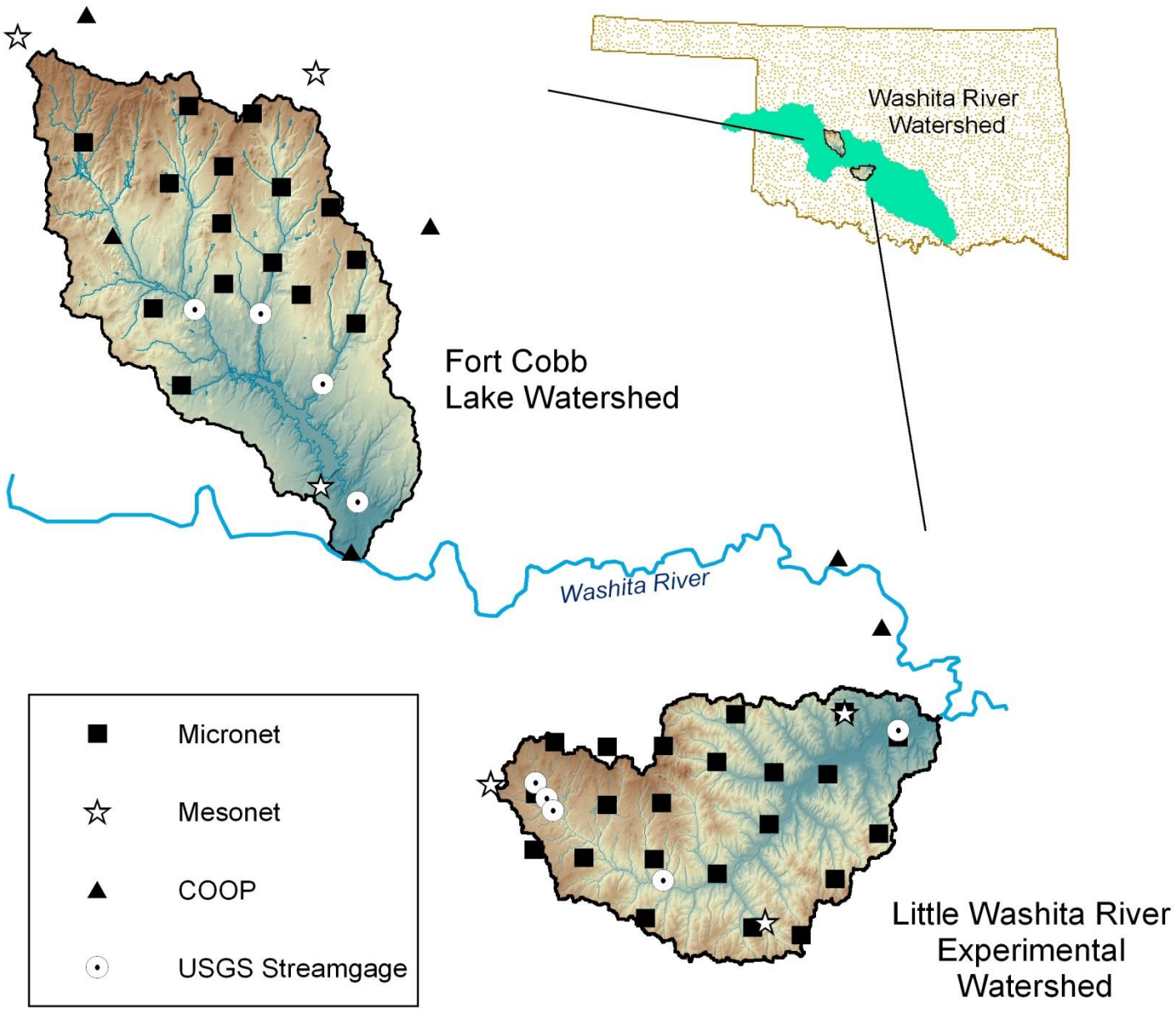
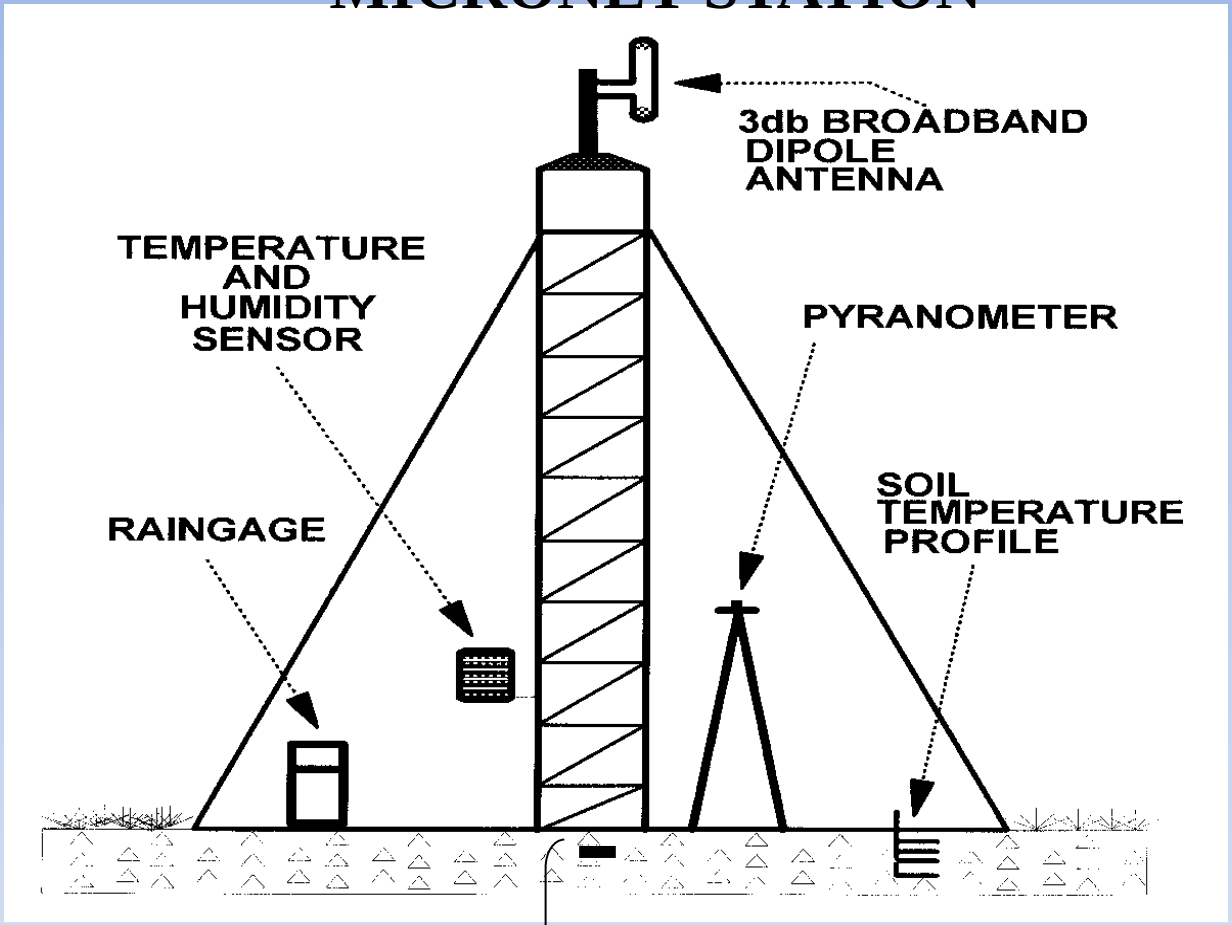
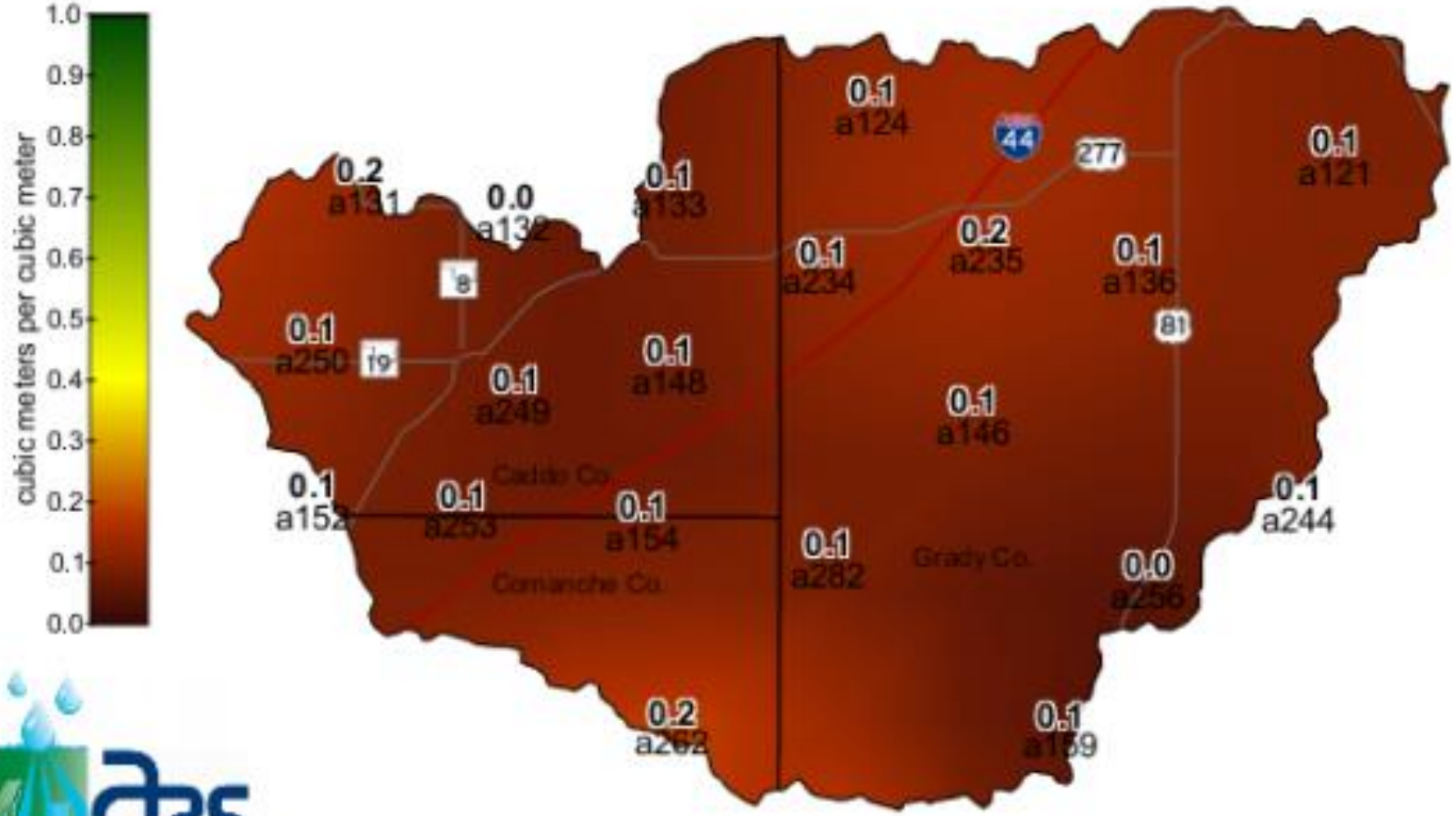
Soil Water Content Measurements at the USDA-ARS Grazinglands Research Laboratory


