

Some Observations on Geographical Information and Applications

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Remarks 1

- Purpose: To illustrate, not define ...
- Method: Pictorial approach...
- Goal: Provide a starting point of inquiry...
- Result: Define relevant questions...

Remarks 2

-Basics to Know-

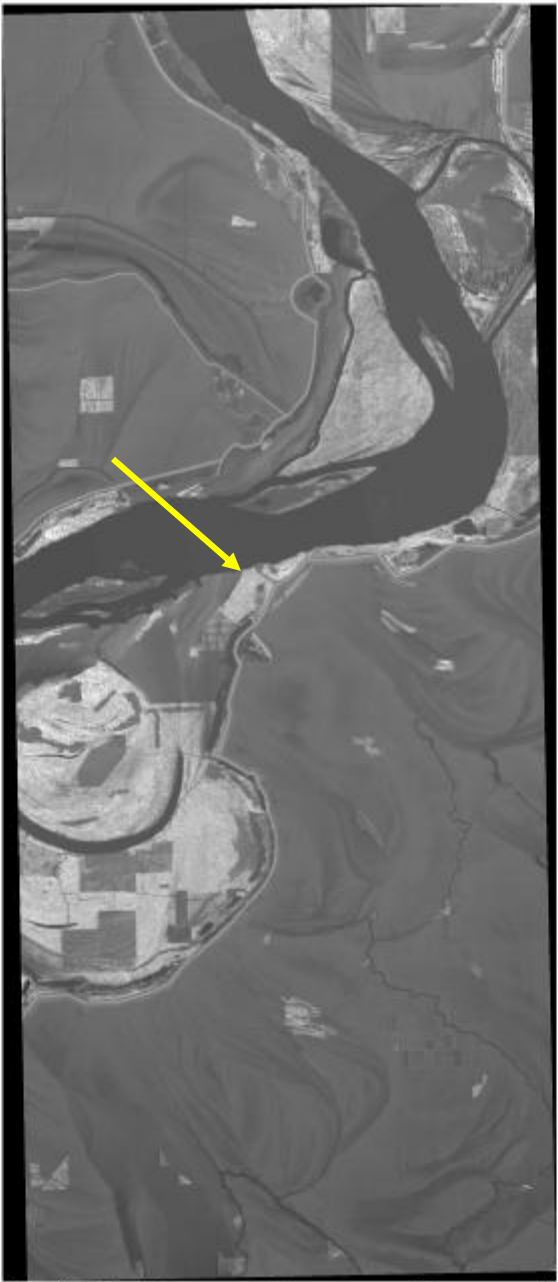
- Ortho-rectified vs Geo-rectified...
- Spatial Resolution vs Spectral Resolution...
- Temporal Resolution...
- Geographic vs Planar Coordinate Systems...
- Etc., Etc., Etc., ...

Product Set 1

- Digital Elevation Information:
 - IFSAR (SAR) – Interferometric Synthetic Aperture Radar
 - LiDAR – Light Detection and Ranging
 - RTK – Real Time Kinetic

IFSAR

- Wide-area data product...
- Spatial Resolution: 4 m ...
- Vertical accuracy: near 1 m ...

