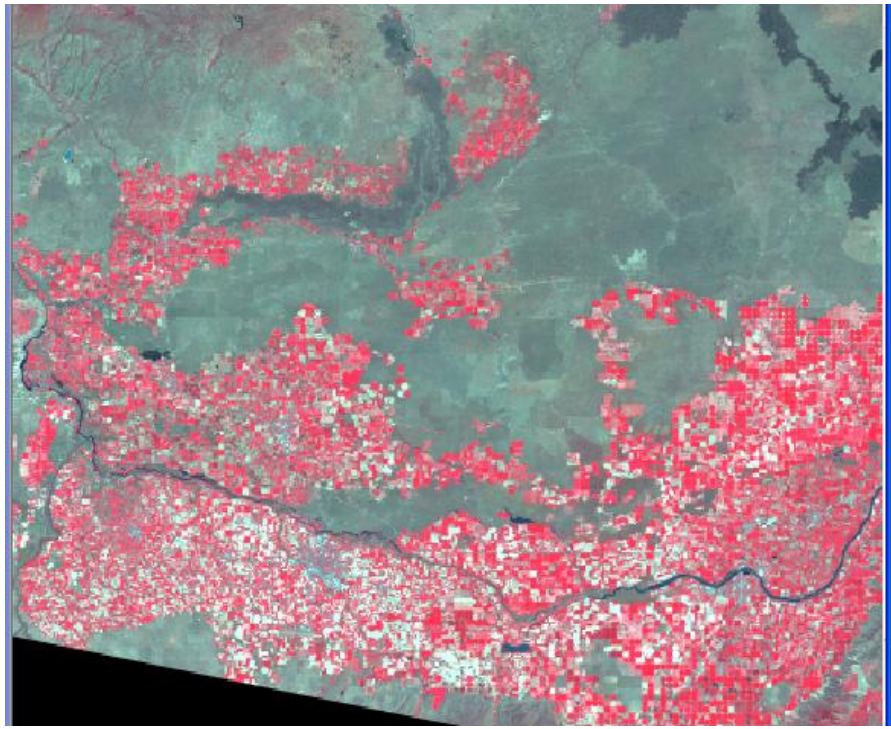
Sharpening of 120 m Land Surface Temperature (LST) of Landsat 5 to 30 m using NDVI

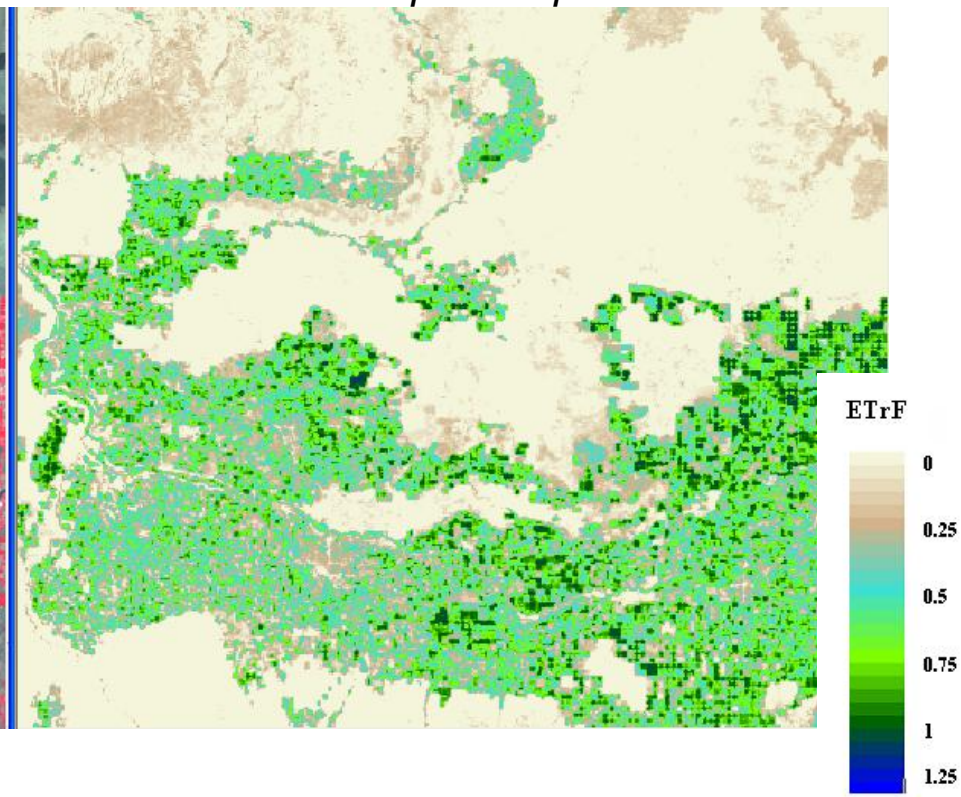
- Process is trained using LST ‘endpoints’ representing high NDVI (wet/cold) and low NDVI (hot/dry) conditions in an image
- Sharpening creates 0 net bias to the original 120 m LST