Washita River
Watershed
Fort Cobb
Lake Watershed
Washita River
Micronet
Mesonet
COOP
USGS Streamgage
Little Washita River
Experimental
Watershed

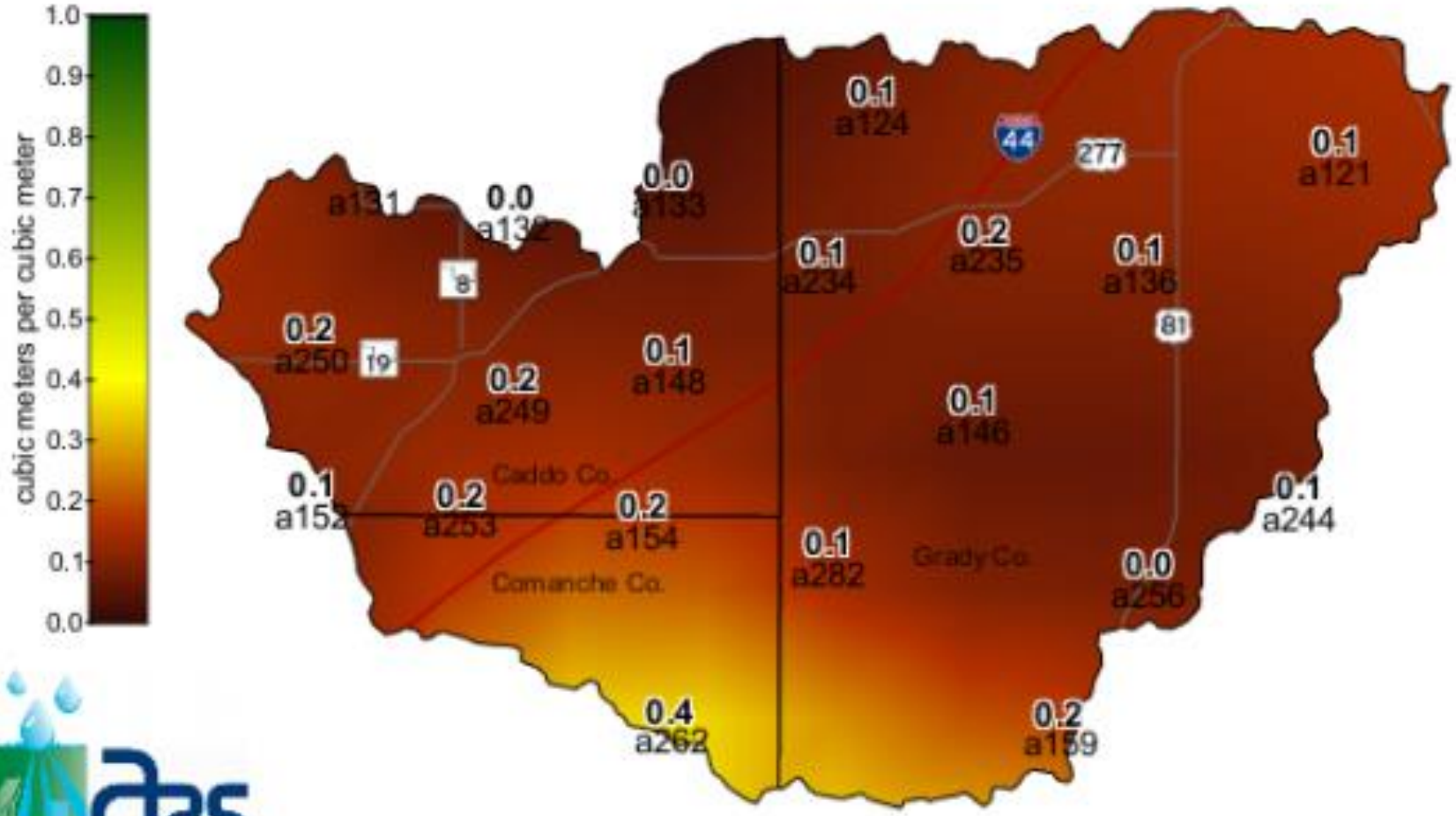
MICRONET STATION





5 cm Soil Moisture

9:50 AM June 3, 2014 CDT



45 cm Soil Moisture

