

UC ANR Drone Applications: Assessing Canopy Features from Drone Imagery



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Agriculture and Natural Resources

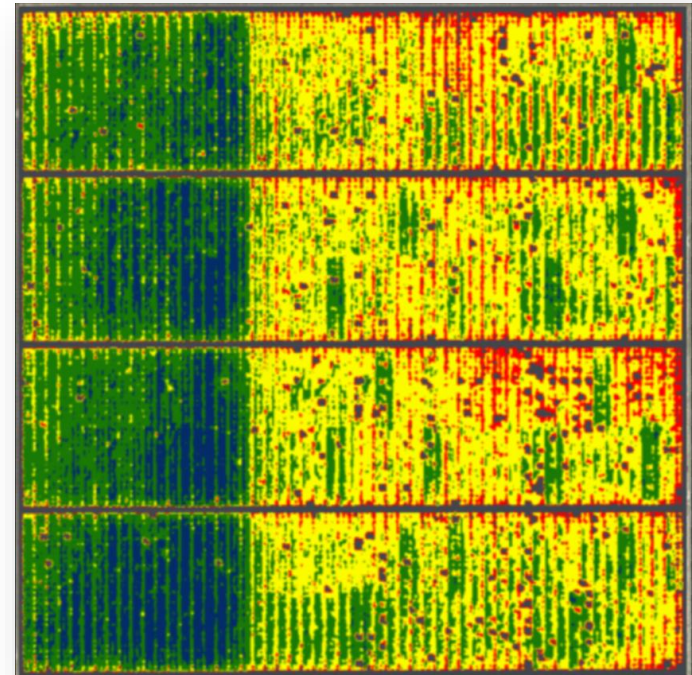
