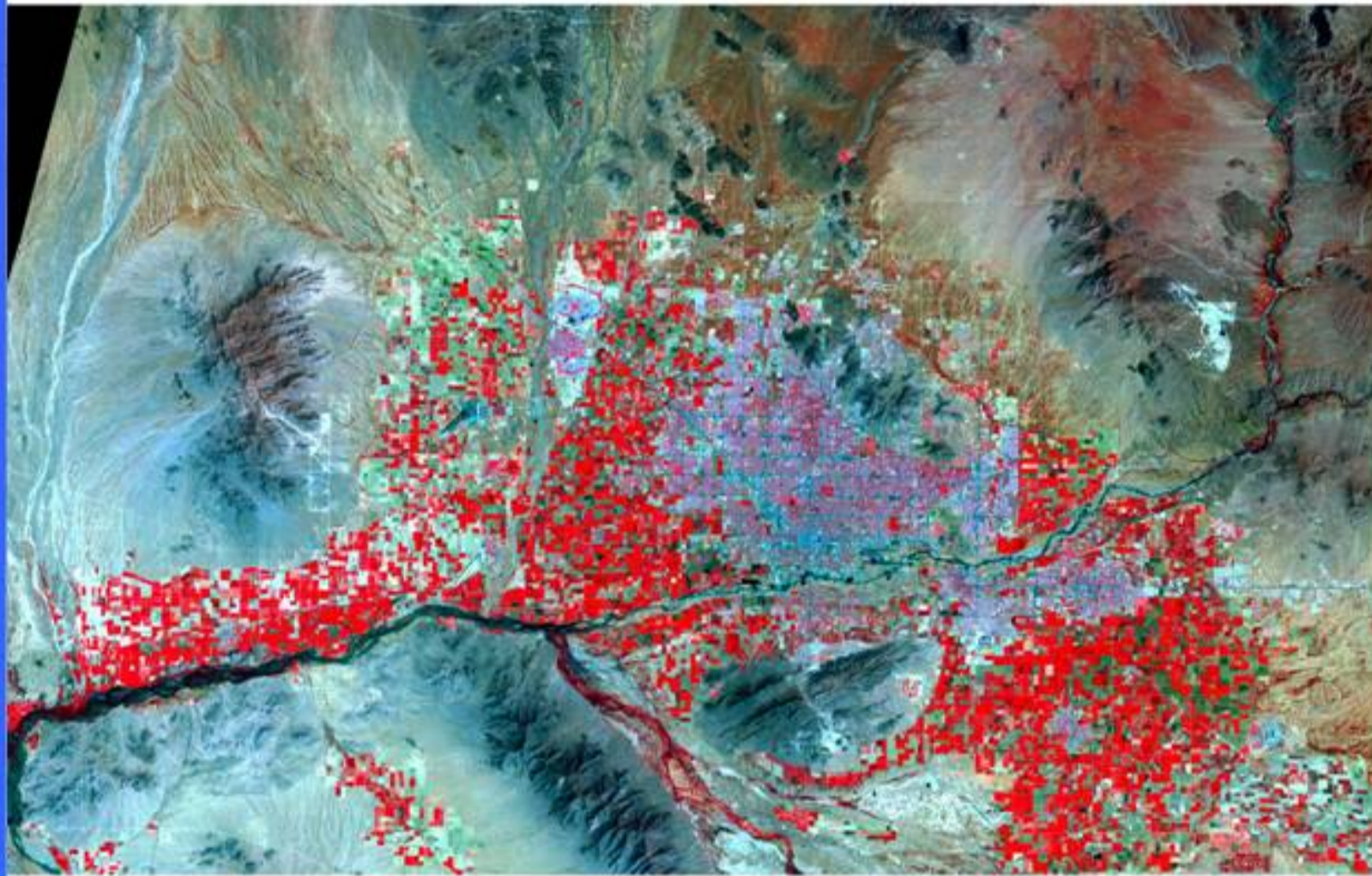


# Analysis of Long Term Remote Sensing Imagery for the Detection of Changes in the CAP LTER