《遥感概论》课程

第三章 遥感成像和影像特性

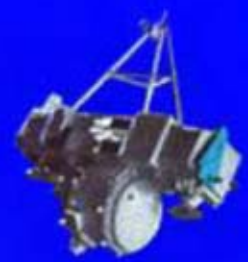


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北京大学地球与空间科学学院

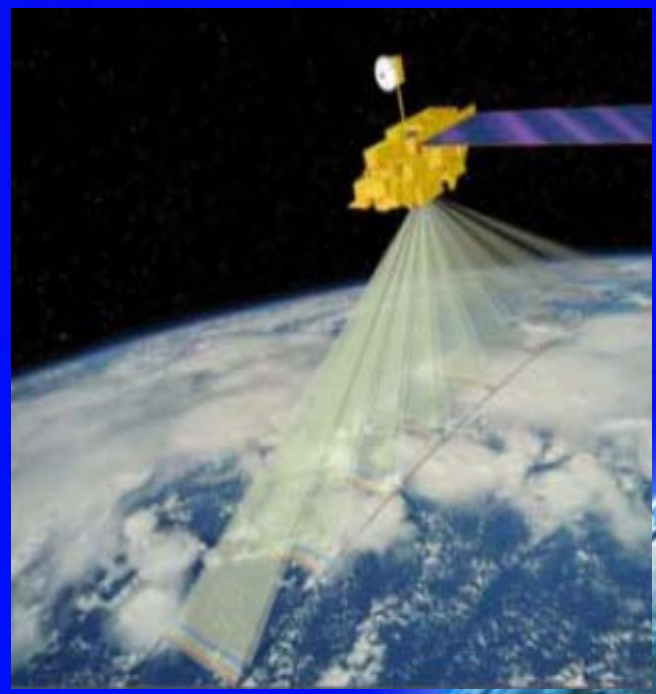
本节主要内容

- 遥感成像机理
- 遥感器类型
- 不同遥感图像特点



遥感成像机理

- 任何地物均有发射、吸收和反射电磁波的特性
- 把地物与电磁波相互作用形成的波谱用一定的传感设备记录下来，经数模转换就形成了遥感影像





可见光与近红外成像机理