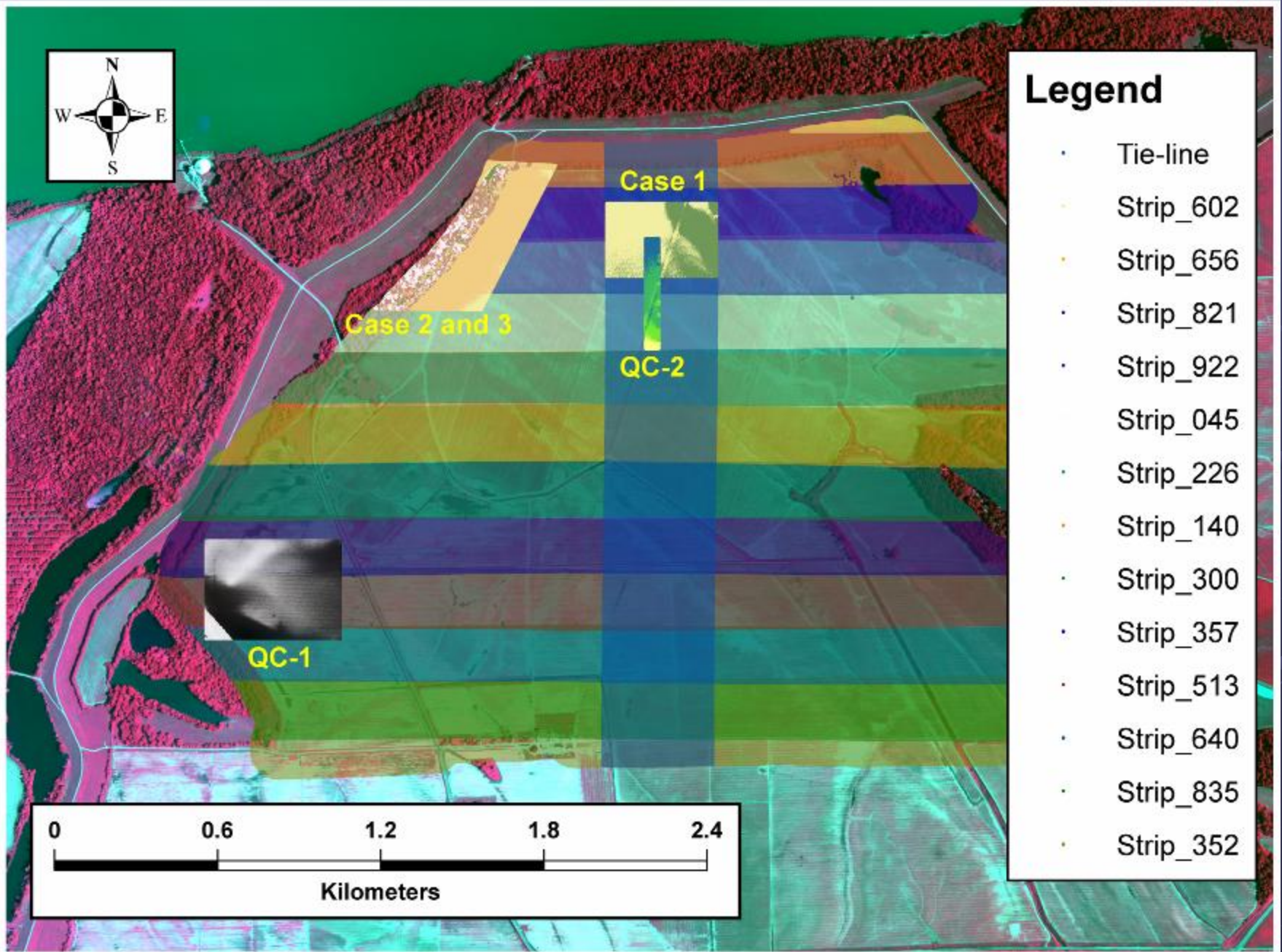


0 1.5 3 6 9 12

Kilometers

LiDAR

- Small area data product ...
- Spatial Resolution: 0.5 to 1 m ...
- Vertical accuracy: 3 – 10 cm ...