Landsat 5 (06/20/2006) Southern Idaho, path 39 row 40

False Color



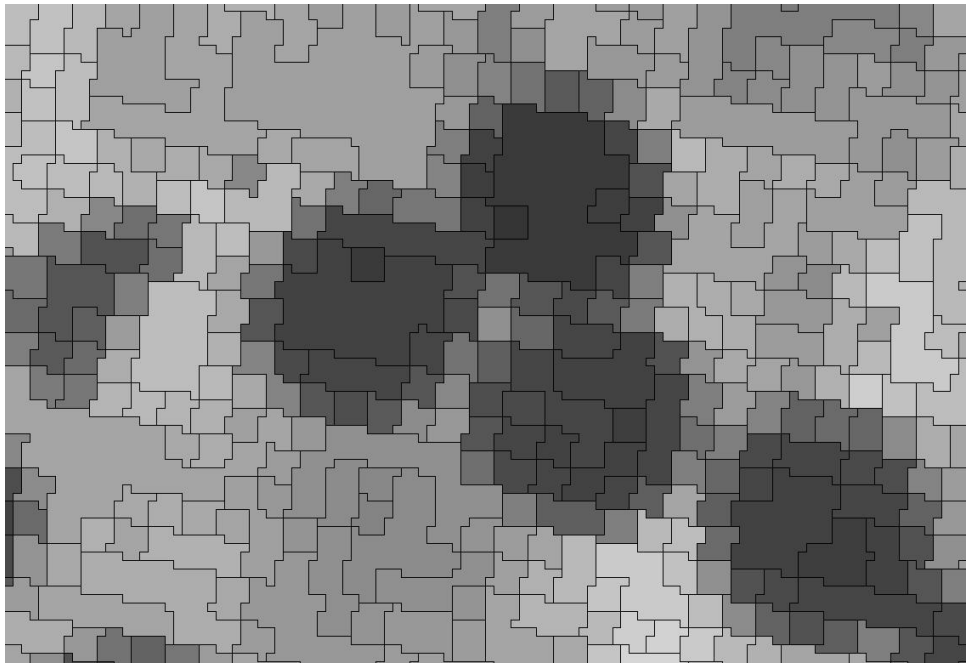
Relative Evapotranspiration



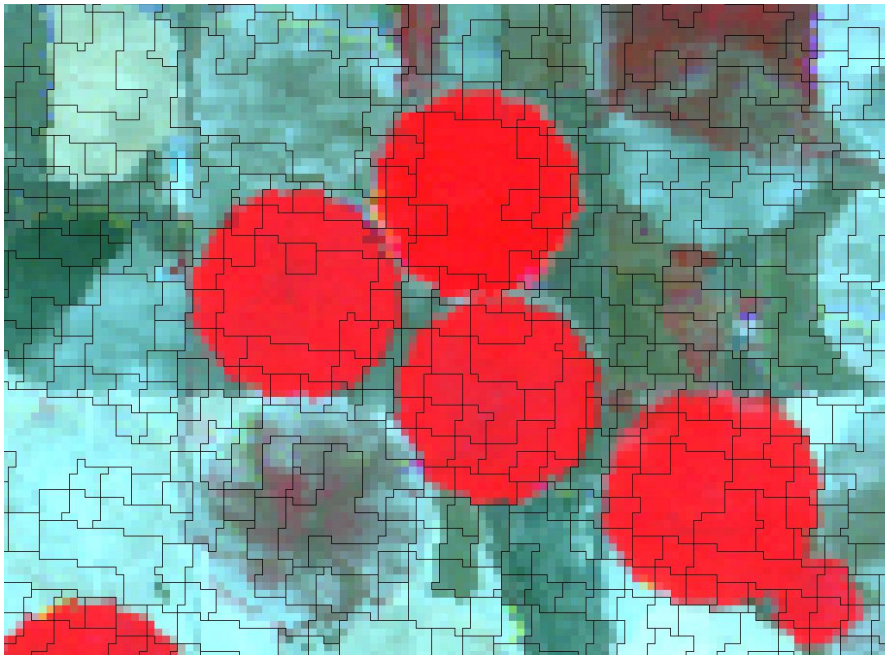
Thermal polygons created, following NN resampling, based on a common DN

Landsat 5 (09/16/2000) Southern Idaho, path 39 row 40

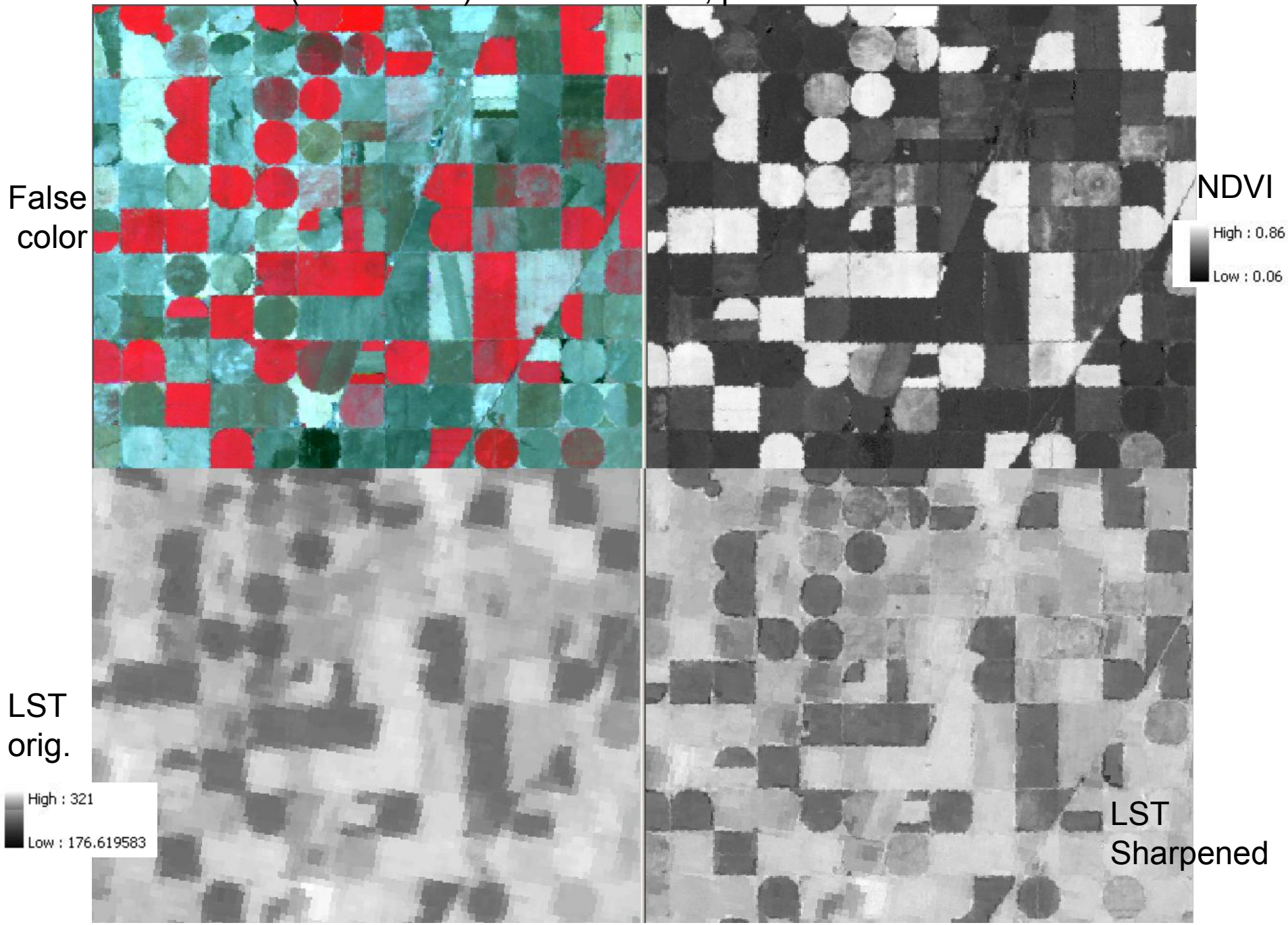
Surface Temperature (DN)