Informatics and GIS Program



Thermal Imagery - Water Use Efficiency



Water Stress Level



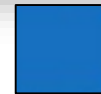
High



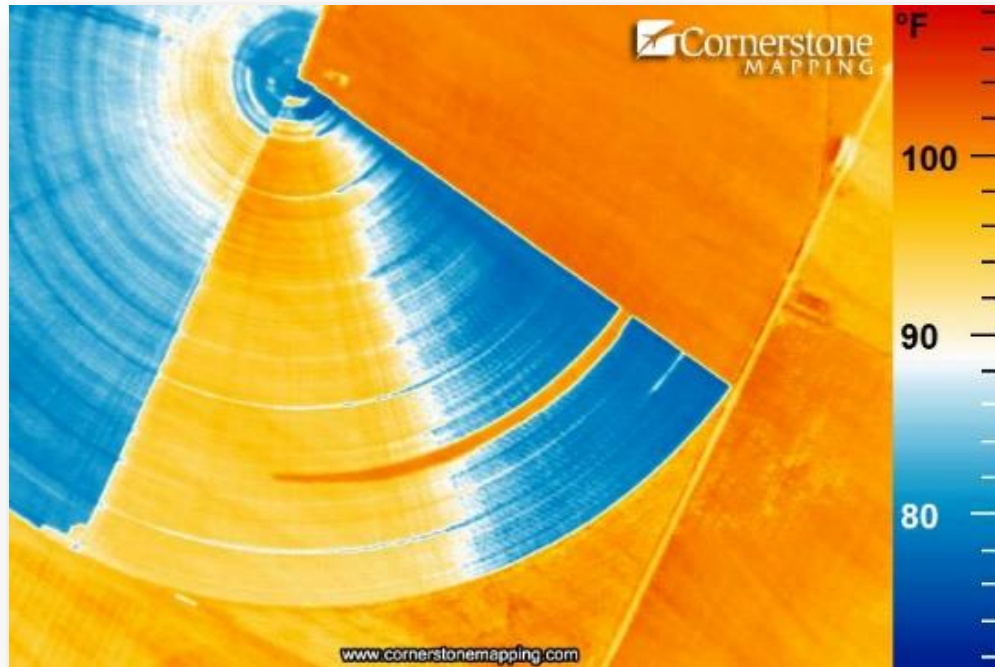
Moderate



Low