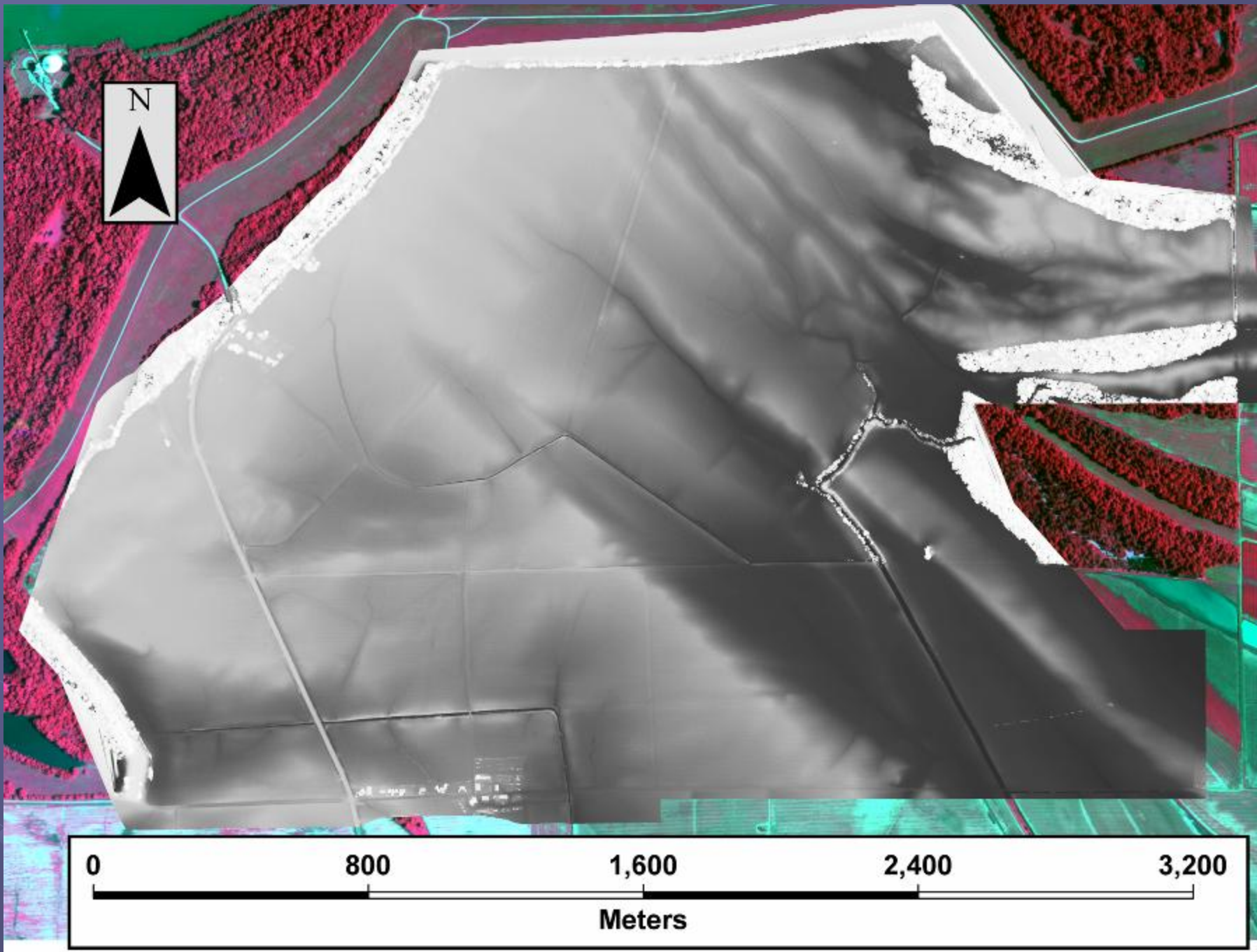


Legend

- Tie-line
- Strip_602
- Strip_656
- Strip_821
- Strip_922
- Strip_045
- Strip_226
- Strip_140
- Strip_300
- Strip_357
- Strip_513
- Strip_640
- Strip_835
- Strip_352