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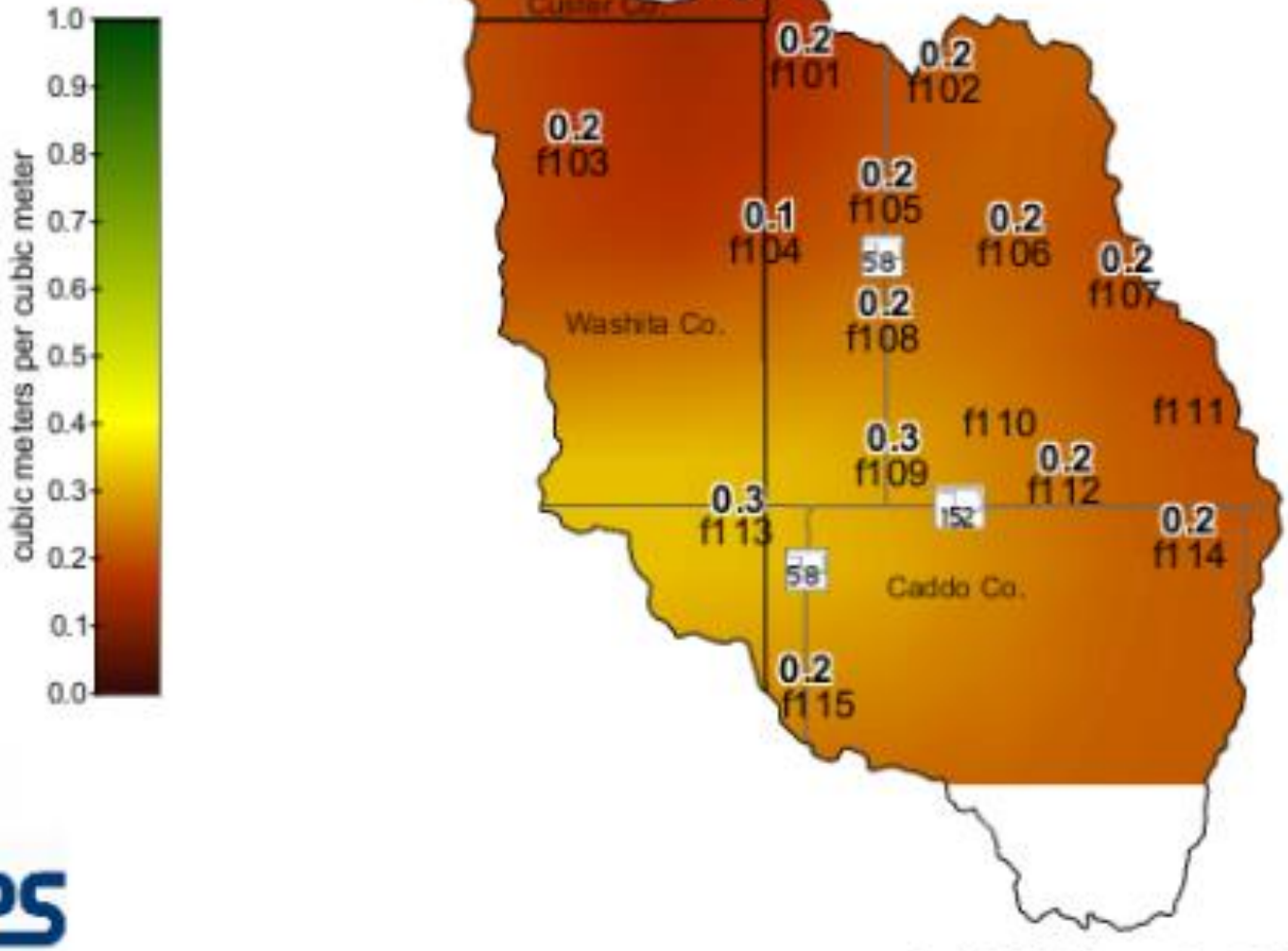

45 cm Soil Moisture

9:45 AM June 3, 2014 CDT

GrazingLands Research Laboratory

ARS Micronet

USDA

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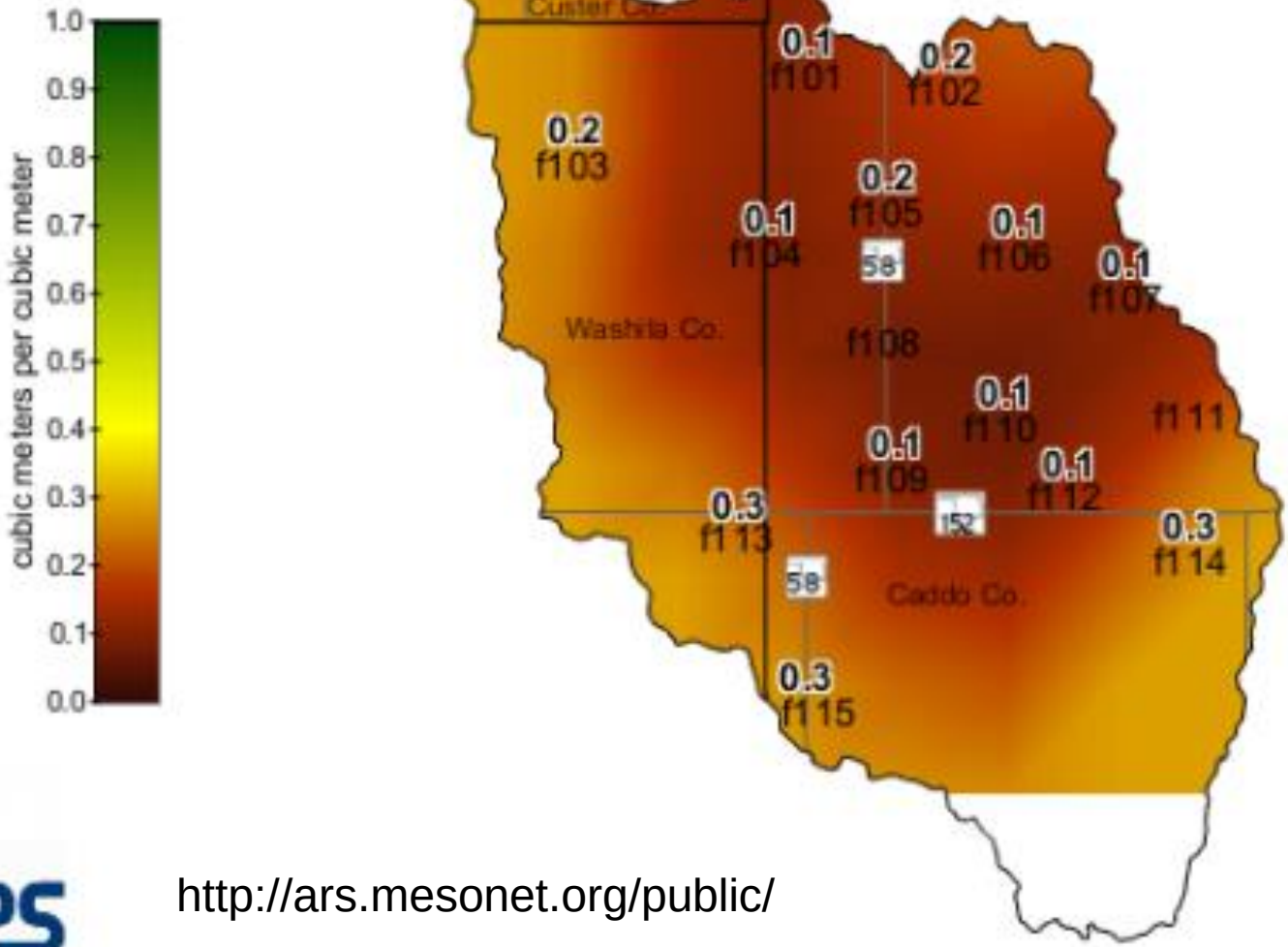