False Color Composite



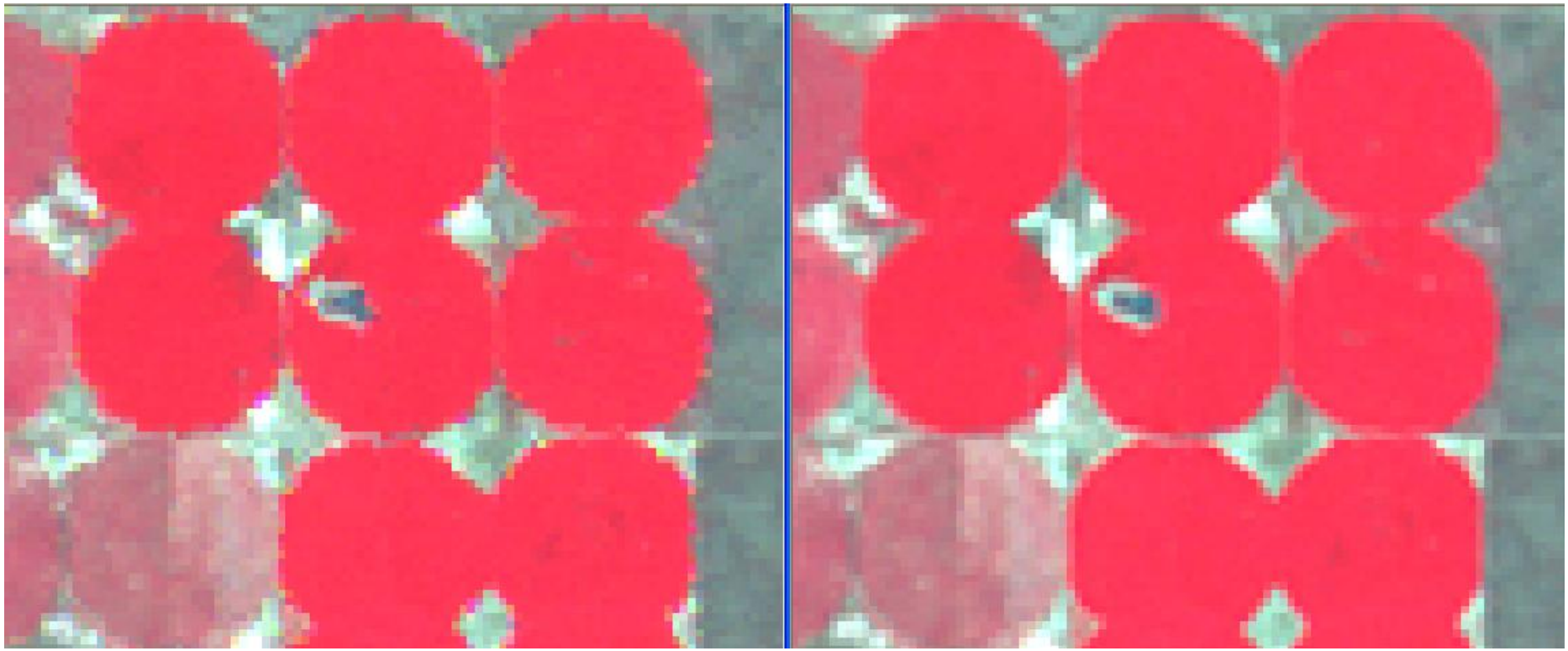
Landsat 5 (09/16/2000) Southern Idaho, path 39 row 40