0 0.6 1.2 1.8 2.4

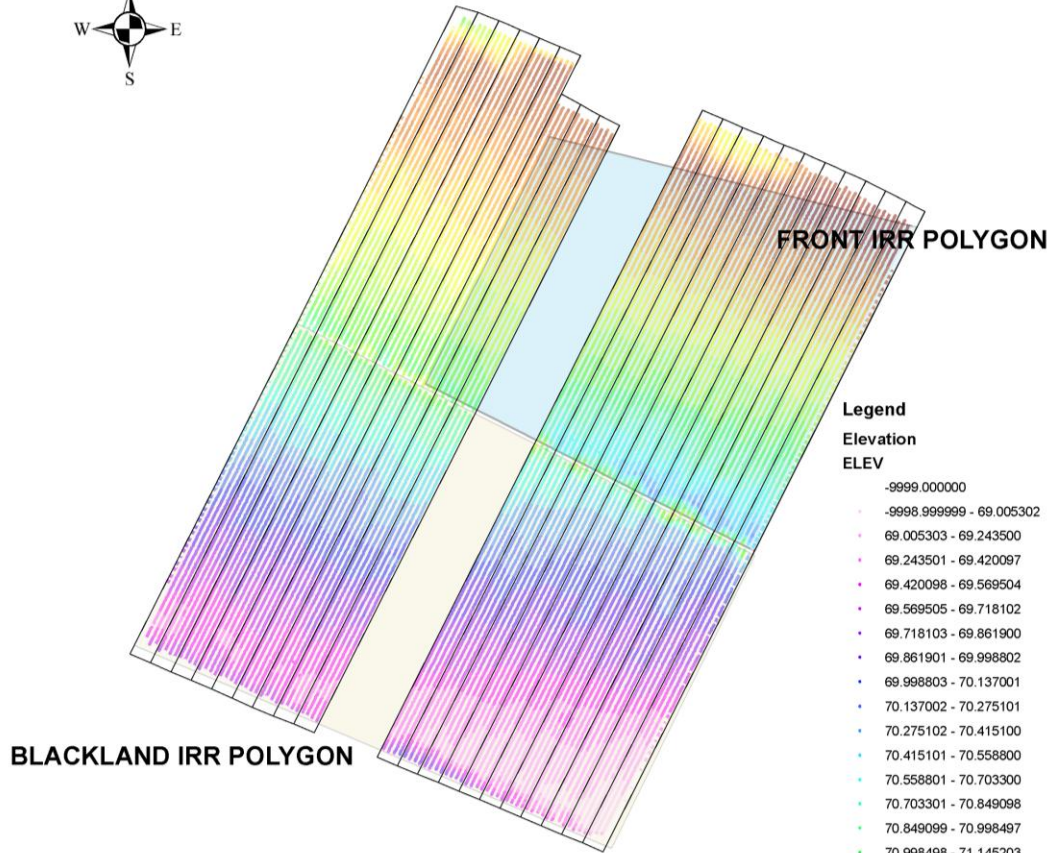
Kilometers



RTK Elevation

- Small area data product
- Spatial Resolution: 4 – 12 m ...
- Vertical accuracy: Sub-centimeter ...

HELENA 2005 RTK ELEVATION



BLACKLAND IRR POLYGON

FRONT IRR POLYGON

Legend

Elevation
ELEV

- 9999.000000
- 9998.999999 - 69.005302
- 69.005303 - 69.243500
- 69.243501 - 69.420097
- 69.420098 - 69.569504
- 69.569505 - 69.718102
- 69.718103 - 69.861900
- 69.861901 - 69.998802
- 69.998803 - 70.137001
- 70.137002 - 70.275101
- 70.275102 - 70.415100
- 70.415101 - 70.558800
- 70.558801 - 70.703300
- 70.703301 - 70.849098
- 70.849099 - 70.998497
- 70.998498 - 71.145203
- 71.145204 - 71.298897
- 71.298898 - 71.466797
- 71.466798 - 71.632004
- 71.632005 - 71.790001
- 71.790002 - 71.949402
- 71.949403 - 72.105598
- 72.105599 - 72.253403
- 72.253404 - 72.393204
- 72.393205 - 72.540497
- 72.540498 - 72.699303
- 72.699304 - 72.928596
- 72.928597 - 73.226196

Helena Plot Polygons Index

27 DECEMBER 05 RTK ELEVATION PDF

J L WILLERS

Product Set 2

- Historical Information - Imagery:

- Multispectral ...