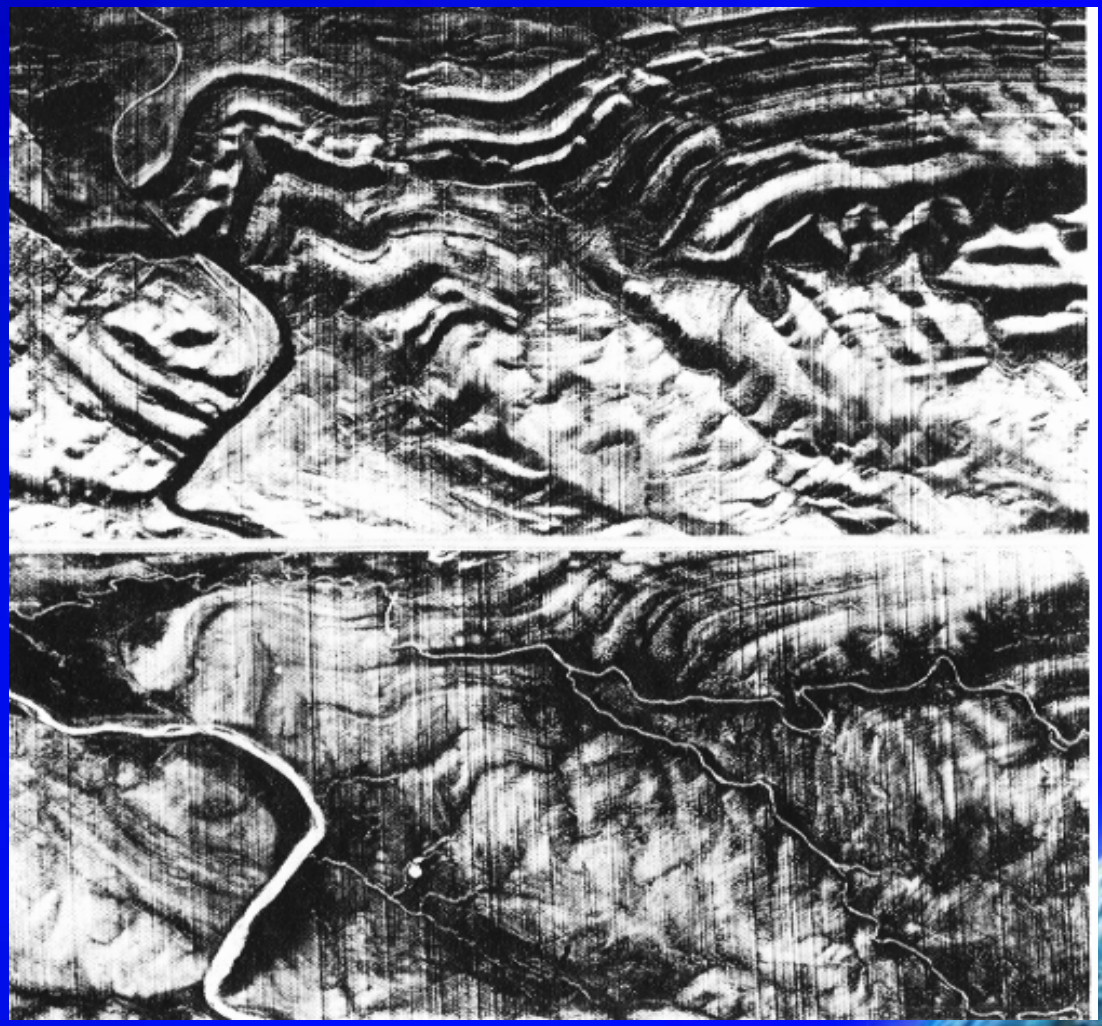
- 地物在可见光与近红外波段的反射特性

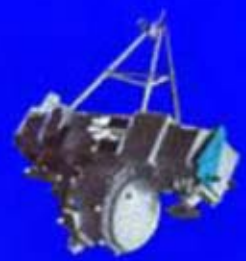




热红外成像机理

- 地物的热辐射特性





微波成像机理

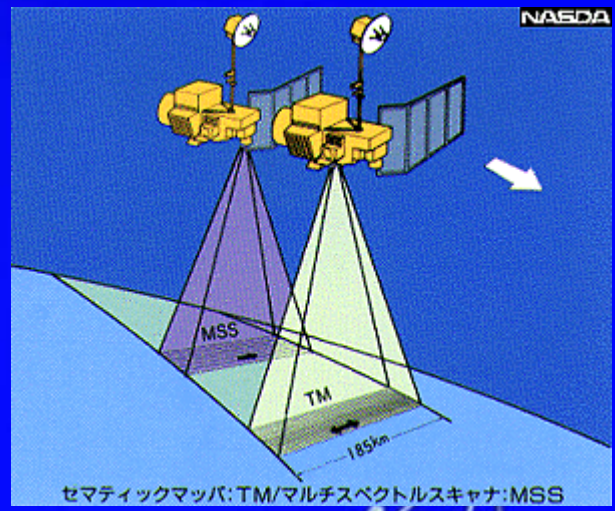
- 地物对微波的后向散射特性



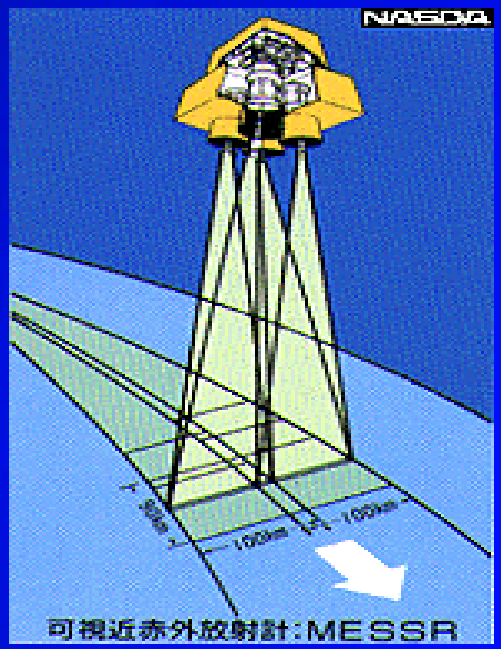


遥感器类型

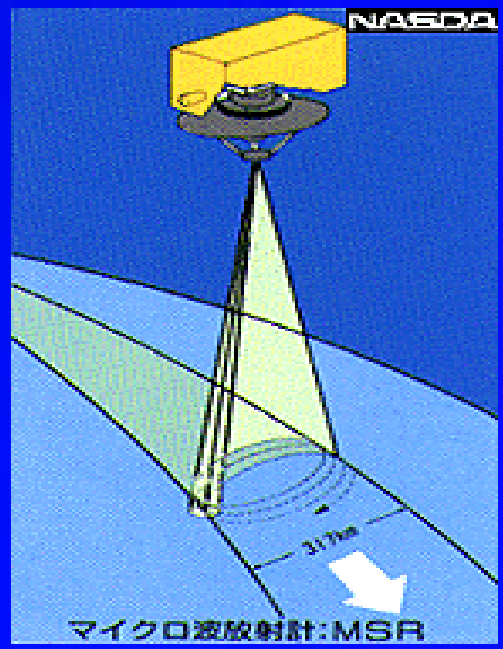
- 遥感摄影机
- 扫描仪(光机, 推帚式)