Site

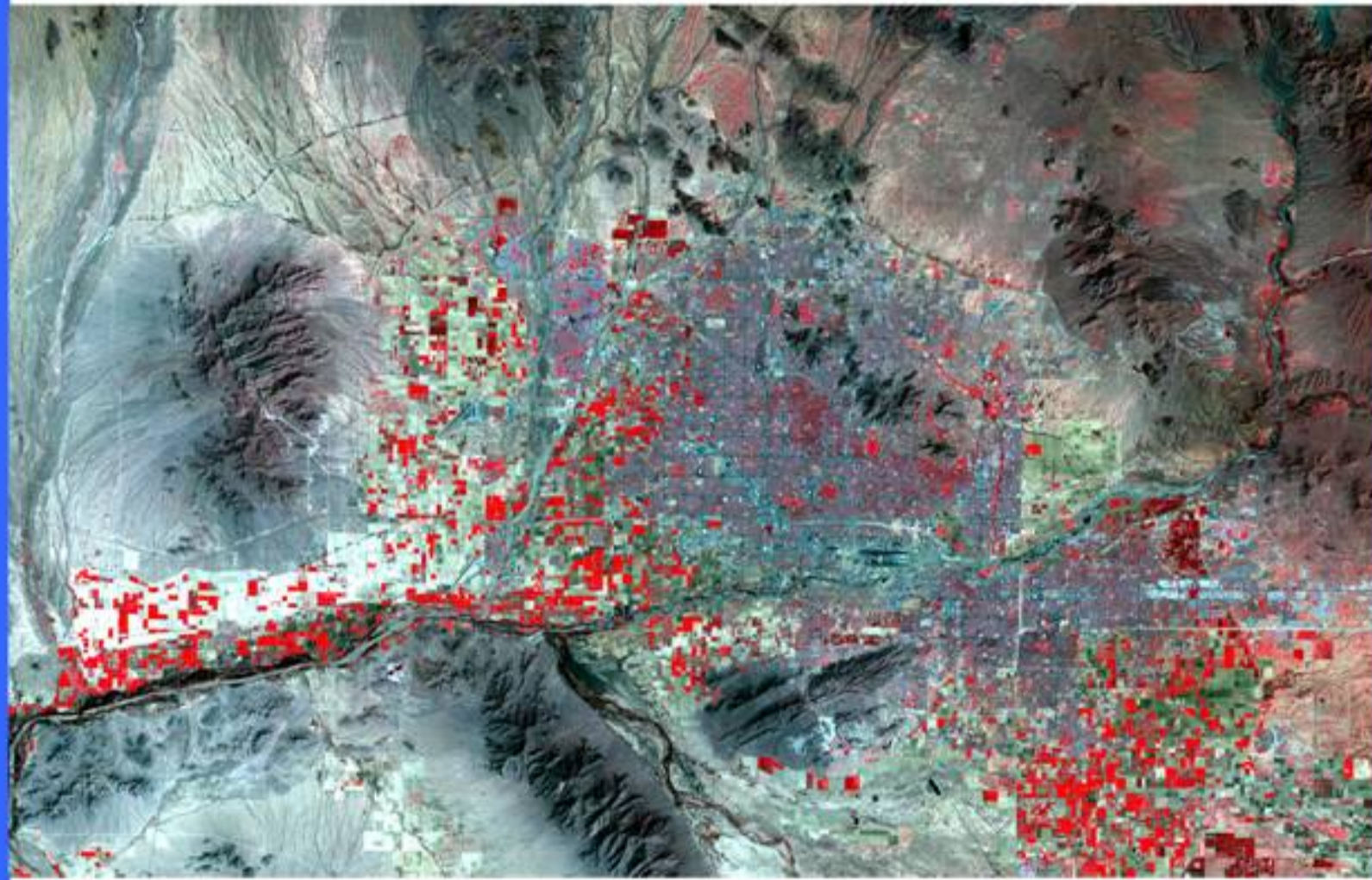
Matthias S. Moeller

## As Seen From Space

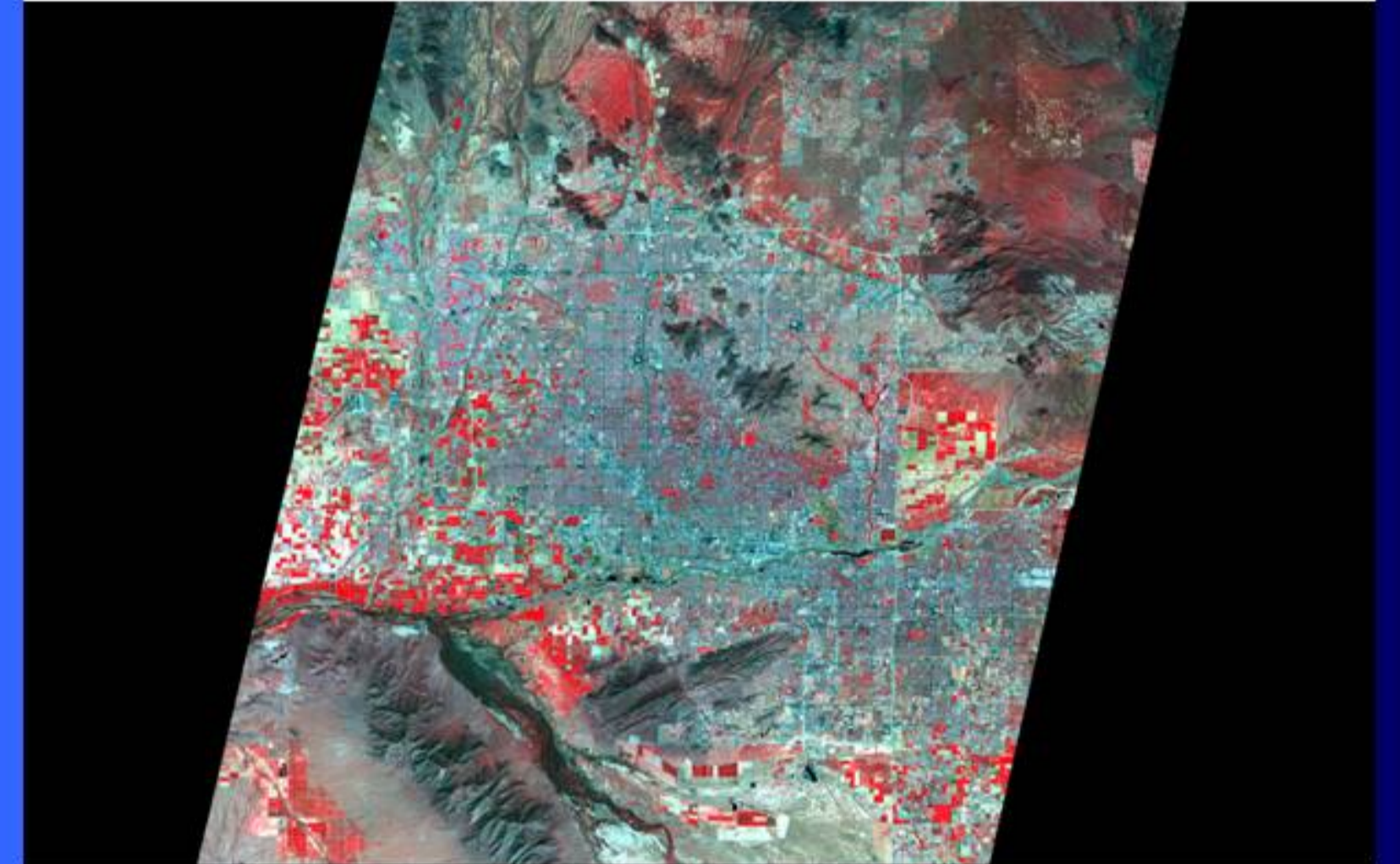