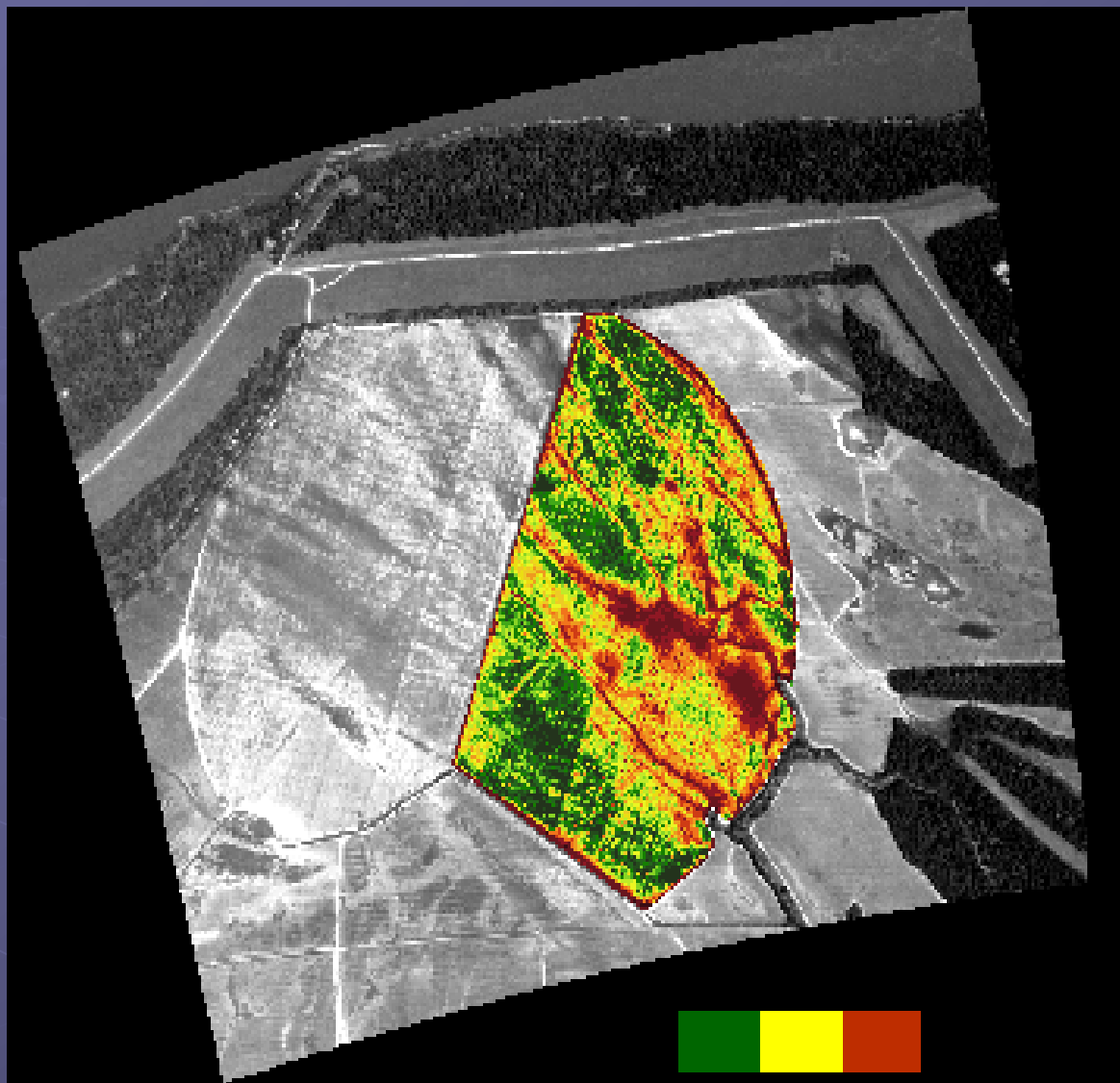
- Hyperspectral...

