

Band 1

75	75	75
175	175	175
86	86	86

Band 2

63	63	63
150	150	150
62	62	62

Band 3

45	45	45
155	155	155
47	47	47

Band 4

100	100	100
110	110	110
15	15	15

Band 5

83	83	83
140	140	140
14	14	14

Band 6

130	130	130
120	120	120
113	113	113

Band 7

40	40	40
120	120	120
15	15	15

Landsat images are in the form of arrays of numbers; one array for each band. These numbers give the reflected energy from the surface in the different bands.

The arrays of numbers on the left are the pixel values from a small area in the city of Oakland, California.

Problem 1 – If the resolution is 30 meters/pixel, what are the dimensions of this area of the city in A) meters? B) feet? (if 1 meter = 3 feet).

Problem 2 – Graph the spectra of each of the 9 pixels in this image.

Problem 3 – From the calibration spectra, draw a similar-sized grid and label each pixel with its thematic content (i.e. R=rock; w = water; b = buildings; P=plants/forest)

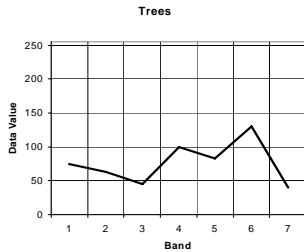
Problem 4 – Select colors for each of the thematic types and ‘colorize’ your image to make a false-color picture of this area.

Problem 5 – What do you think this area would look like if you could view it at ground level?

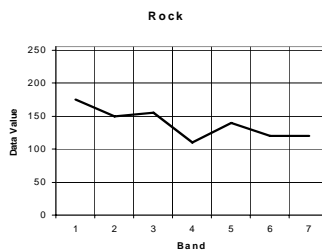
Problem 1 – What are the dimensions of this area of the city in A) meters? B) feet?
 Answer: A) 3x3 pixels @ 30-meters/pixel is **90 meters x 90 meters**. B) **270 feet x 270 feet**.

Problem 2 – Graph the spectra of each of the 9 pixels in this image. Answer: The spectra form three distinct groups:

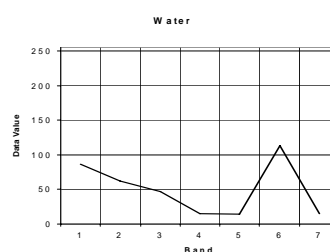
Pixel 1-3



Pixel 4-6



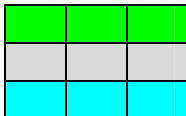
Pixel 7-9



Problem 3 – From the calibration spectra, draw a similar-sized grid and label each pixel with its thematic content (i.e. R=rock; w = water; b = buildings; P=plants/forest)
 Answer: **Pixels 1-3 in top row are trees or plants; Pixels 4-6 in middle row are rocky or exposed ground; Pixel 7-9 is water.**

T	T	T
R	R	R
W	W	W

Problem 4 – Select colors for each of the thematic types and ‘colorize’ your image to make a false-color picture of this area. Answer:



Problem 5 – What do you think this area would look like if you could views it at ground level?

Answer: **This 90m x 90m area borders an area containing water such as a lake, river or creek. The green area is the trees/grass or plant matter bordering a narrow beach-like area.**