Landsat MSS Imagery 1973



Landsat TM Imagery 1991

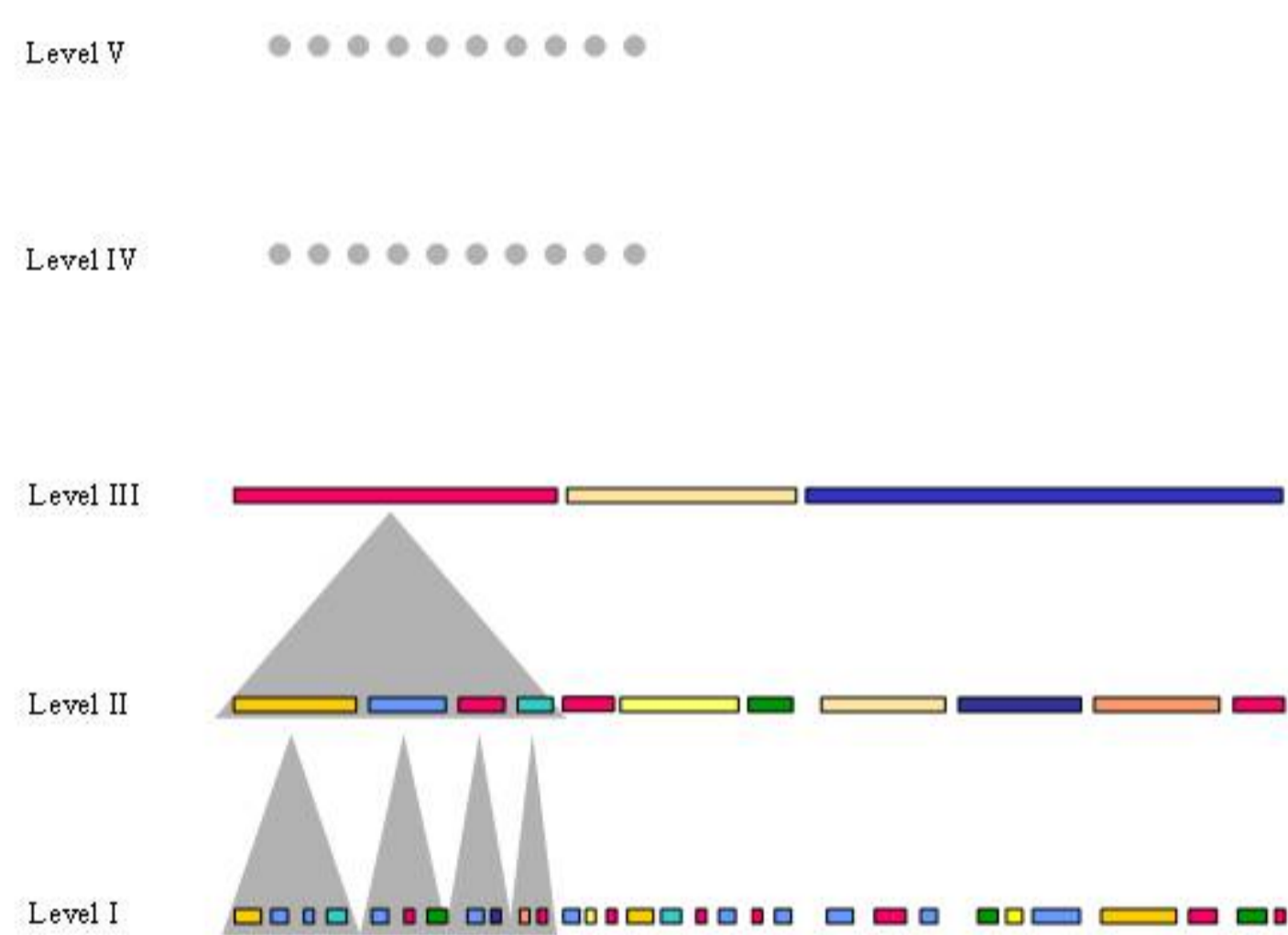


ASTER Imagery 2003



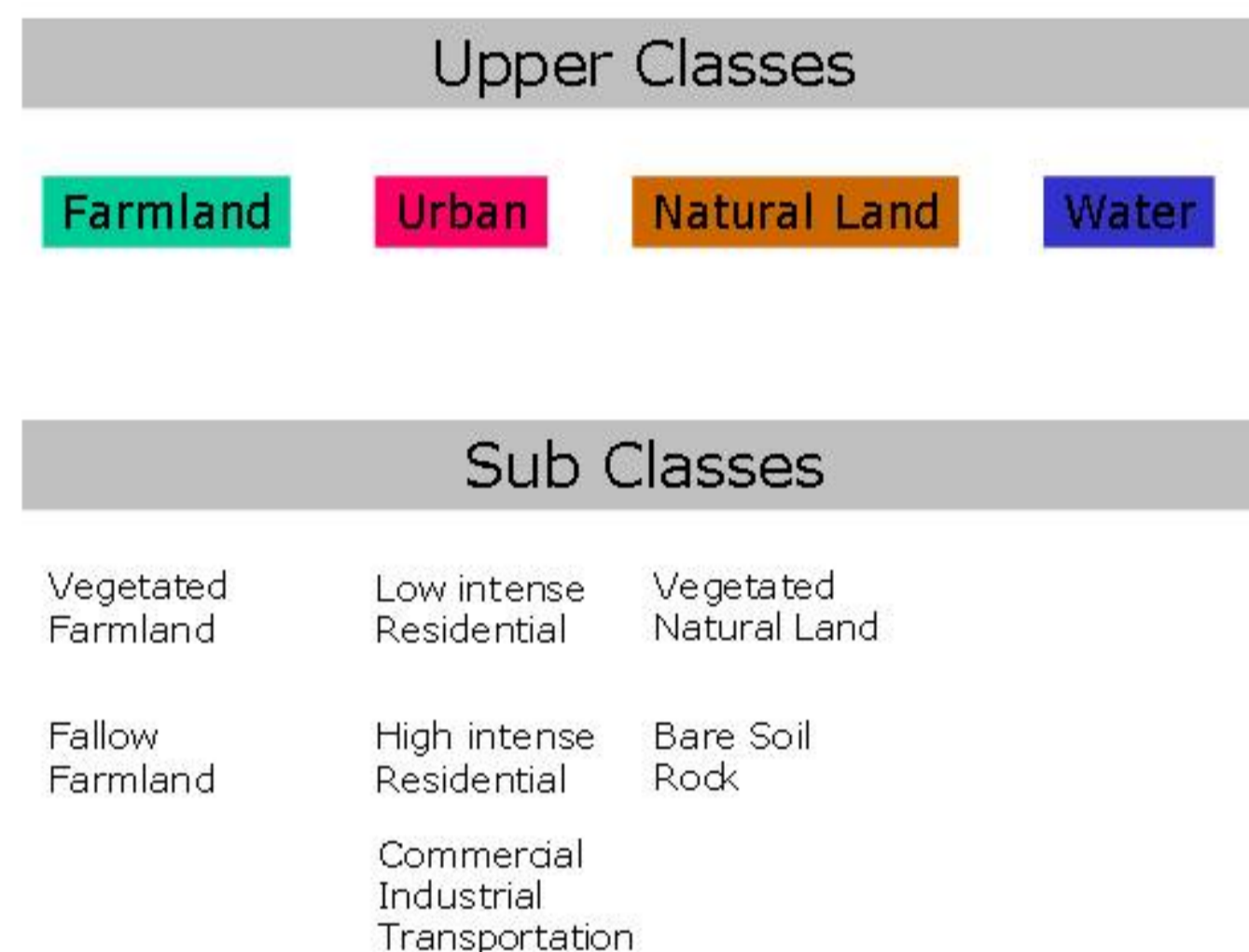