- 成像雷达，微波辐射计



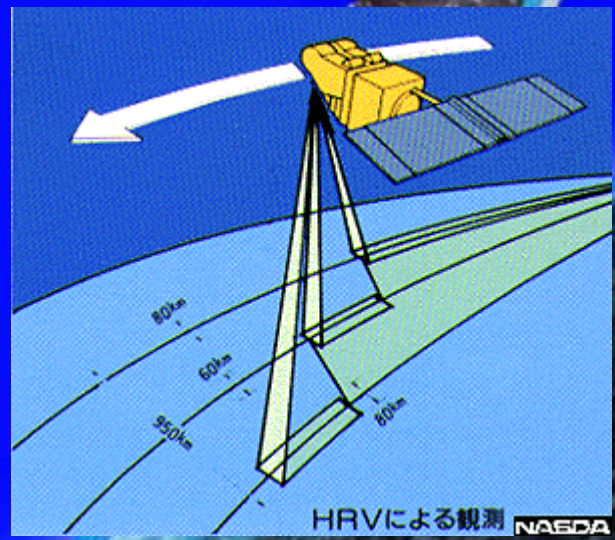
光机扫描仪



高光谱扫描仪



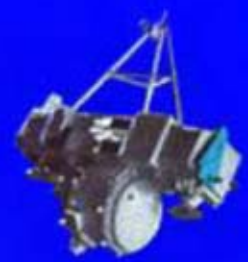
微波辐射计



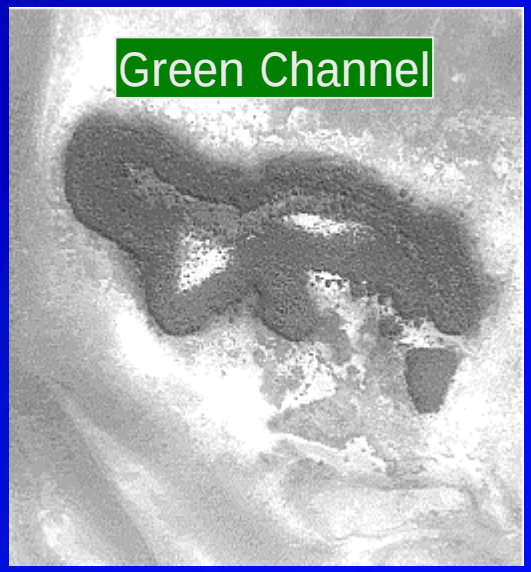
推帚式扫描仪

遥感器的特性

- 光谱分辨率
- 空间分辨率
- 时间分辨率



遥感器的光谱分辨率



红树林在绿波段的影像



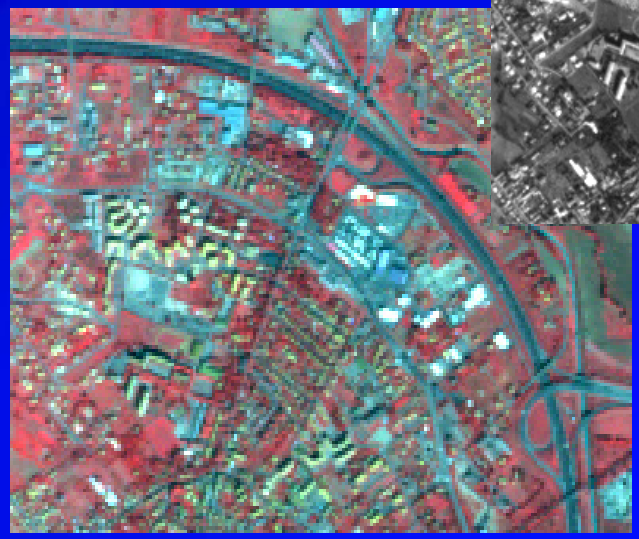
红树林在红波段的影像



红树林在近红外波段的影像

遥感器的空间分辨率