http://ars.mesonet.org/public/

5 cm Soil Moisture

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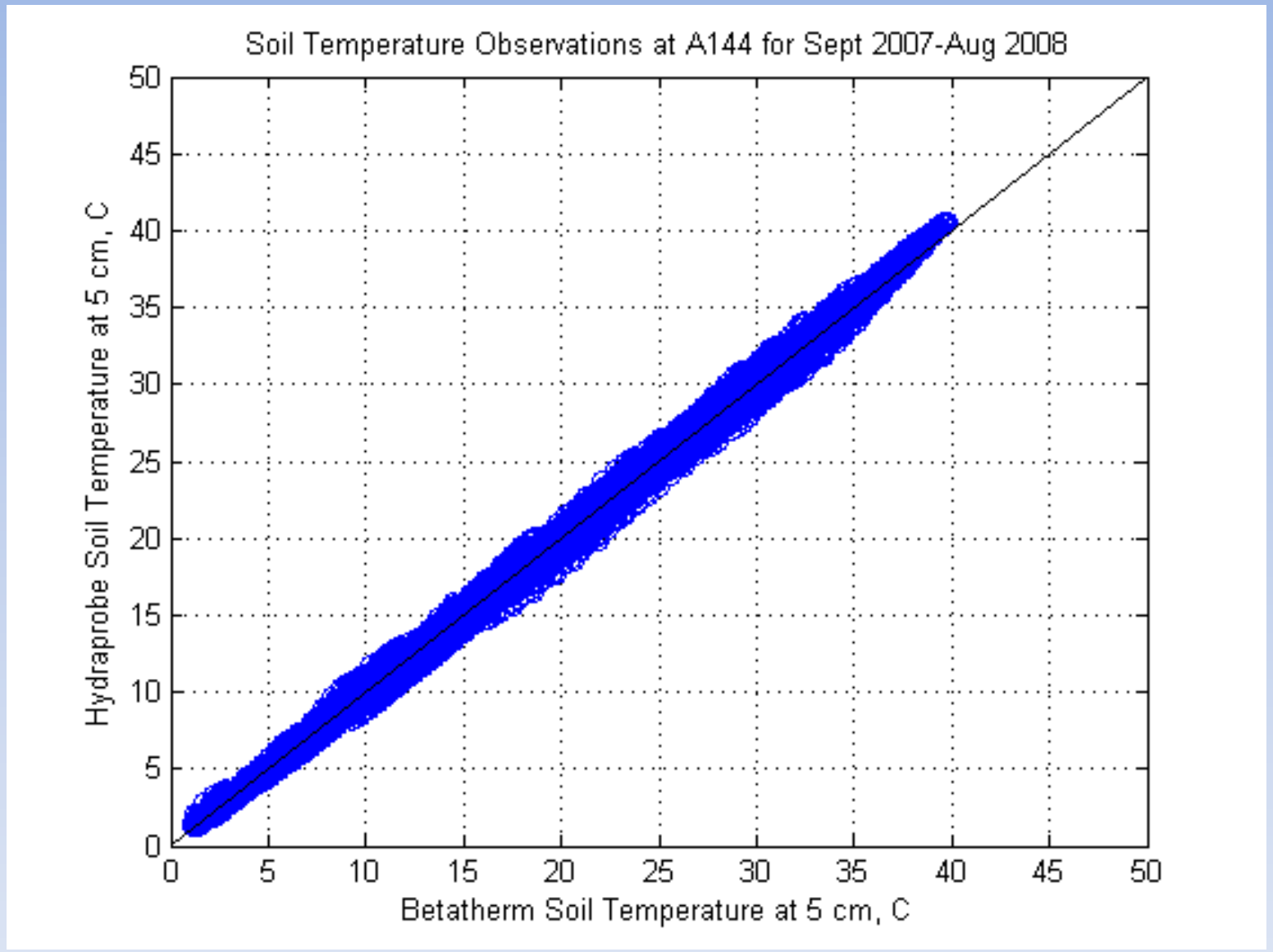
Soil Temperature Observations at A144 for Sept 2007-Aug 2008
Hydraprobe Soil Temperature at 5 cm, C
Betatherm Soil Temperature at 5 cm, C
0
5
10
15
20
25
30
35
40
45
50