## Image Analysis

### Image Segmentation



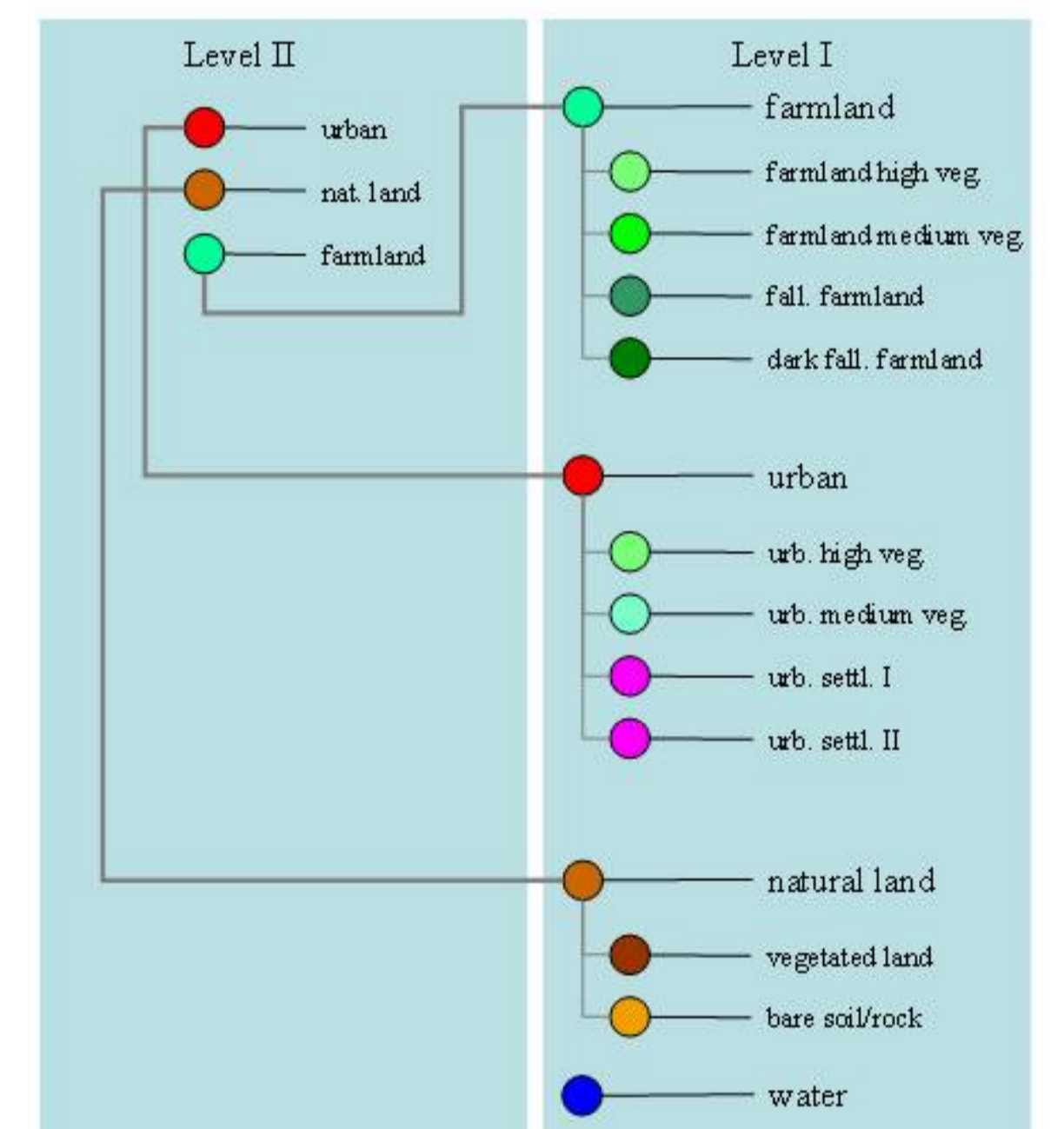
An image segmentation is performed on several levels. Each segment is connected to its upper as well as to its sub segments. It is also related to its neighbors (Topology).