Illustration 1

Cotton Following Peanuts



July
1997



Crop Vigor: High → Low

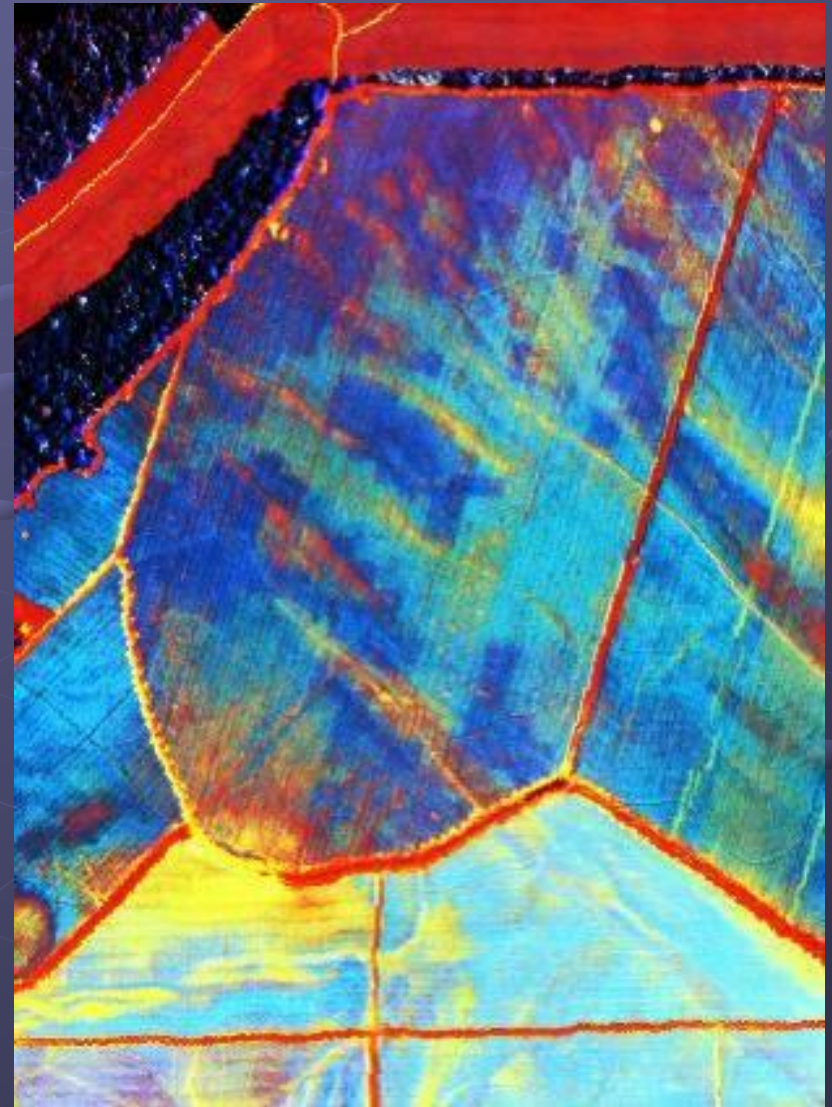
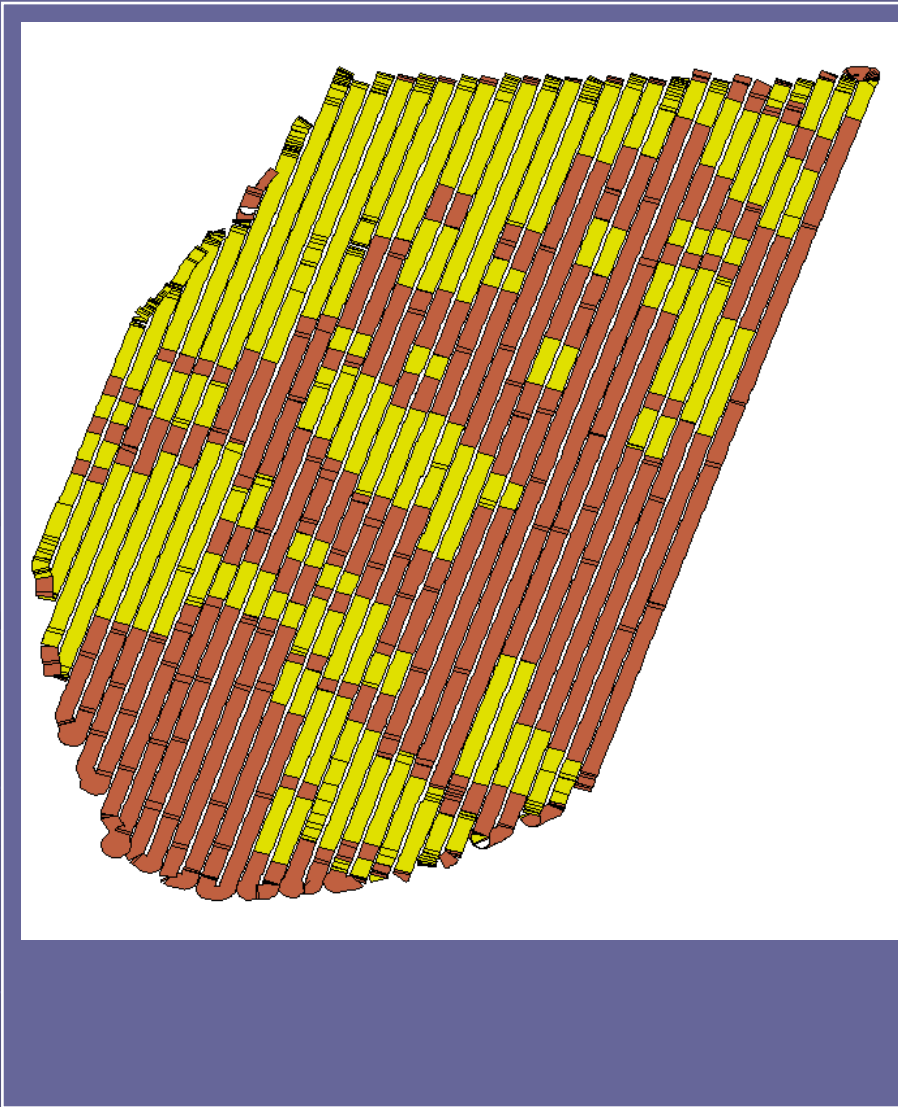
Illustration 2