Landsat 5 06/20/06 – S. Idaho – bands 2,3,4

Nearest Neighbor resampling

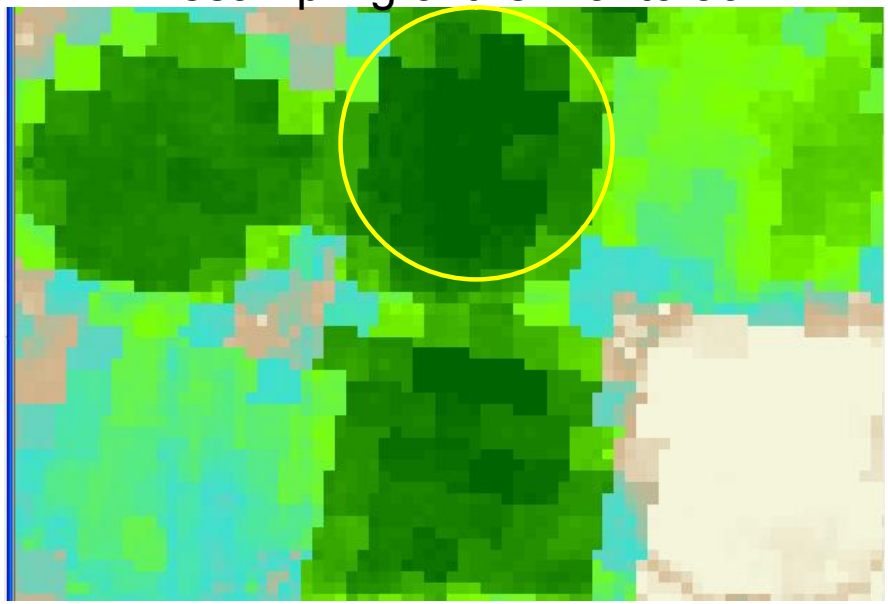
Cubic Convolution resampling



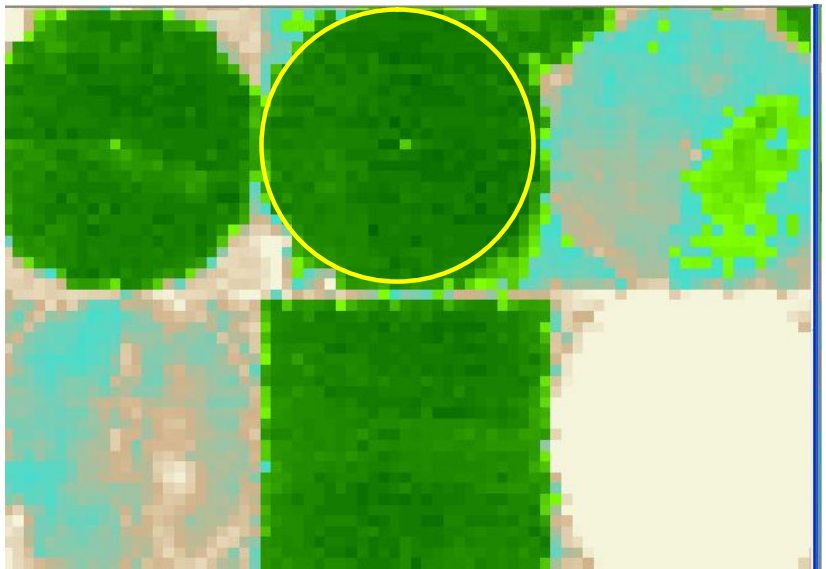
Landsat 5 06/20/06 – S. Idaho -- Relative ET

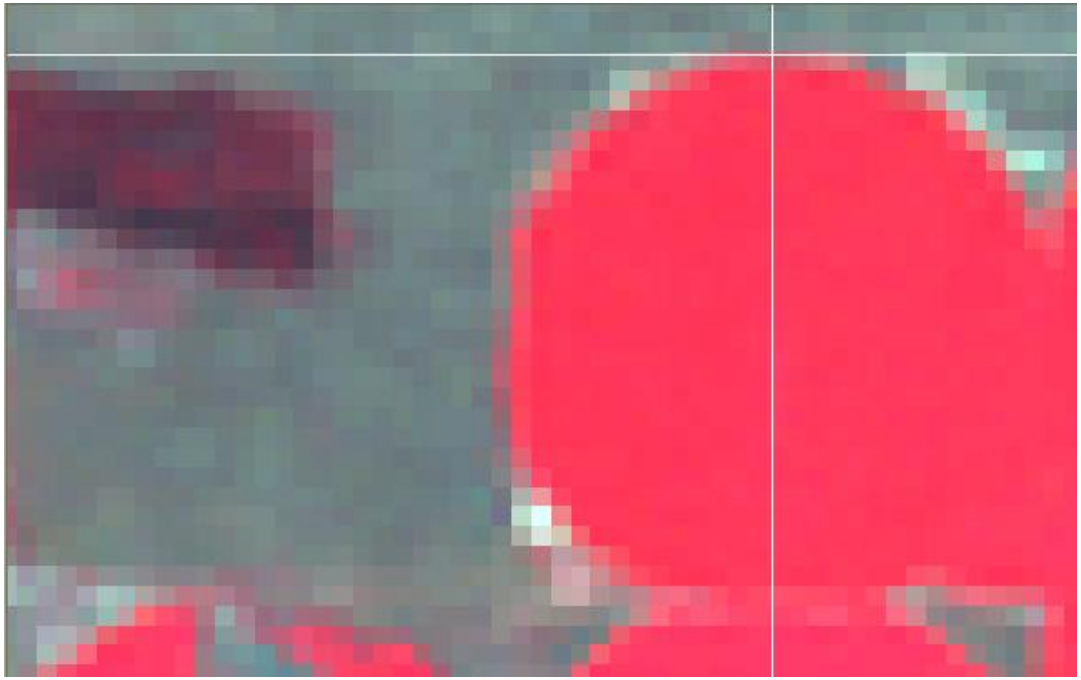
CC resampling of thermal to 30 m

NN resampling of thermal to 30 m



NN resampling of thermal to 30 m (for reprojection) with 'sharpening' of thermal info. from 120 to 30 m using NDVI



