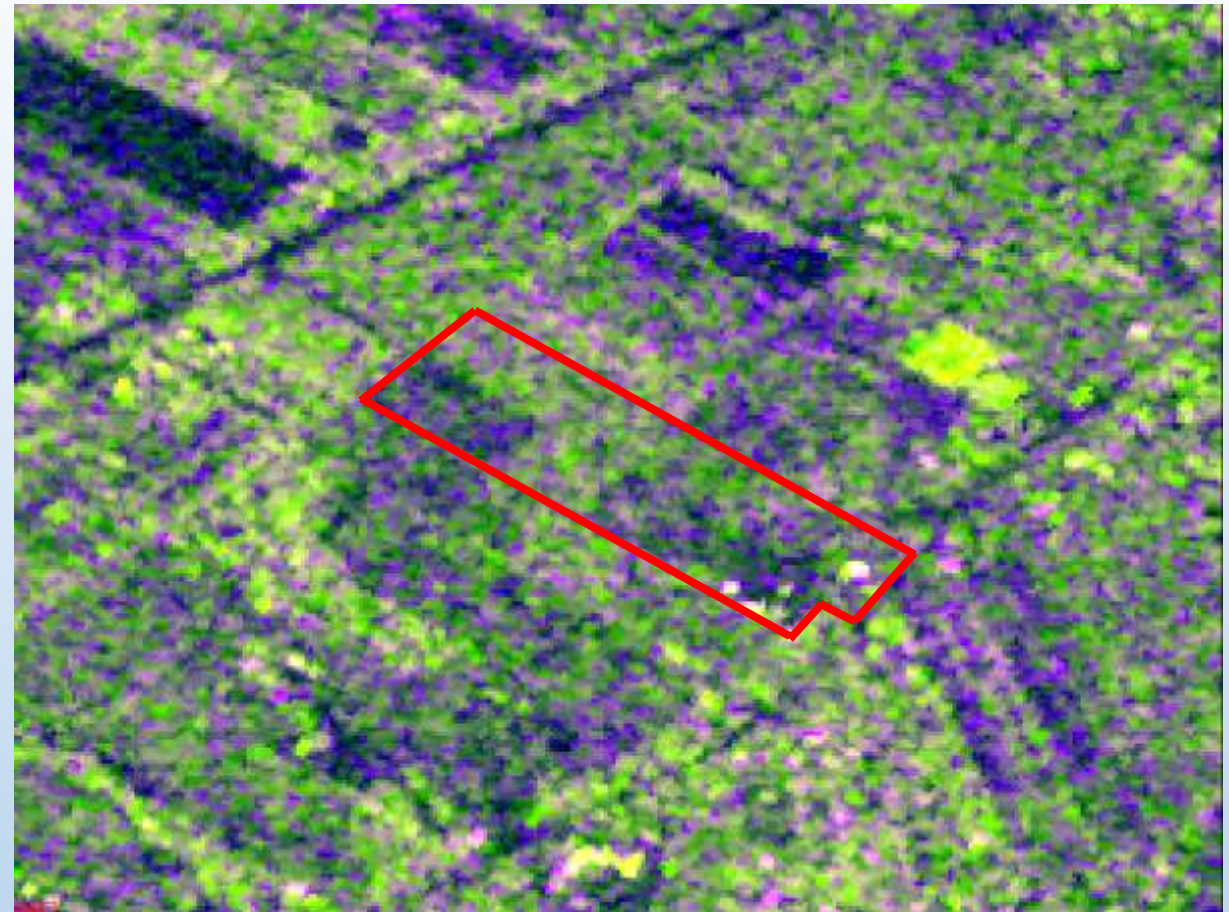
Microwave radar image from the Sentinel-1A satellite





R-VV/G-VH/B-VV/VH - 3/30/2016

Approximate date when grapevines start to grow, “bud break”.



R-VV/G-VH/B-VV/VH - 7/23/2016

Approximate date when grapevines are at max growth and grapes are developing, entering “veraison”.

Visually, the each dates displays different information about the vineyard fields. The goal of my work is to understand what if being measured in these fields from a remote sensing perspective.

What you will learn

Technical Skills

- Fieldwork experience and learn how to collect field data.
- Upload the field data into spreadsheets.
- Analyze the spreadsheets with Python Pandas.
- Create maps of the vineyard fields in Qgis.

Viticulture Skills

- Learn how grapevines grow and develop.
- Learn how wine is made.