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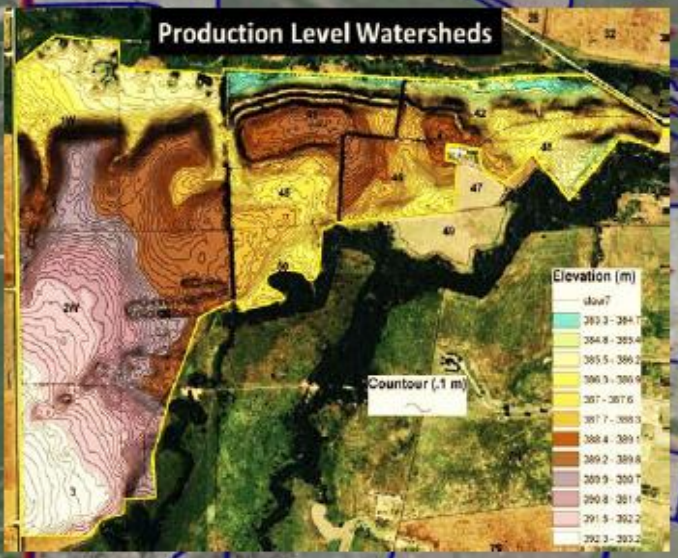
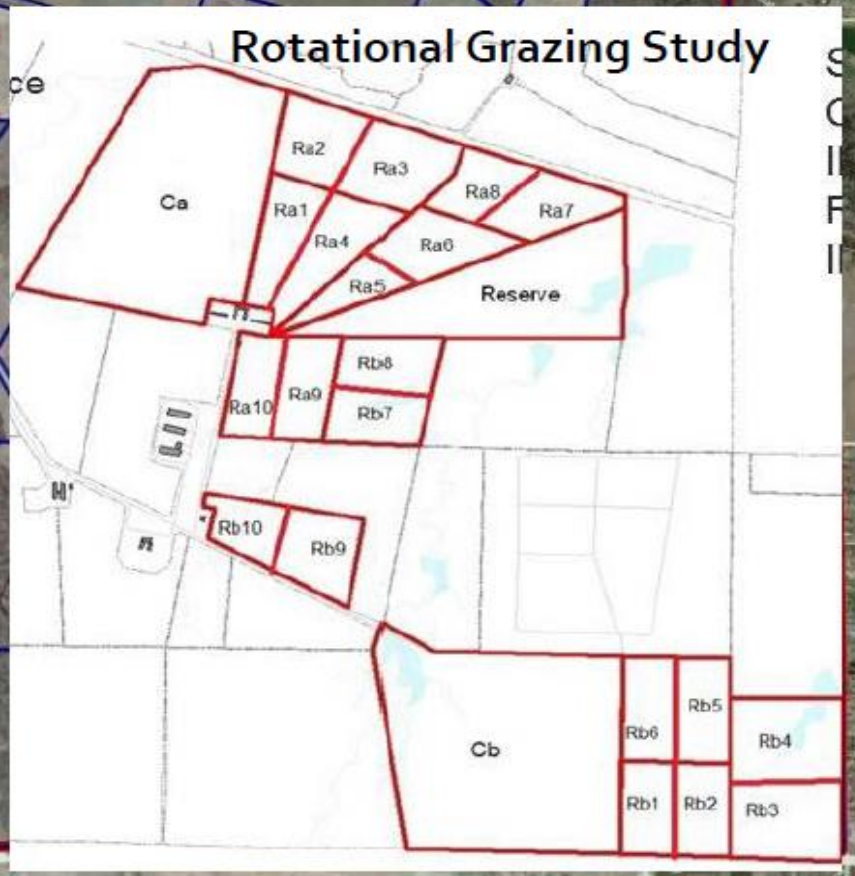
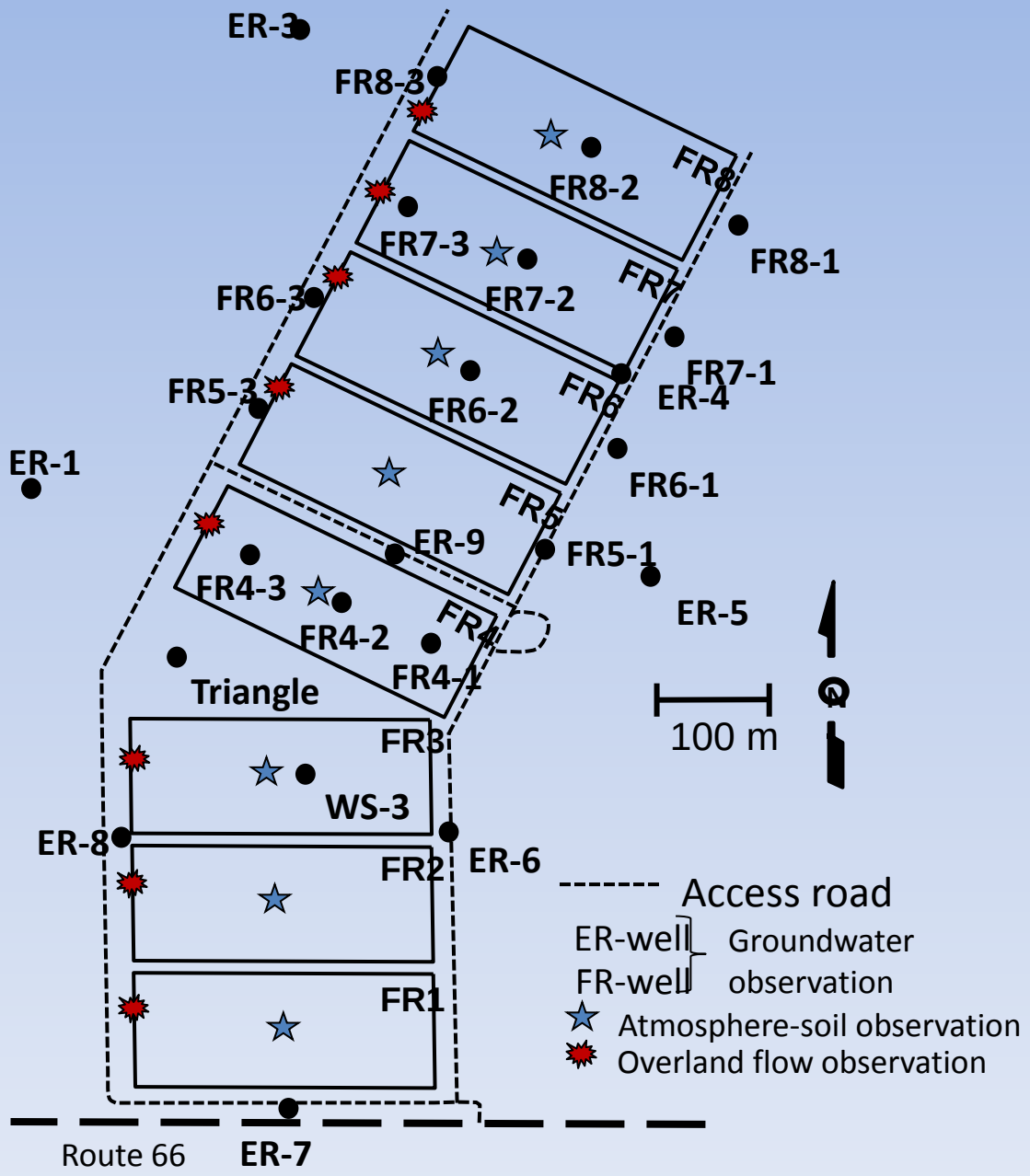