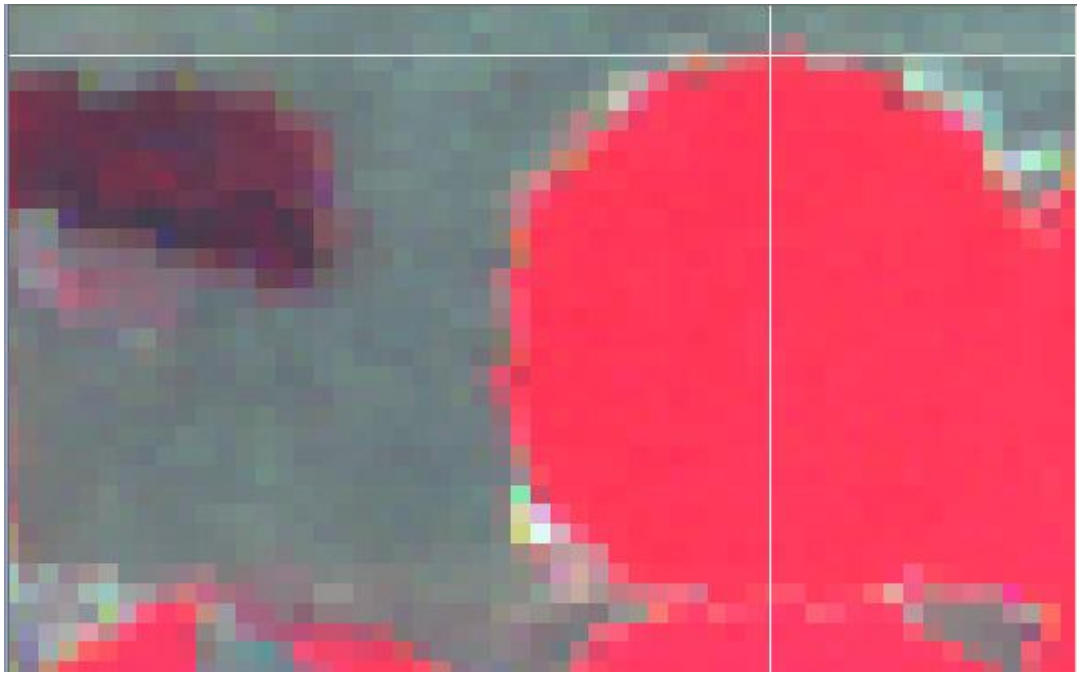


Cubic Convolution resampling

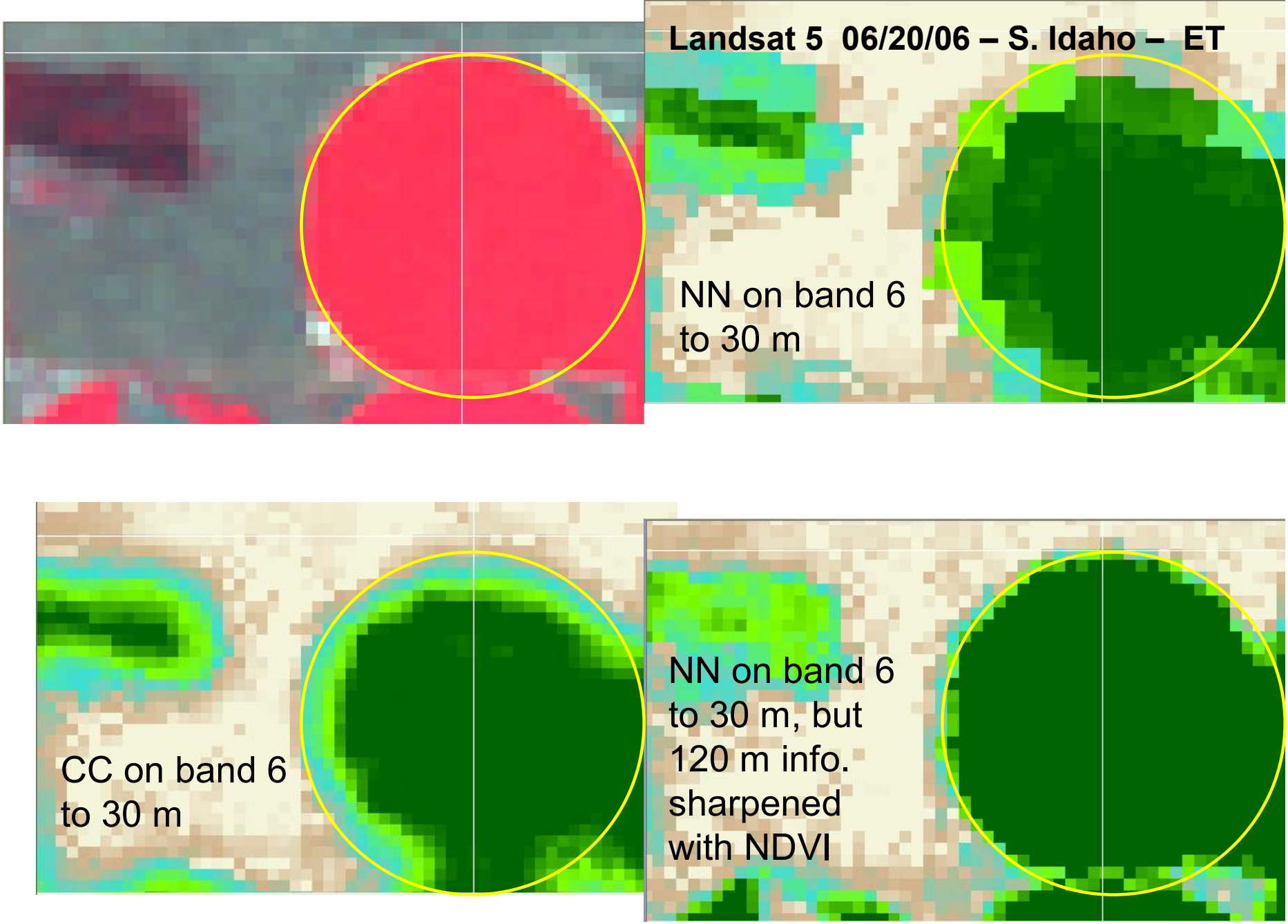
Landsat 5
06/20/06

– S. Idaho

Bands 2,3,4

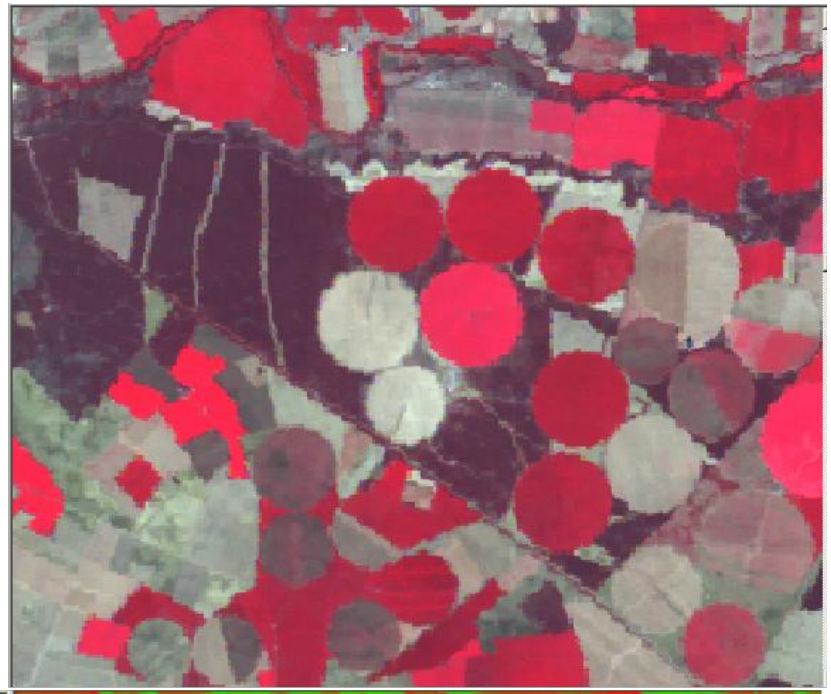


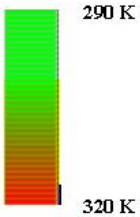
Nearest Neighbor resampling


Landsat 5 06/20/06 – S. Idaho – ET
NN on band 6
to 30 m
CC on band 6
to 30 m
NN on band 6
to 30 m, but
120 m info.
sharpened
with NDVI