10米多光谱





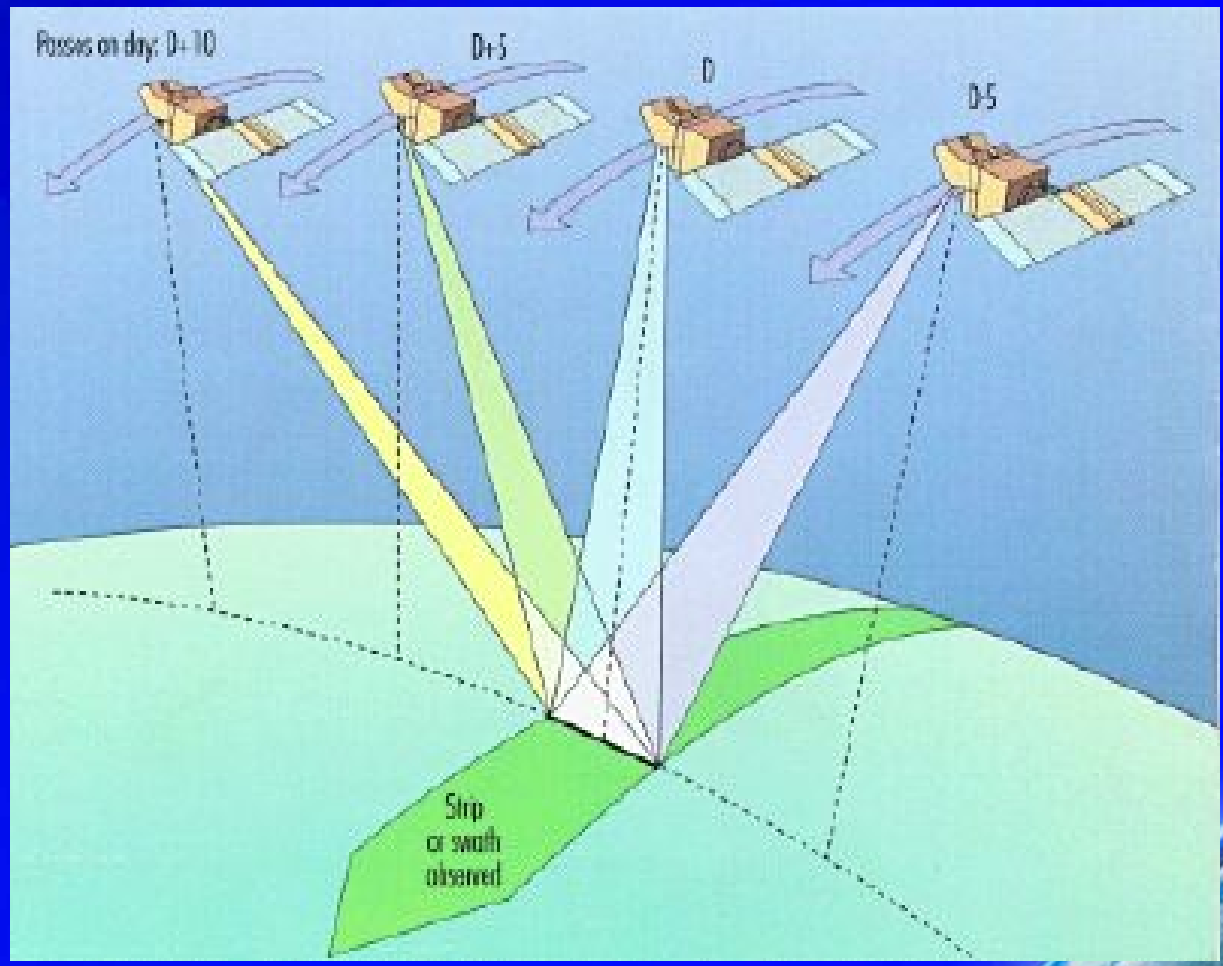
2.5米全色



5米全色

SPOT 5的空间分辨率

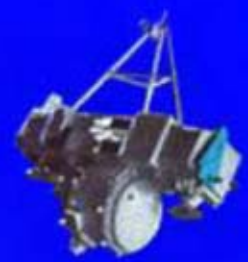
遥感器的时间分辨率



SPOT 5的时间分辨率

遥感图像类型

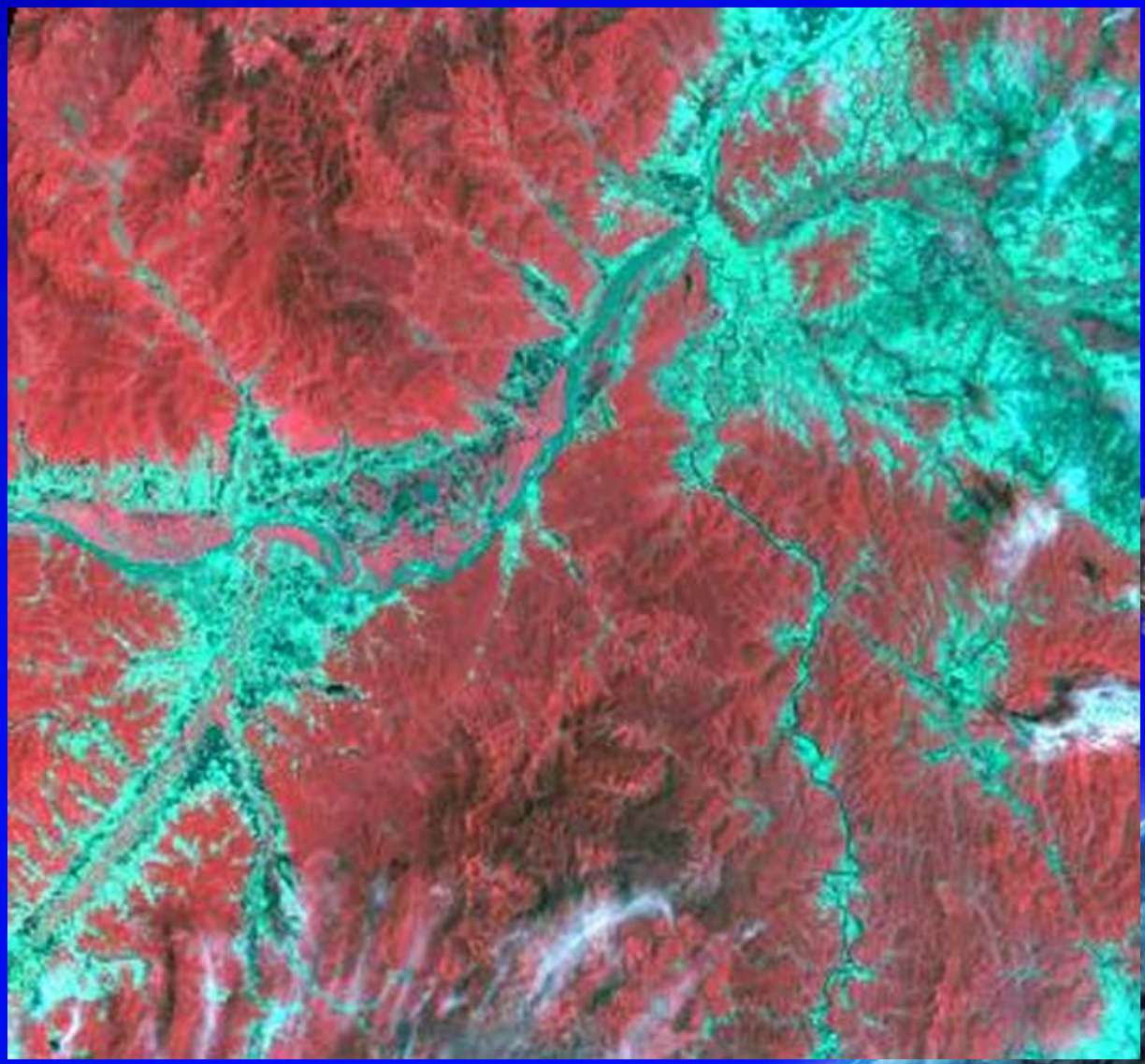
- 摄影图象
- 扫描图象
  - MSS
  - NOAA
  - TM
  - SPOT
  - IKONOS
- 高光谱图象
  - AVIRIS
- 雷达图象
  - SAR
  - RADARSAT