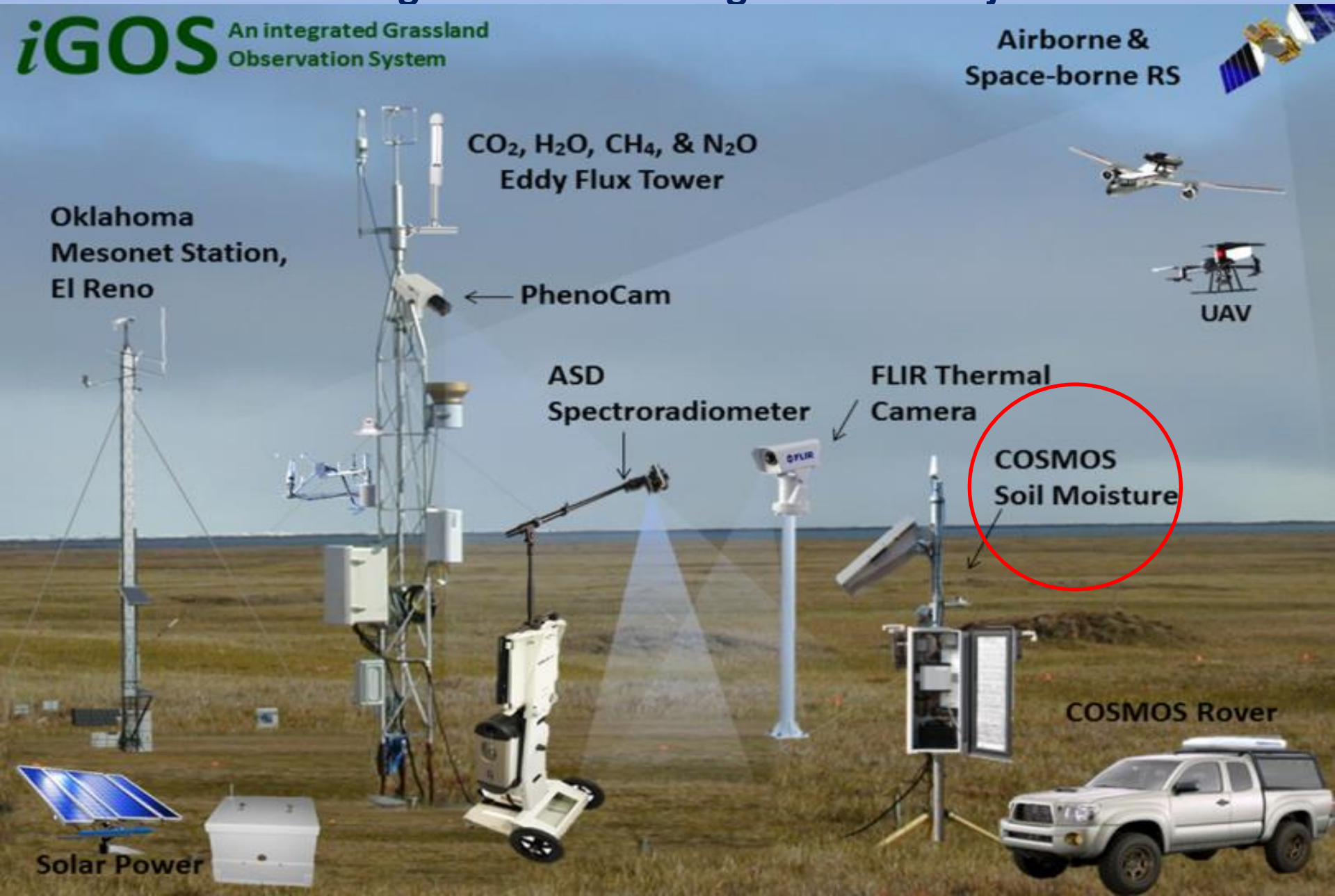


Unit Source Watersheds

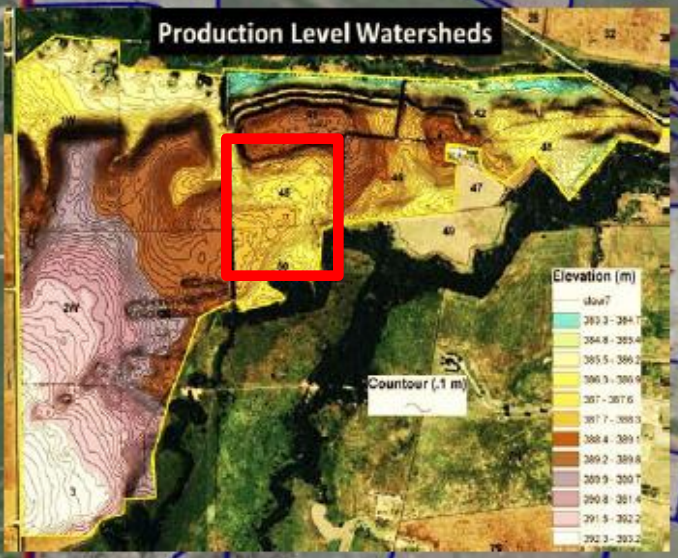
WRE INSTRUMENTATION

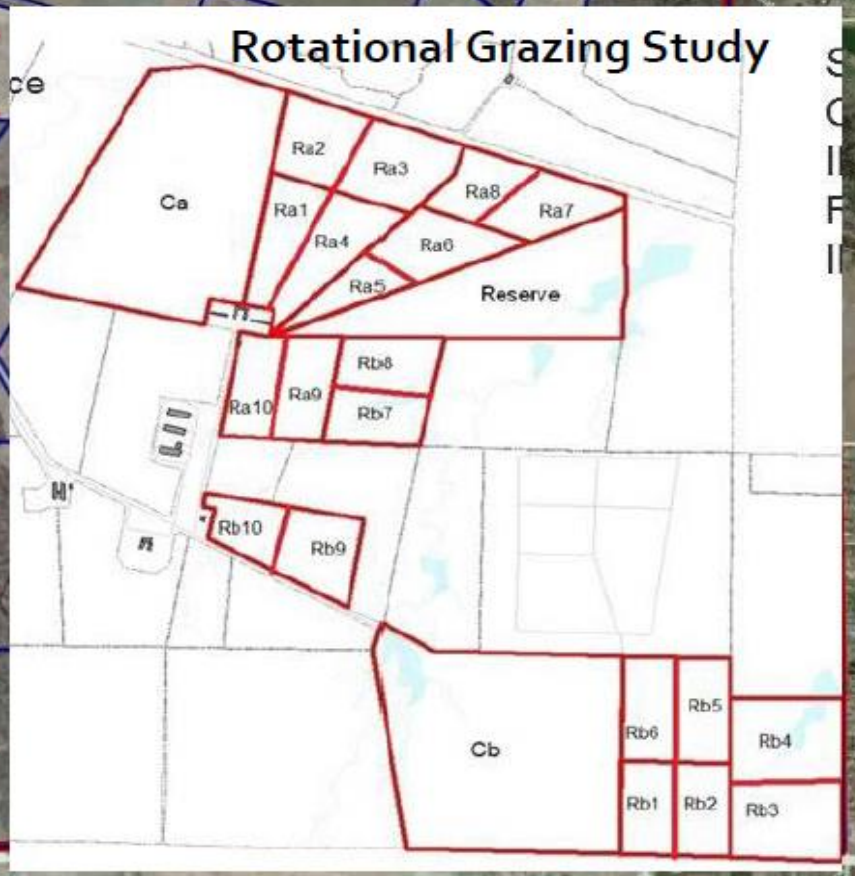


Agricultural and Food Research Initiative
Grazing – Coordinated Agricultural Project

