



The Abdus Salam
**International Centre
for Theoretical Physics**



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Earthquake Tectonics and Hazards on the Continents

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Remote sensing practical /3

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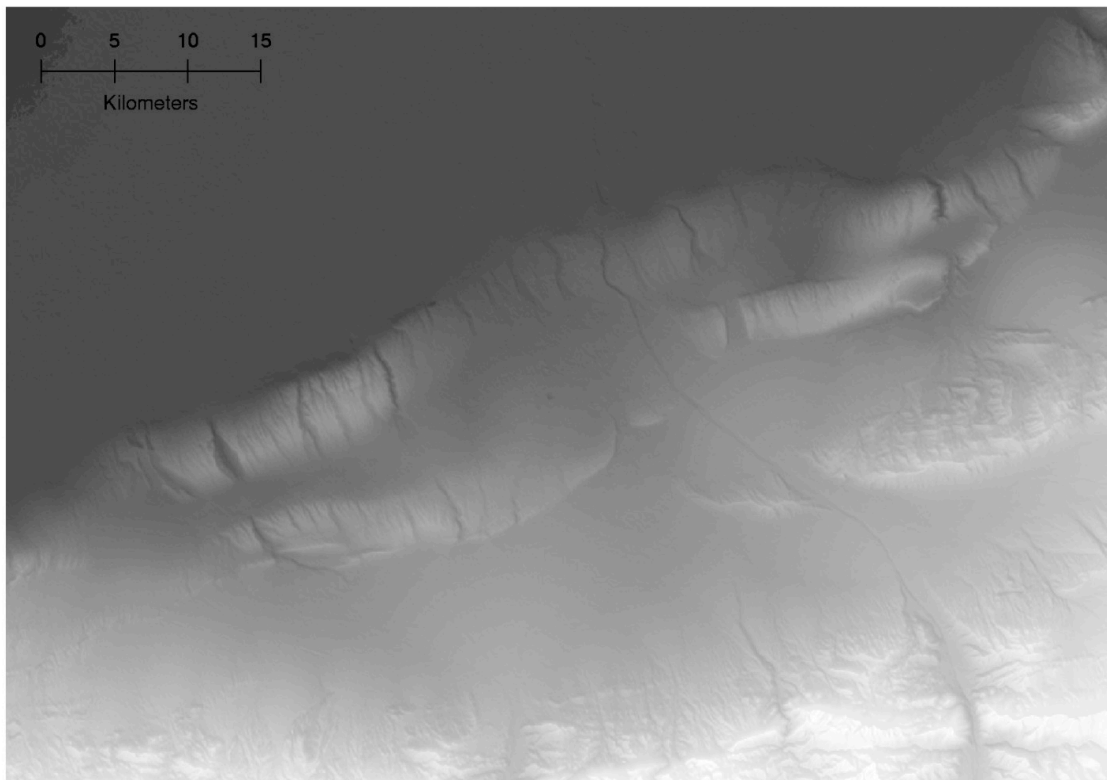
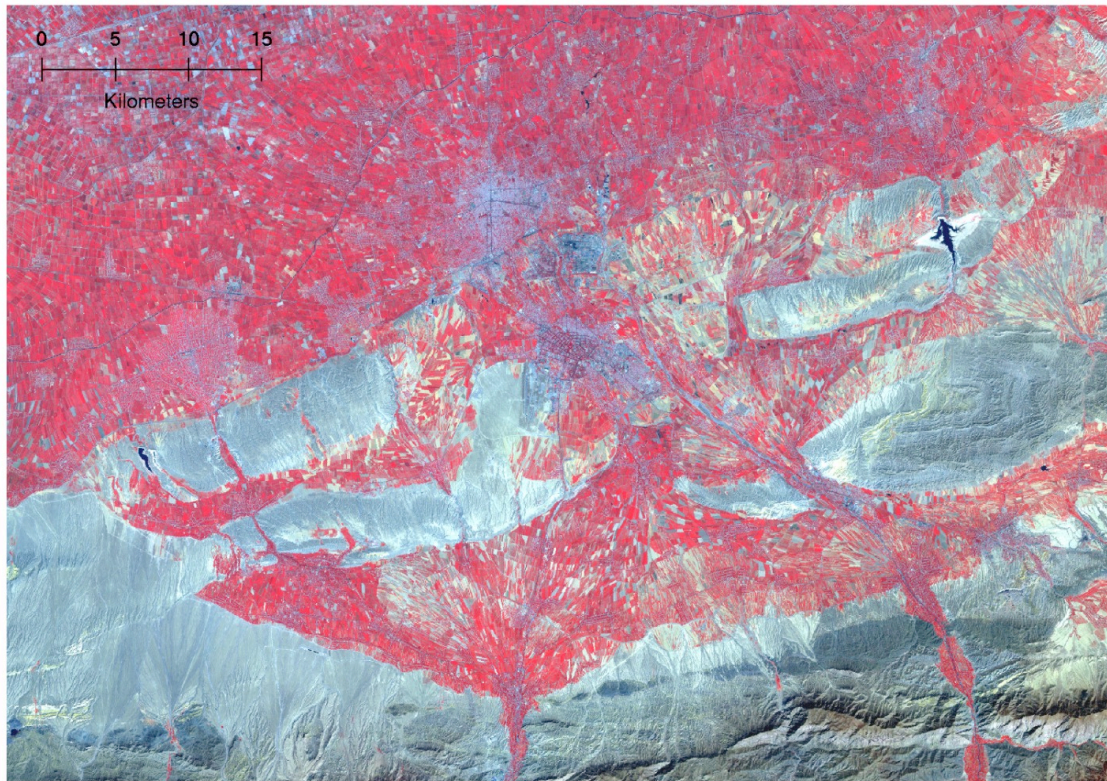