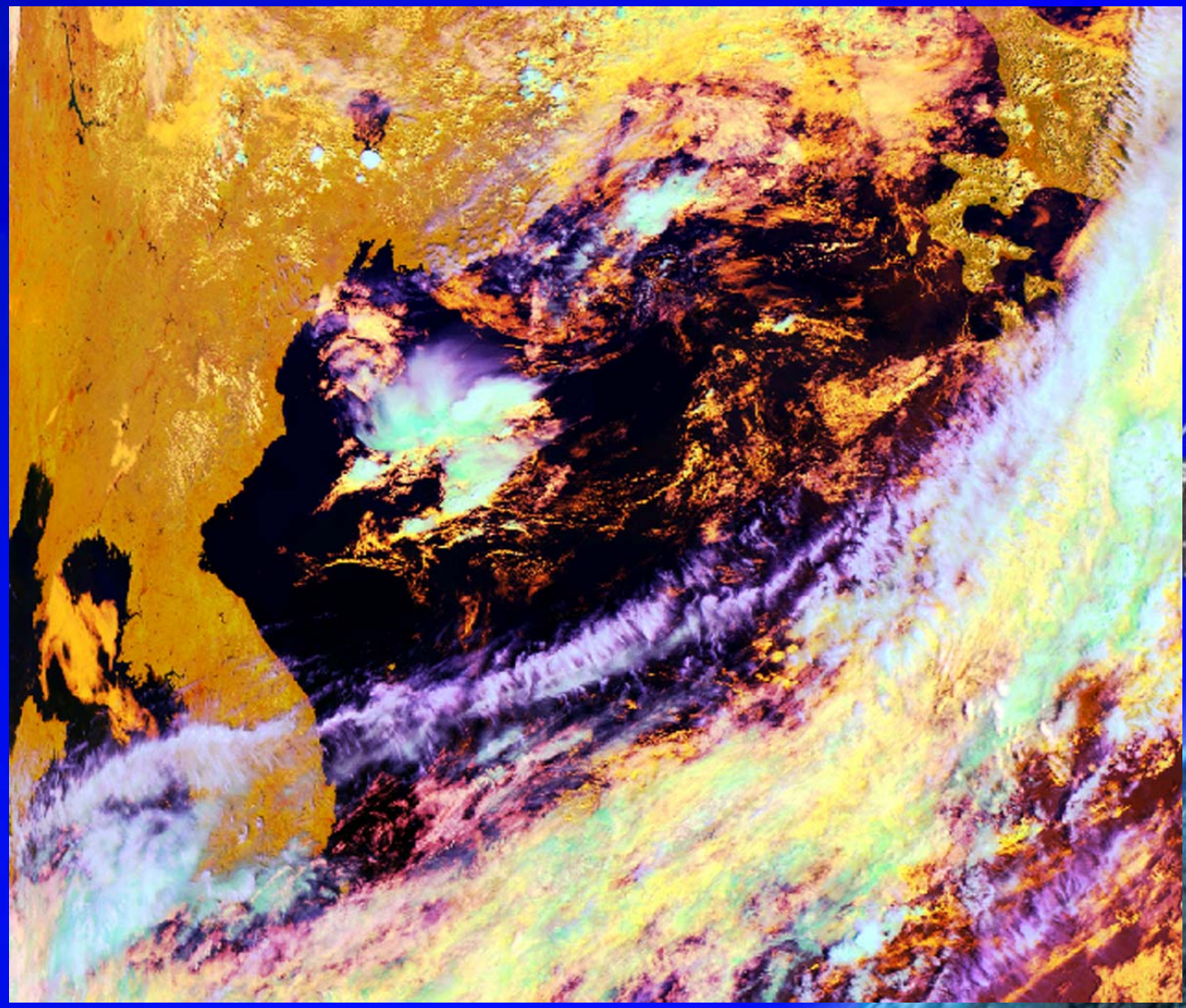
遥感摄影像片



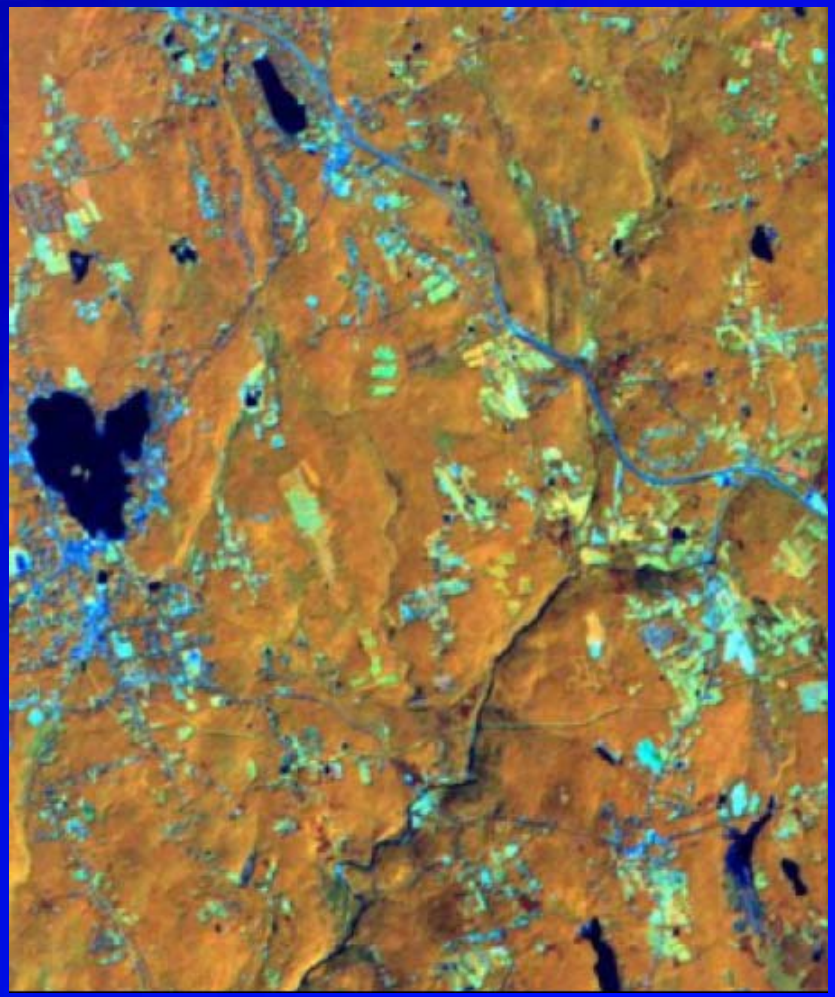
遥感扫描图象－MSS

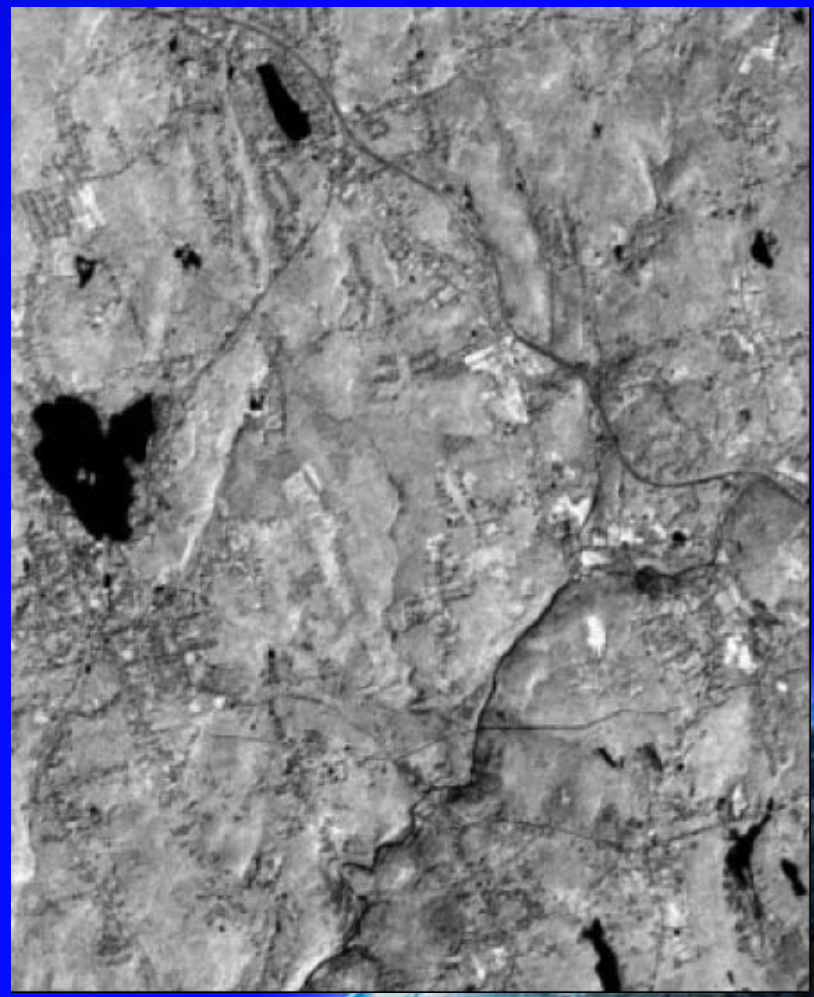