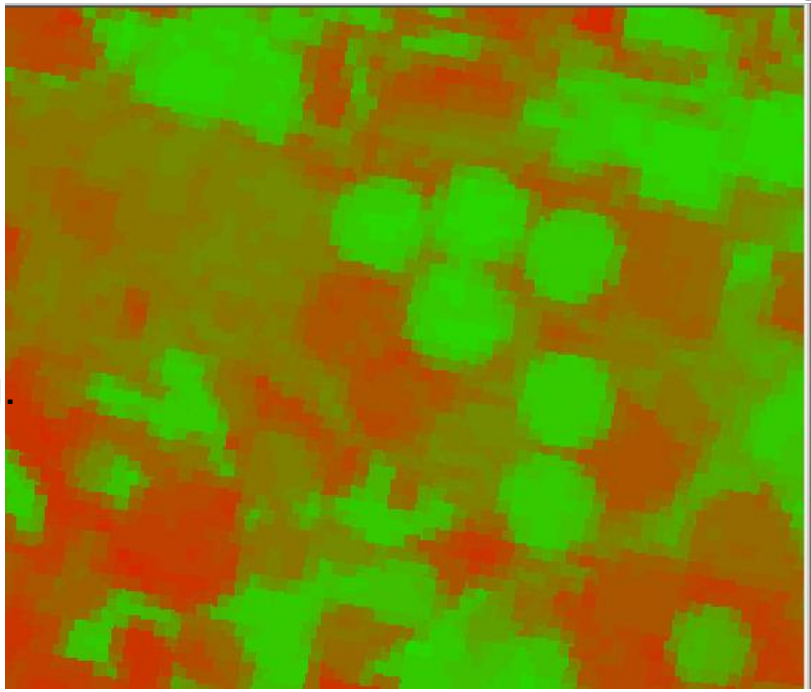
Landsat 5
Albacete, Spain, 07/15/2003

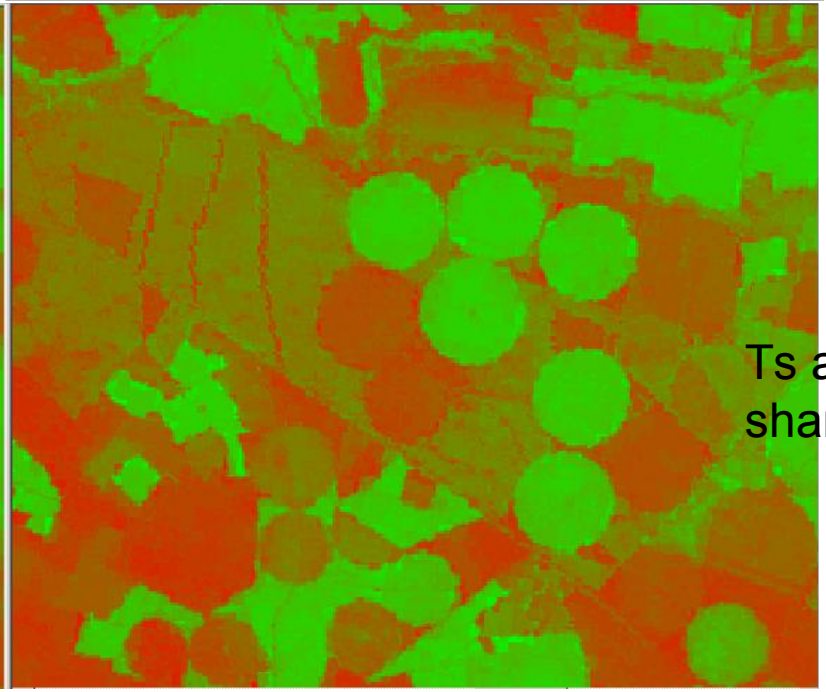
False
Color





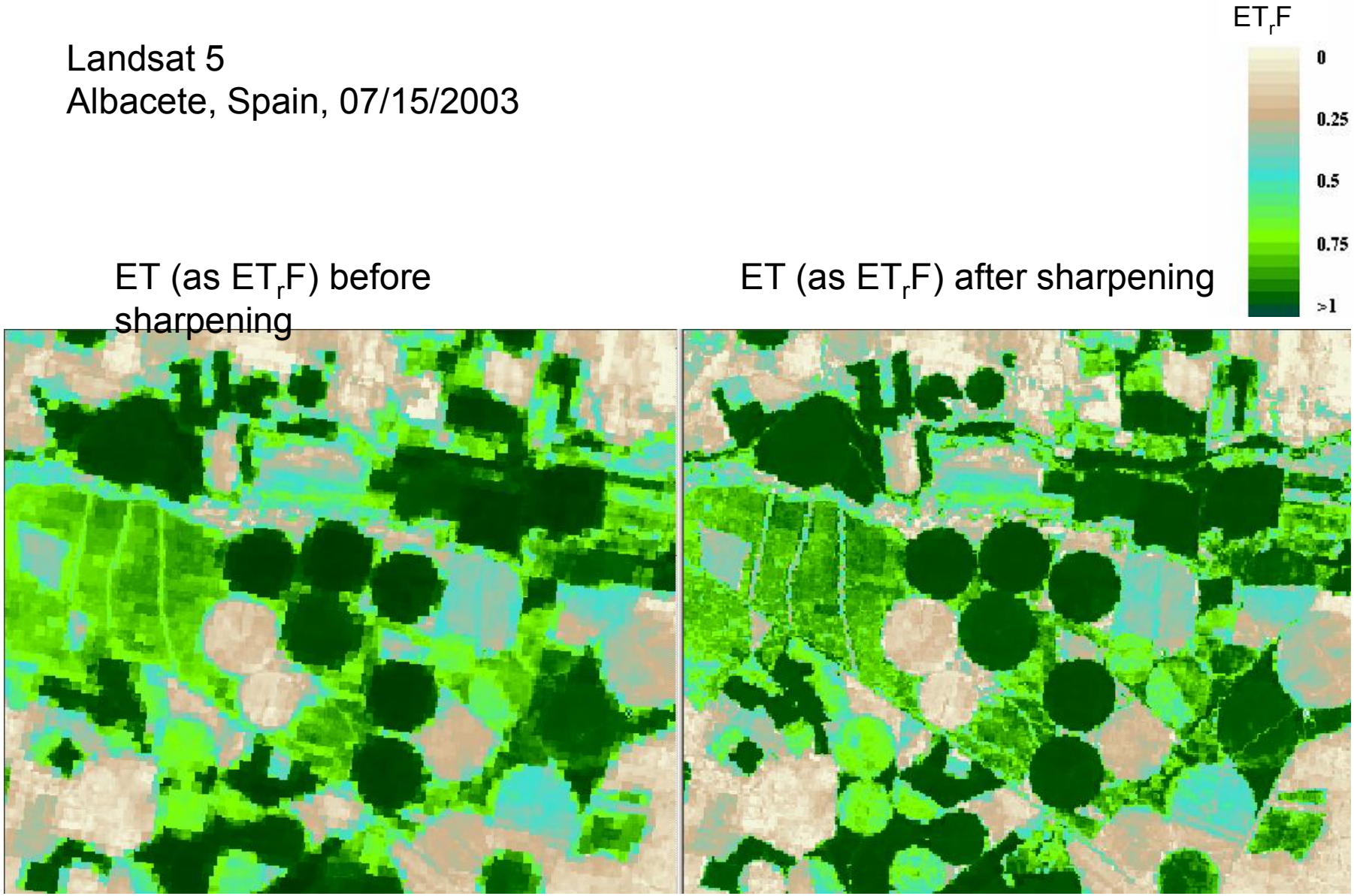
Ts
Orig.