### Land Use/Land Cover Classes



after: Anderson et al. (1976) level I and NLCD 2000

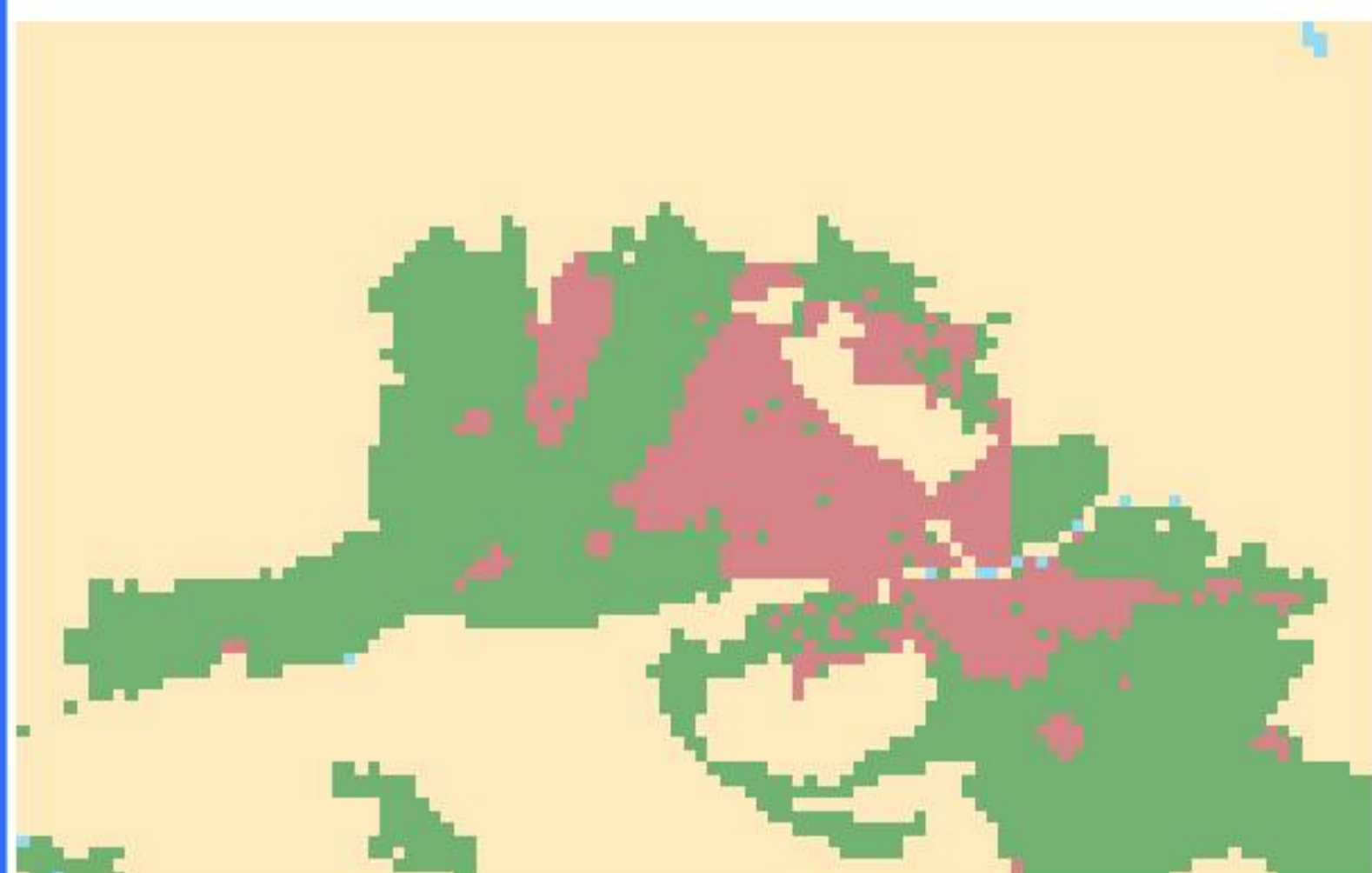
### Multi Level Classification



Three classes were defined manually on level II. On level I the refined sub classes were classified (example for the MSS 1979 classification).