遥感扫描图象—NOAA

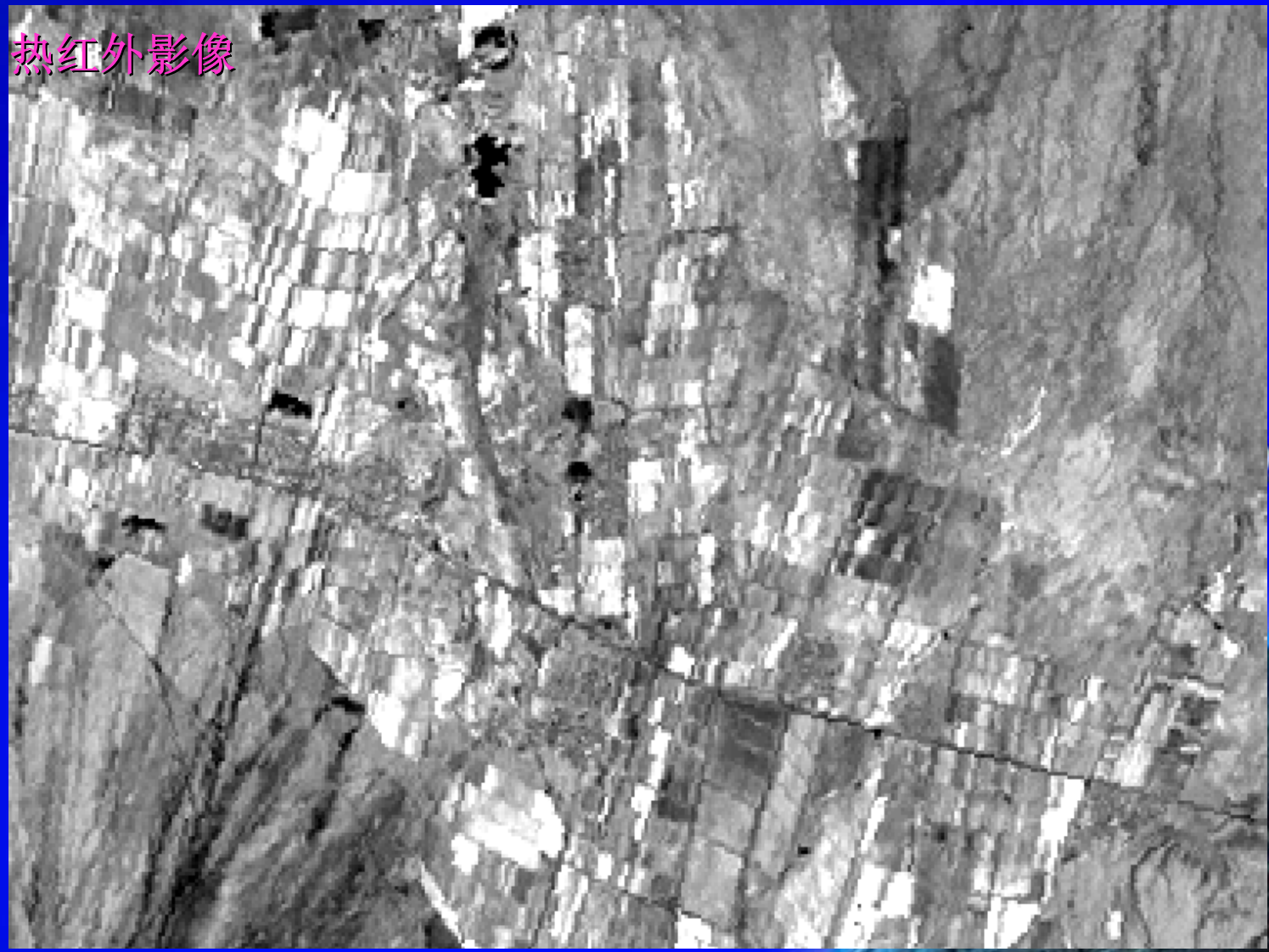


遥感扫描图象—TM





遥感扫描图象—TM



遥感扫描图象－SPOT





遥感扫描图象－IKONOS