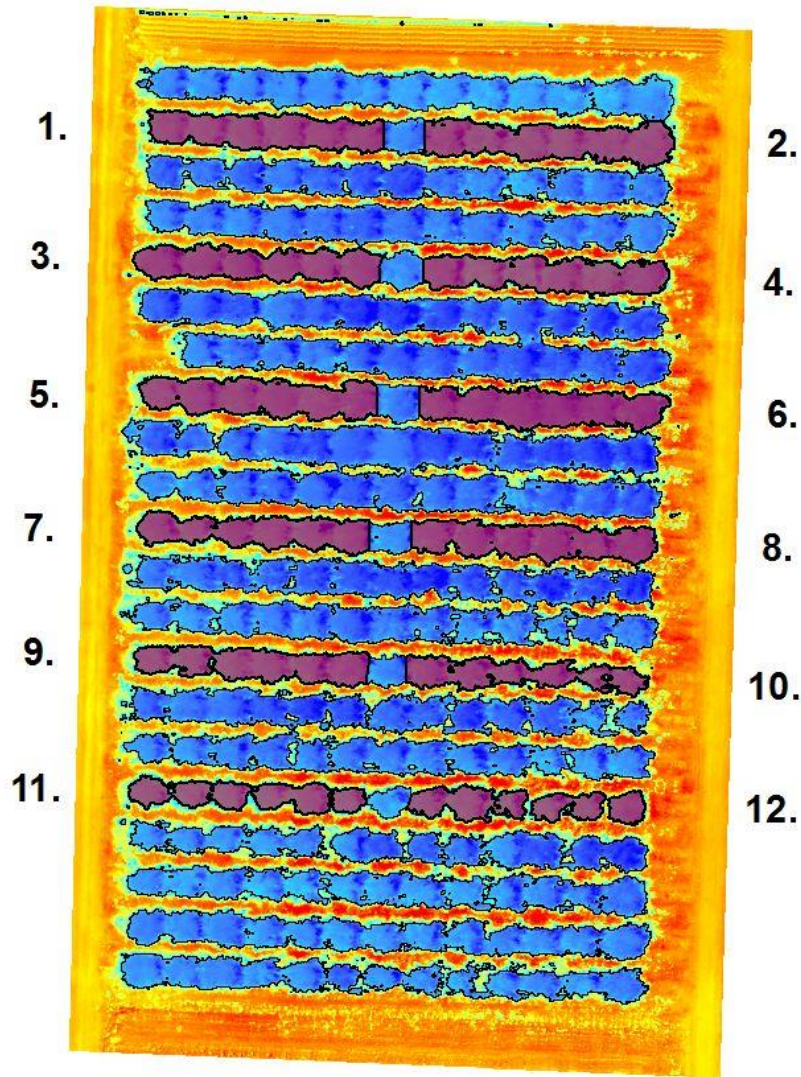


Unstressed



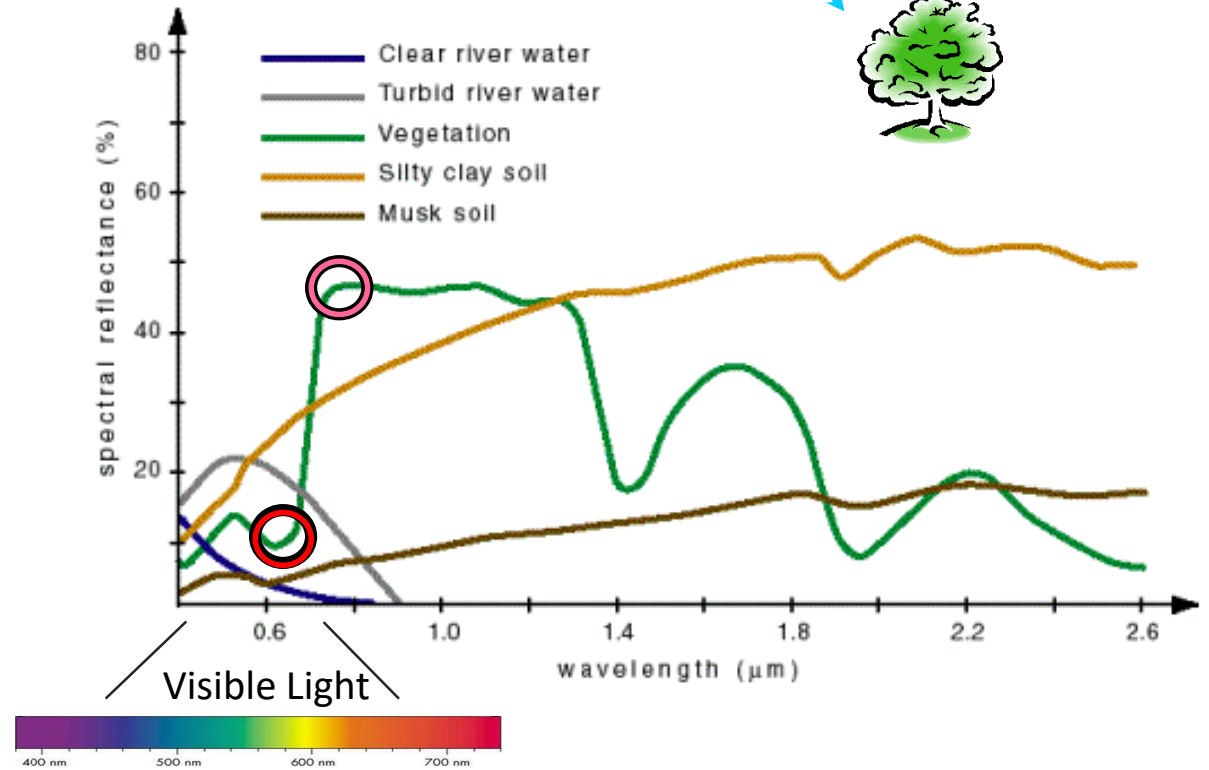
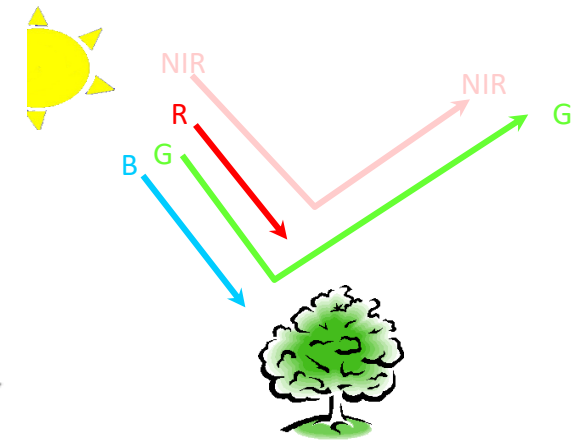
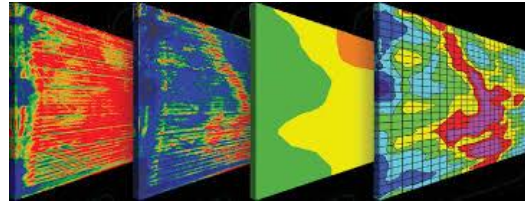
Thermal Imagery - Water Use Efficiency