Ts after
sharpening

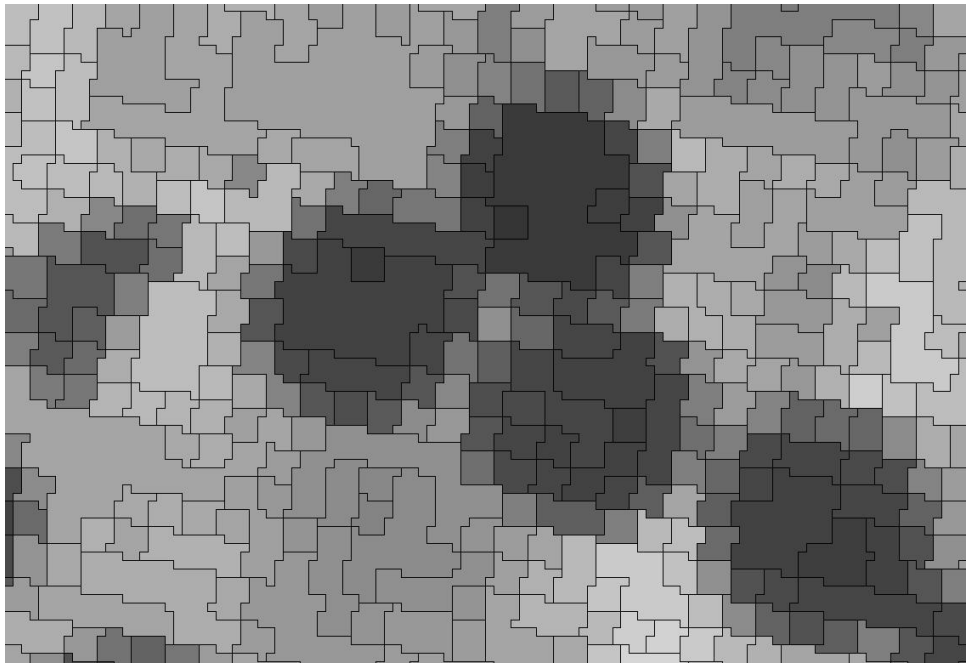
Landsat 5
Albacete, Spain, 07/15/2003



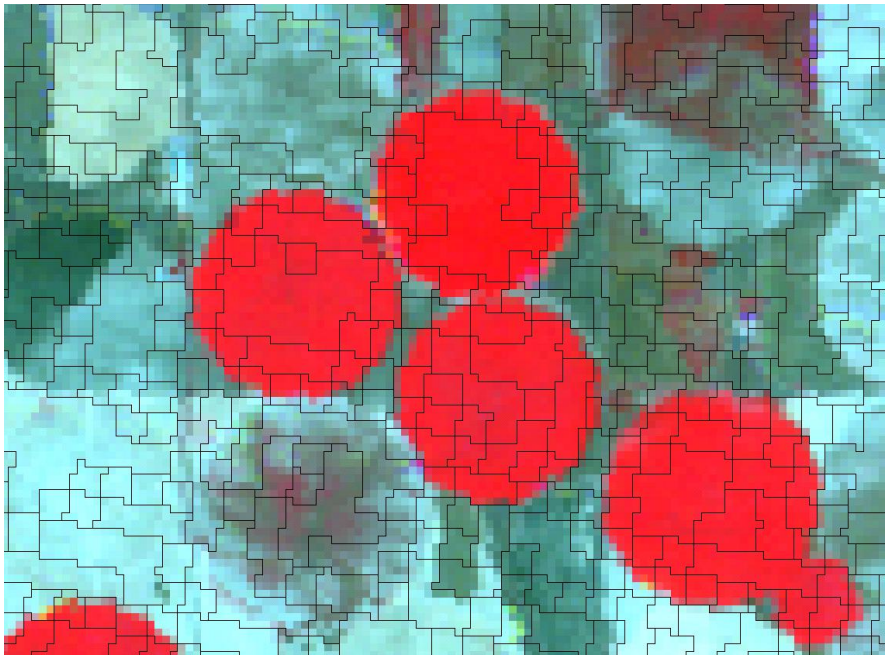
Thermal polygons created, following NN resampling, based on a common DN

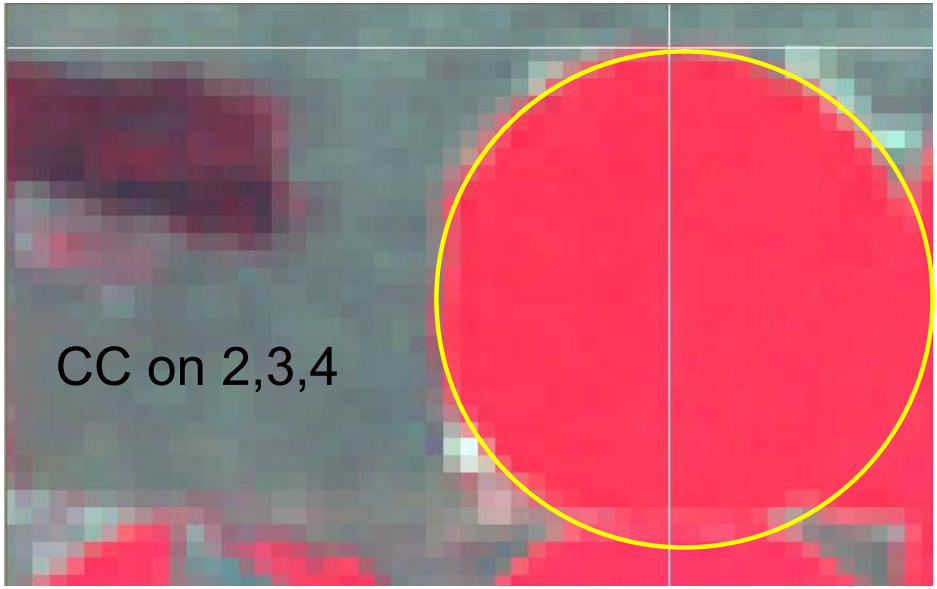
Landsat 5 (09/16/2000) Southern Idaho, path 39 row 40