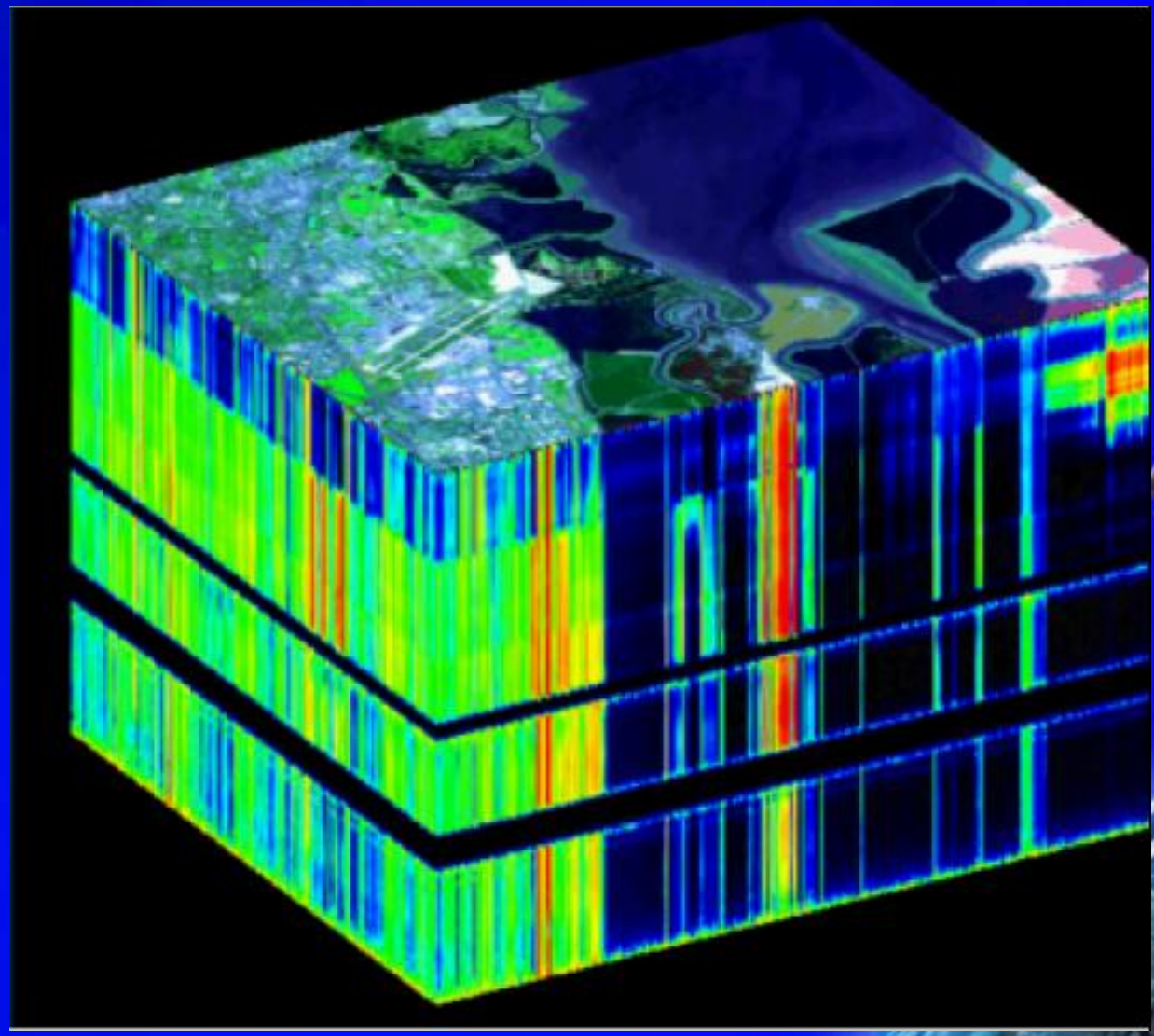


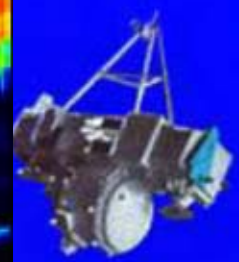


遥感扫描图象－QuickBird



遥感扫描图象—AVIRIS





微波图像—SAR