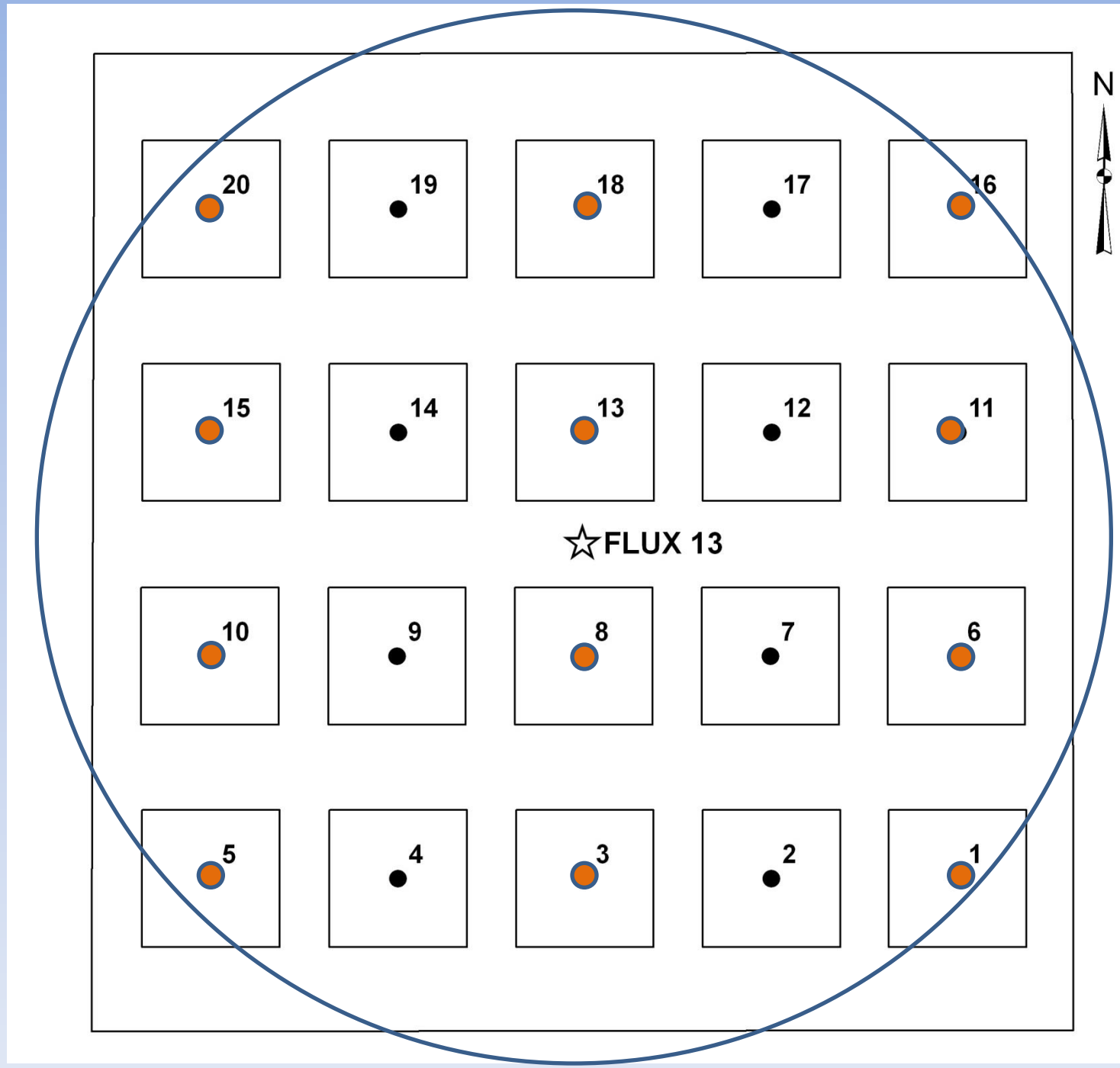


Grazinglands Research Laboratory





Unit Source Watersheds


N
20
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16
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12
11
FLUX 13
10
9
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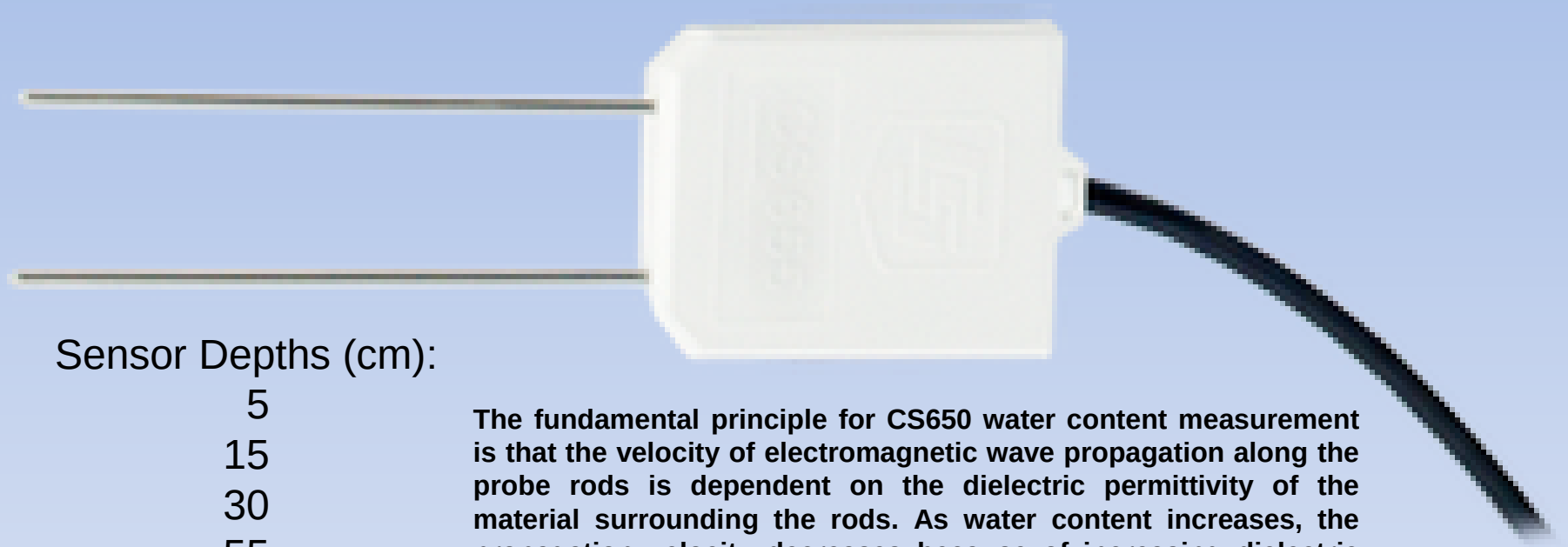
6
5
4
3
2
1

Campbell Scientific CS655
Soil Water Content Reflectometer



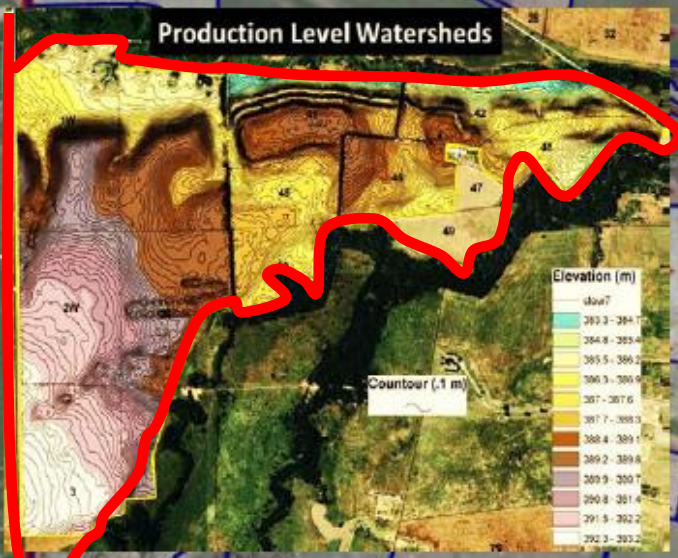
Sensor Depths (cm):