Kearney Agricultural Research and Extension Center



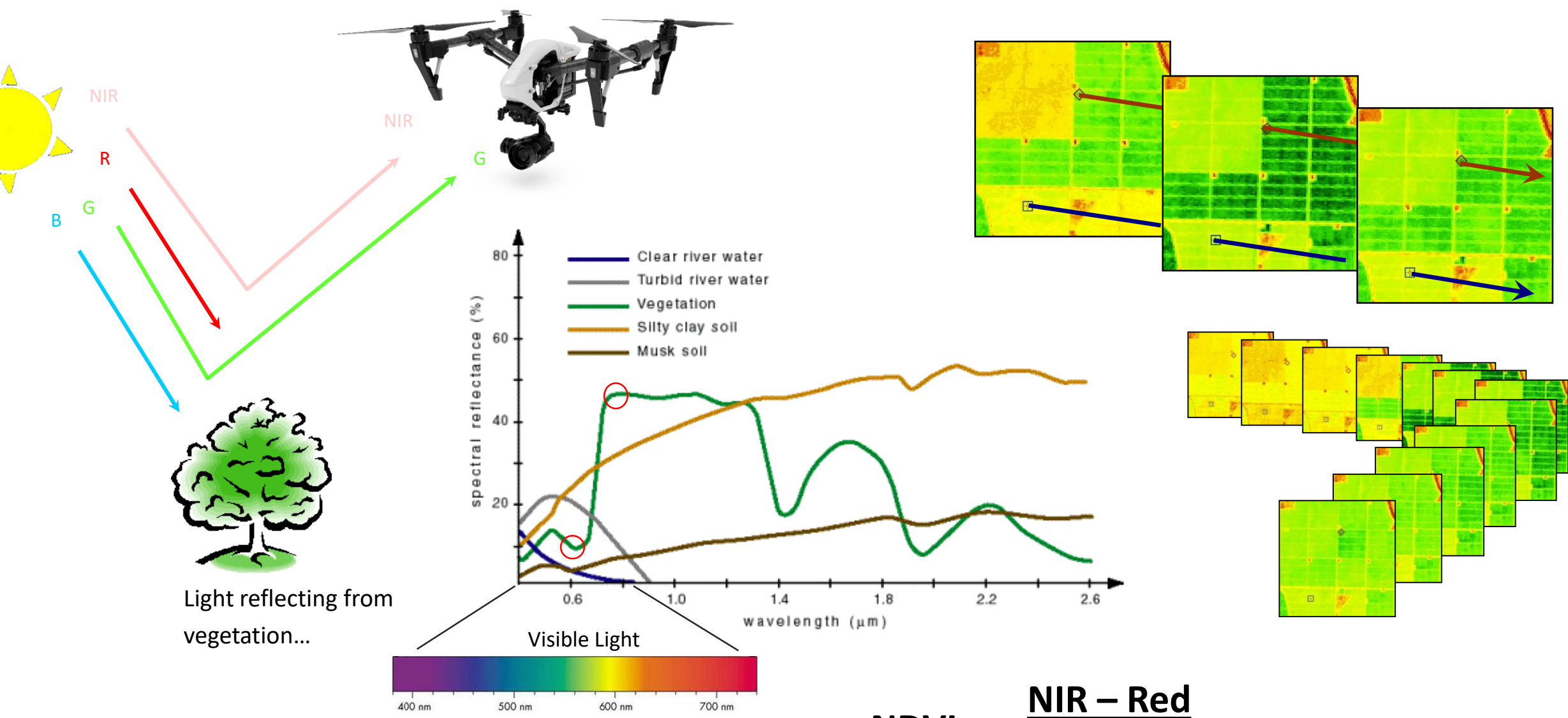
| Block | Type | Irrigation | AREA M2 | MIN °F | MAX °F | MEAN °F | STD |
|-------|-------|------------|---------|--------|--------|---------|------|
| 1 | Burn | Full | 134.67 | 77.36 | 79.75 | 78.87 | 0.39 |
| 2 | Grind | Full | 156.13 | 77.02 | 79.75 | 78.96 | 0.37 |
| 3 | Grind | Deficit | 135.49 | 77.03 | 79.75 | 78.80 | 0.42 |
| 4 | Burn | Deficit | 138.27 | 77.42 | 79.75 | 78.97 | 0.41 |
| 5 | Burn | Full | 142.55 | 77.29 | 79.75 | 78.87 | 0.36 |
| 6 | Grind | Full | 153.42 | 74.98 | 79.75 | 78.54 | 0.42 |
| 7 | Burn | Deficit | 117.97 | 76.72 | 79.75 | 78.88 | 0.45 |
| 8 | Grind | Deficit | 140.47 | 76.99 | 79.75 | 78.67 | 0.42 |
| 9 | Grind | Full | 120.07 | 77.04 | 79.75 | 78.97 | 0.43 |
| 10 | Burn | Full | 103.57 | 77.11 | 79.75 | 78.87 | 0.46 |
| 11 | Burn | Deficit | 96.81 | 77.64 | 79.75 | 79.22 | 0.37 |
| 12 | Grind | Deficit | 100.46 | 77.19 | 79.75 | 79.04 | 0.48 |