微波图像—RADARSAT

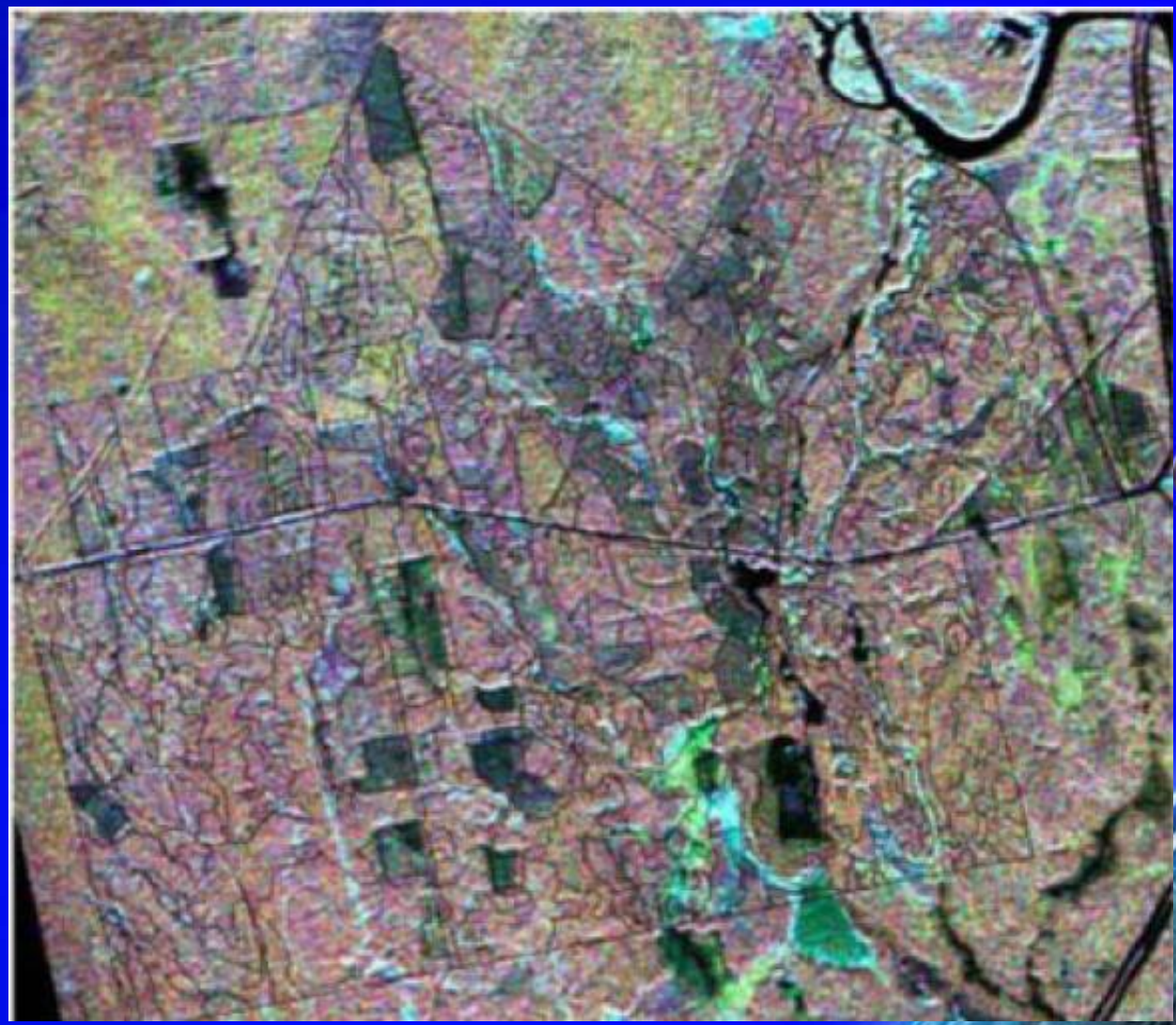


Image References

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