5
15
30
55
85

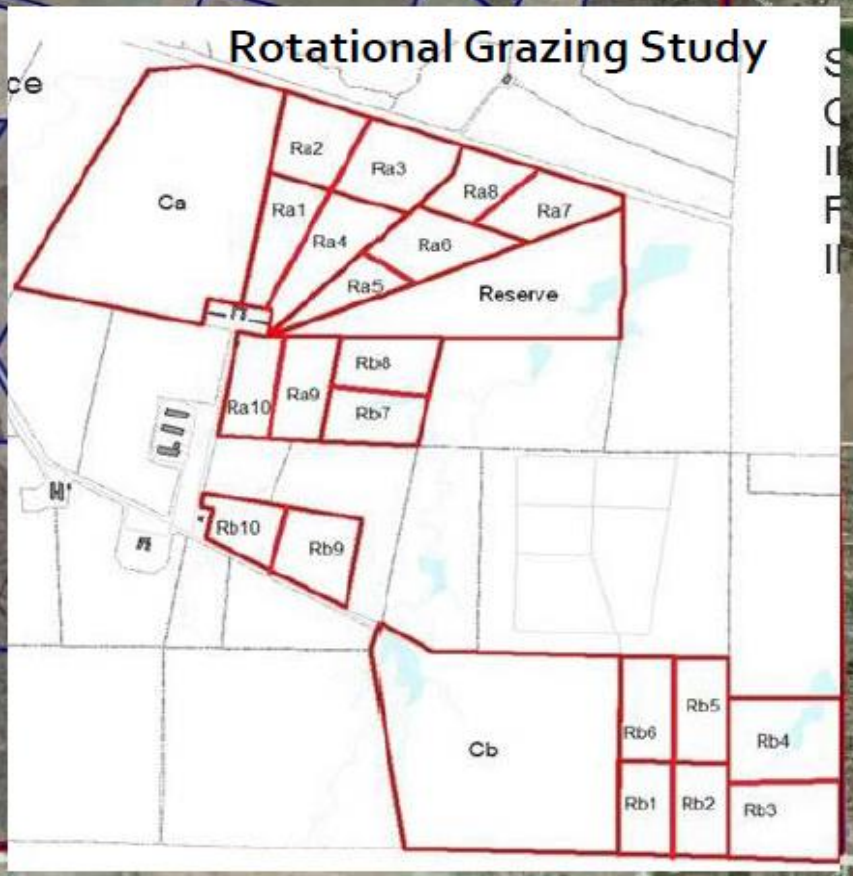
The fundamental principle for CS650 water content measurement is that the velocity of electromagnetic wave propagation along the probe rods is dependent on the dielectric permittivity of the material surrounding the rods. As water content increases, the propagation velocity decreases because of increasing dielectric permittivity. Therefore, the two-way travel time of the rod signal is dependent upon water content, hence the name water content reflectometer.

Measures dielectric permittivity, bulk electrical conductivity (EC), and soil temperature.

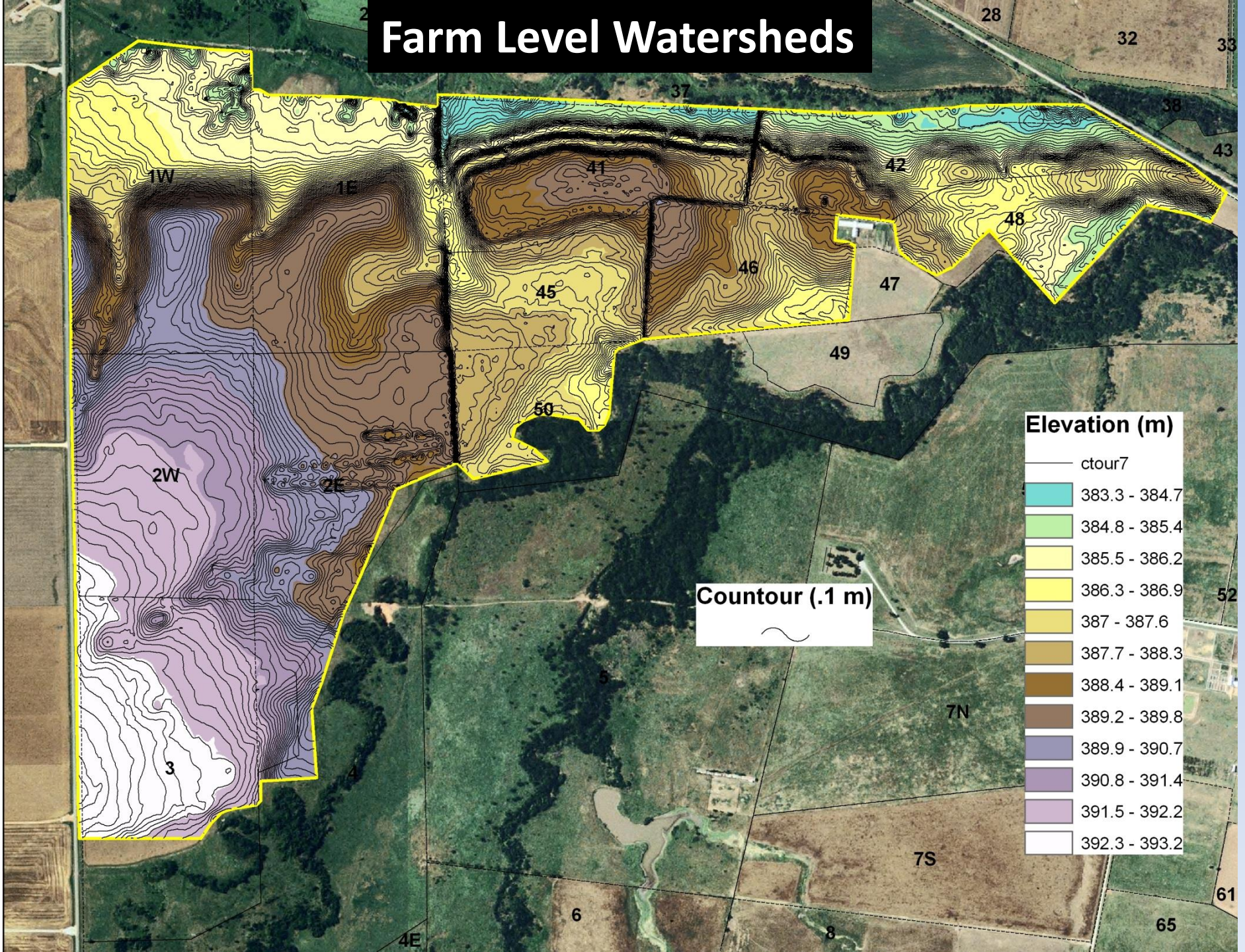
Grazinglands Research Laboratory



Unit Source Watersheds



Farm Level Watersheds



Thank You!