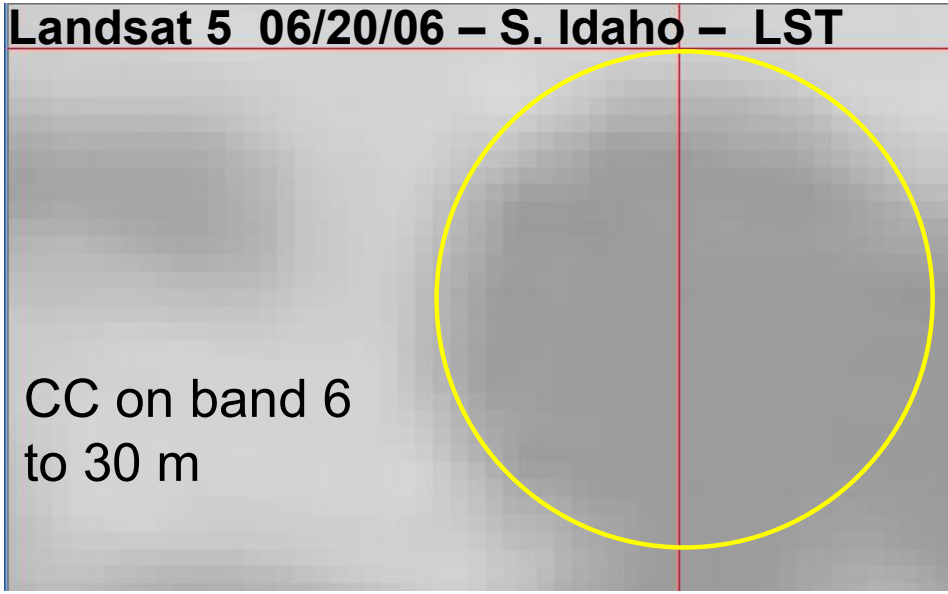
Surface Temperature (DN)

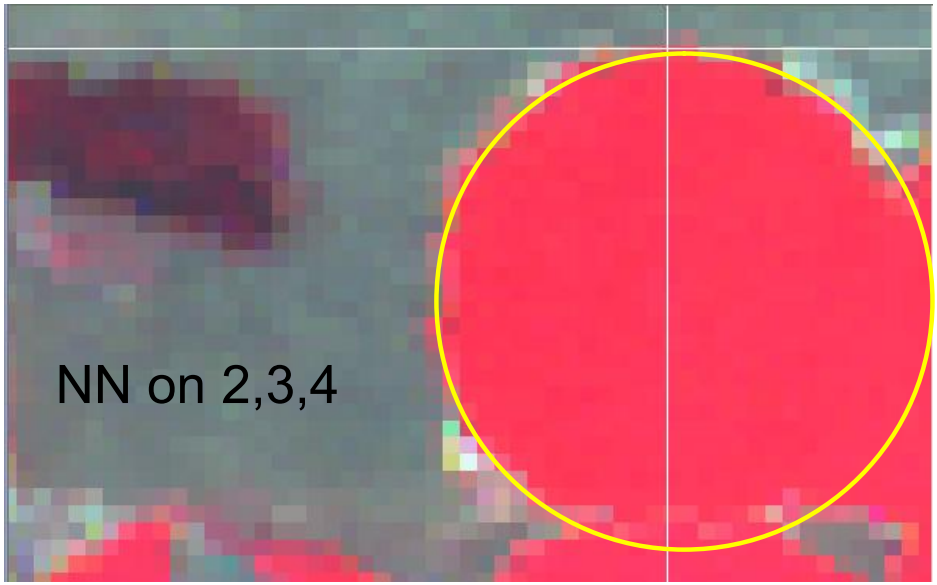


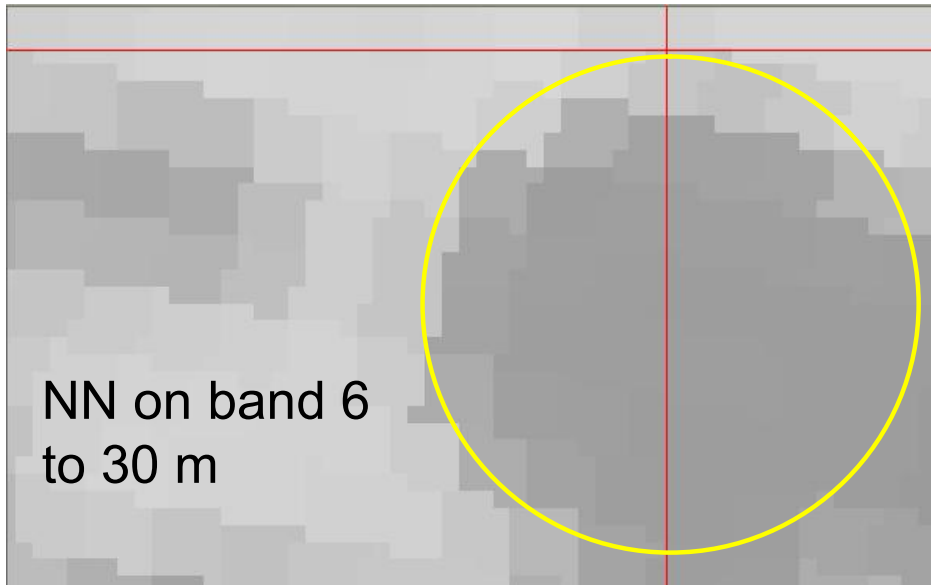
False Color Composite




CC on 2,3,4


Landsat 5 06/20/06 – S. Idaho – LST
CC on band 6
to 30 m


NN on 2,3,4


NN on band 6
to 30 m