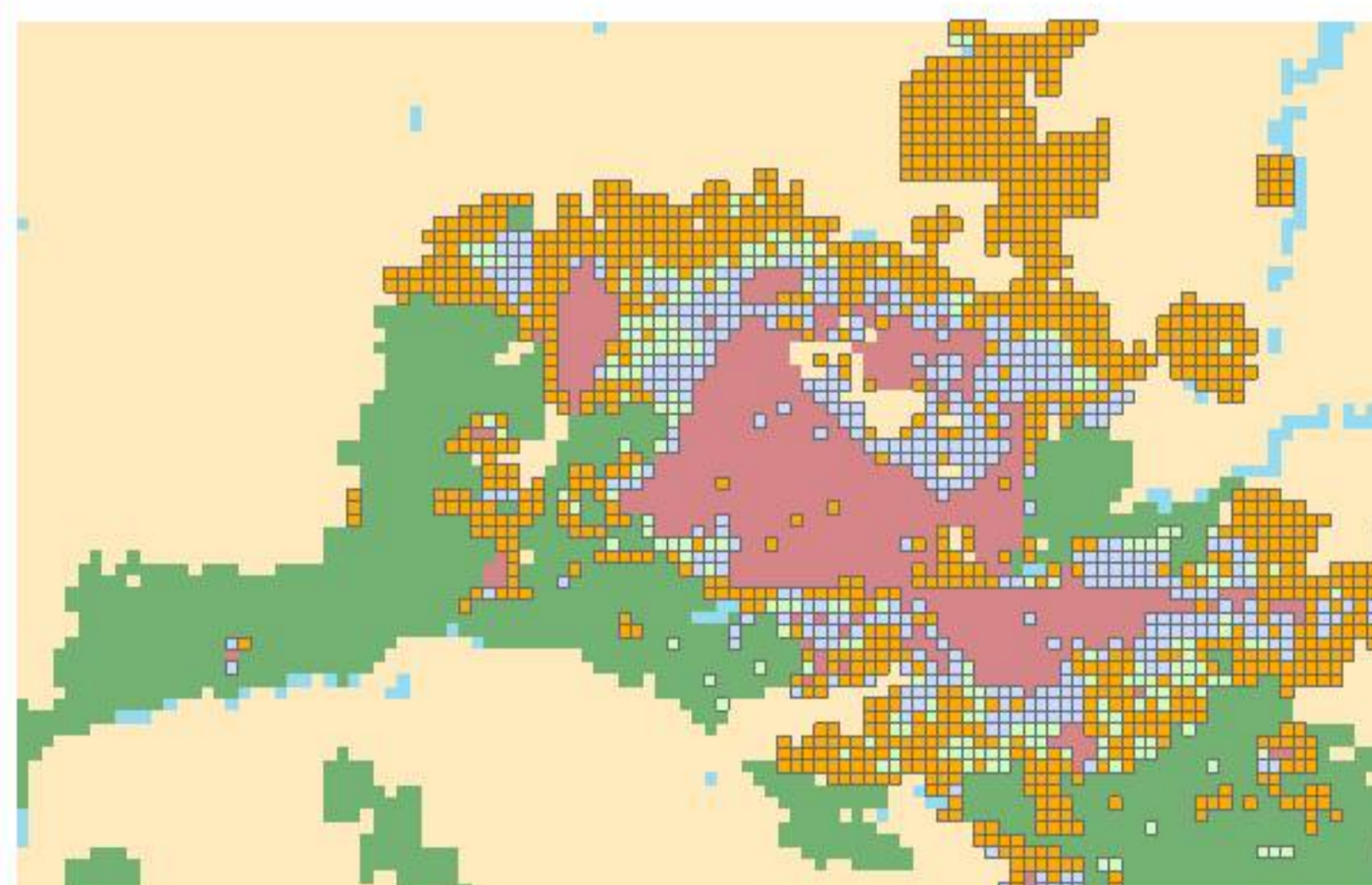
## Visualizing Changes

Classification Landsat MSS 1979



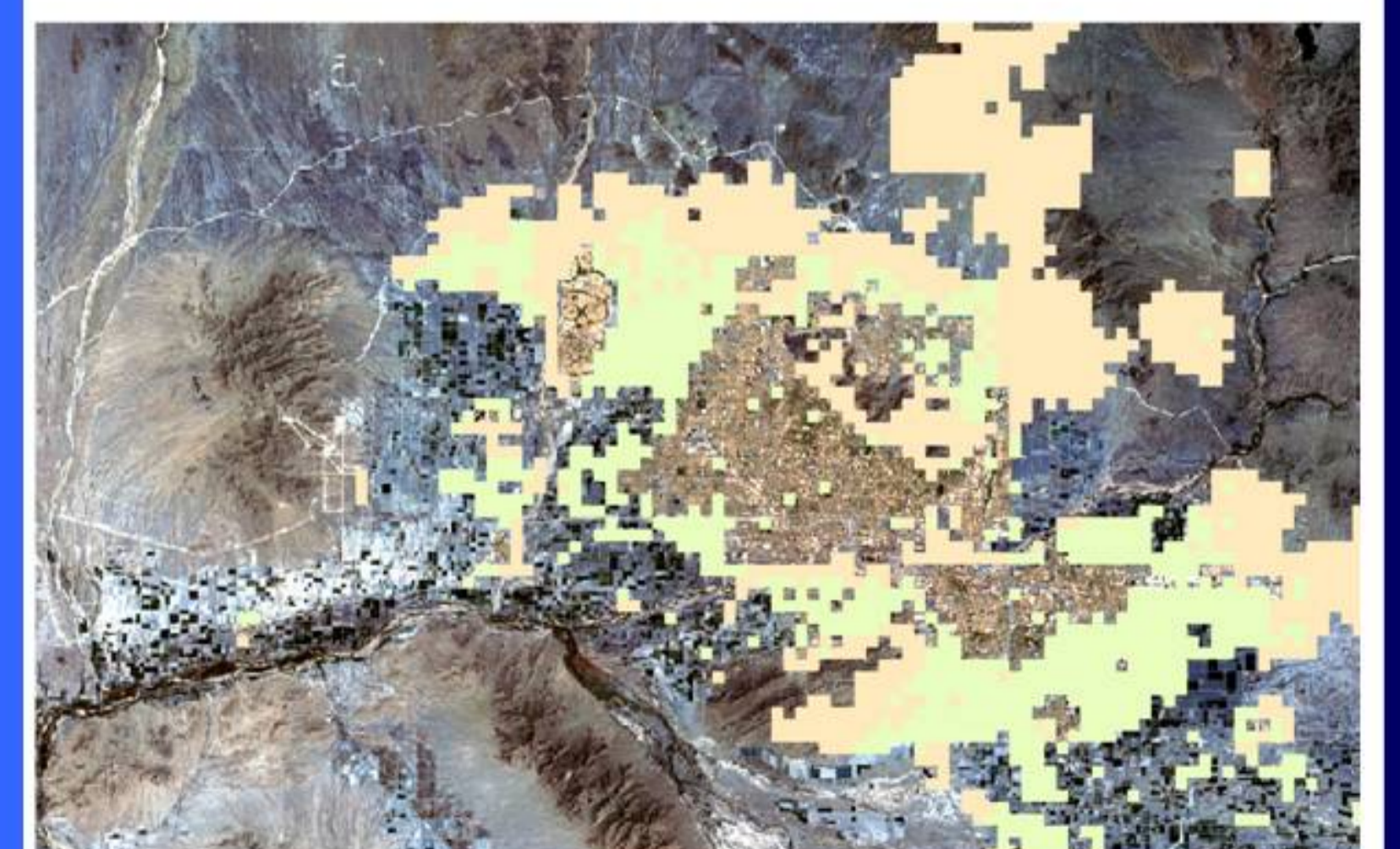
Legend: beige: natural lands; green: farmland; dark red: urban

Landuse Changes 1979 - 2000



Legend: blue: not urban 1979, urban in 1985  
green: not urban 1985, urban in 1991  
orange: not urban 1991, urban in 2000  
size: one rectangle indicates 1x1 sqkm

Transition 1979 - 2000



Legend: green: transition to urban  
beige: natural land to urban  
based on a 1x1 sqkm cell size  
underlying TM image, 1985; r, g, b - r, b, ir