Hyperspectral

PGR & Bidrin Application

June 25, 2001: Pix (4 oz.)
and Bidrin (1 gal./20 acres)

July 7, 2001

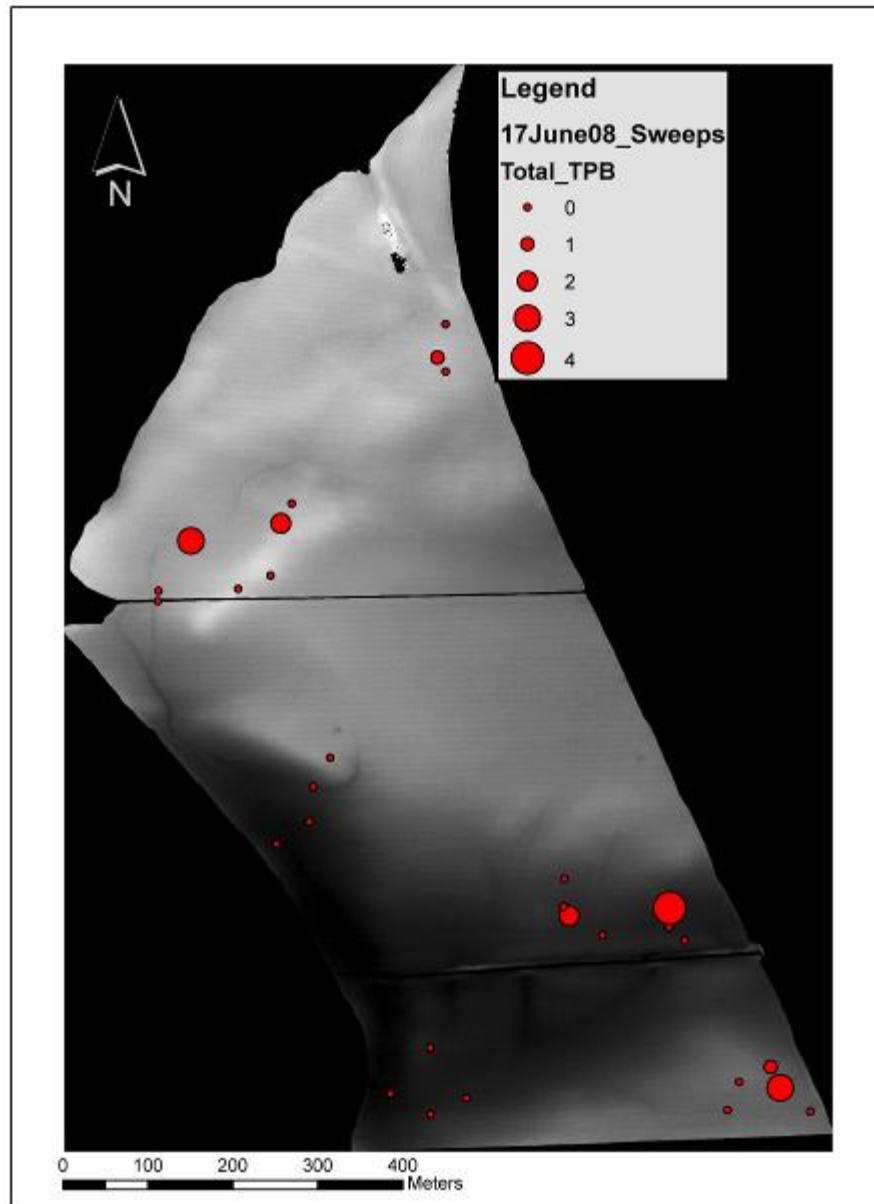


(Perthshire Farms/USDA ARS)