Applications - Crop Health



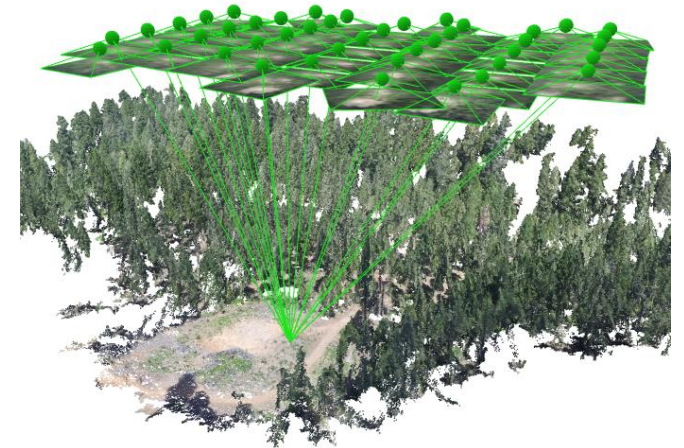
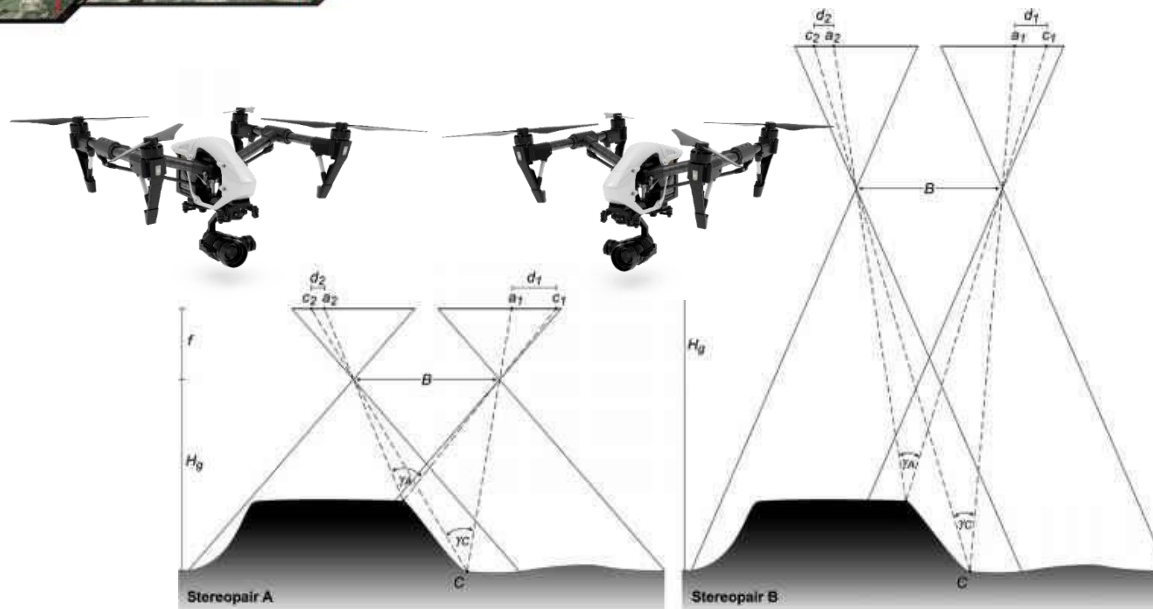
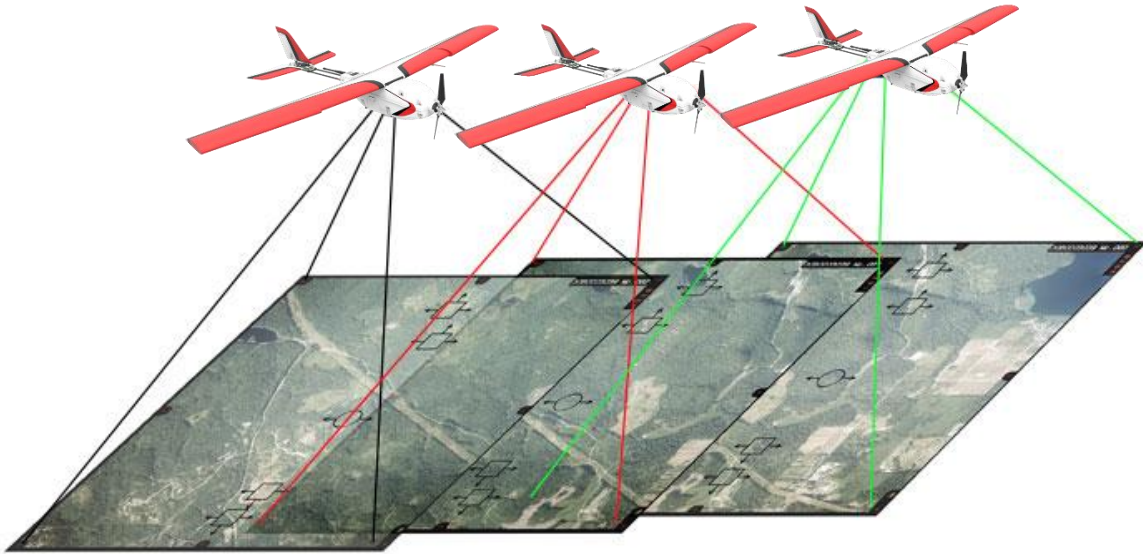
$$\text{NDVI} = \frac{\text{NIR} - \text{Red}}{\text{NIR} + \text{Red}}$$

Remote Sensing of Vegetation



$$NDVI = \frac{NIR - Red}{NIR + Red}$$

Photogrammetry for 3D Modeling





ANR Statewide Program: Informatics and Geographic Information Systems



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