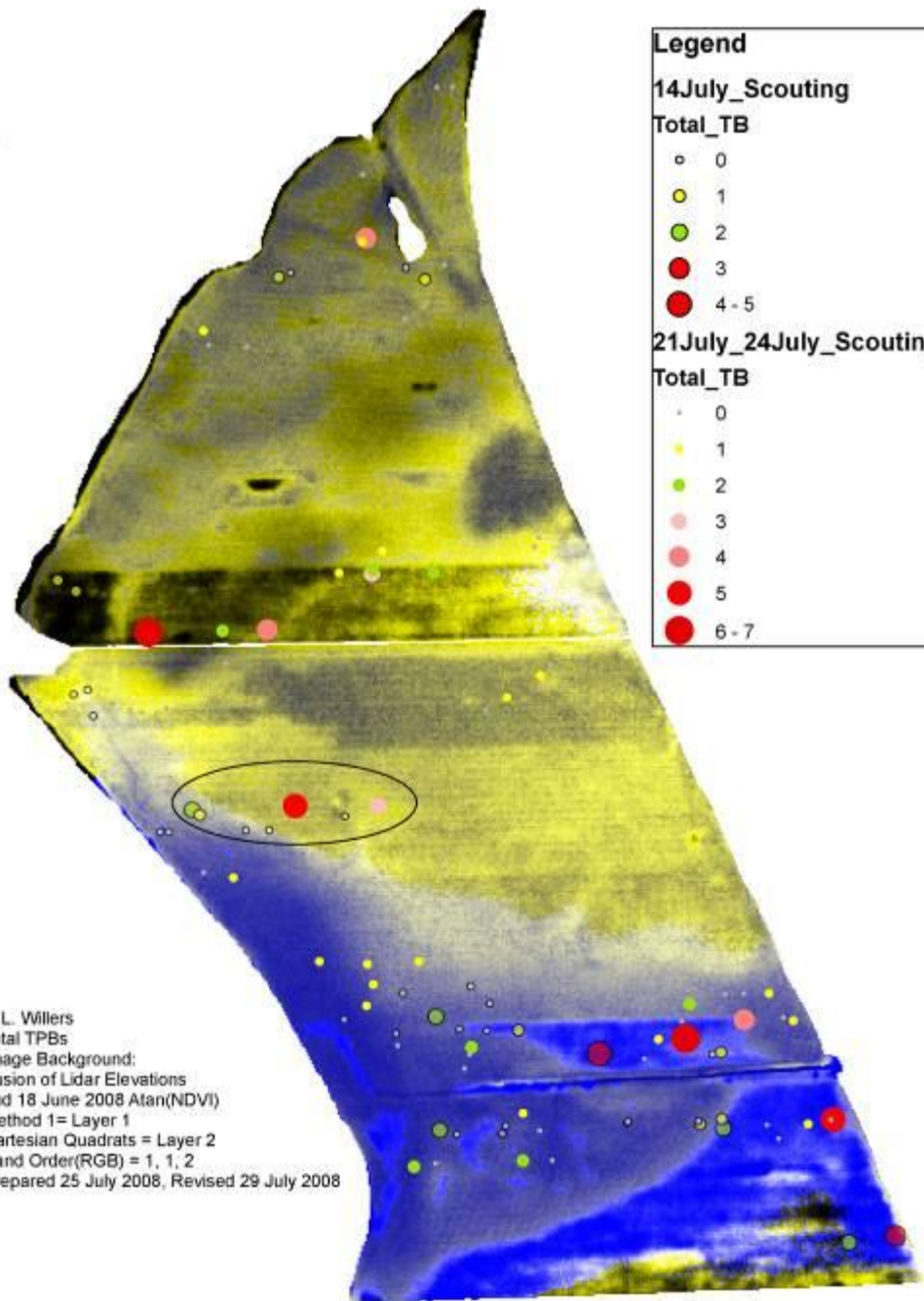
Product Set 3

- Data fusion:

Digital surface models and imagery
...entomological applications.



JL Willers
18 June 2008
Sweep Net TPBs



| Legend | |
|-------------------------------|-----|
| 14July_Scouting | |
| Total_TB | |
| ○ | 0 |
| ● | 1 |
| ● | 2 |
| ● | 3 |
| ● | 4-5 |
| 21July_24July_Scouting | |
| Total_TB | |
| ○ | 0 |
| ● | 1 |
| ● | 2 |
| ● | 3 |
| ● | 4 |
| ● | 5 |
| ● | 6-7 |

J. L. Willers
Total TPBs
Image Background:
Fusion of Lidar Elevations
and 18 June 2008 Atan(NDVI)
Method 1= Layer 1
Cartesian Quadrats = Layer 2
Band Order(RGB) = 1, 1, 2
Prepared 25 July 2008, Revised 29 July 2008



Remarks 3
-Workshop-
Geographical Sampling Concepts for
Cotton Pest Management

- Beltwide '09, San Antonio ...

“So must we likewise from experience of every kind first endeavor to discover true causes and axioms; and seek for experiments of Light, not for experiments of Fruit.”

The New Organon

(Excerpted from Article LXX)

Francis Bacon (1561-1626)