Figure 1. (top) Landsat image (RGB 431) of an area of active reverse faulting.
(bottom) Topography for the same area illuminated from the SW.

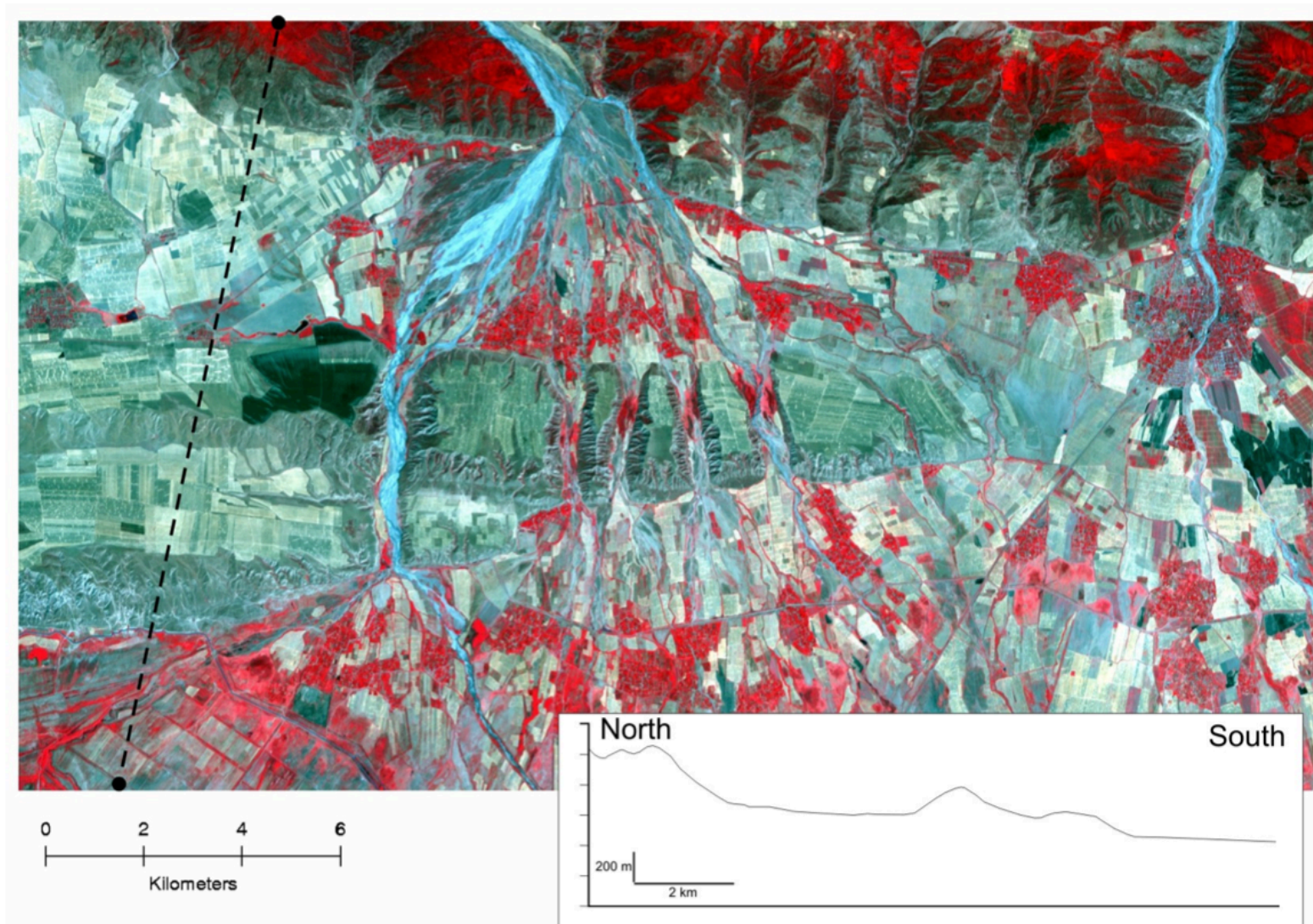


Figure 2. ASTER image (RGB 321) of active faulting in an area of continental convergence. Inset shows a profile of topography along the dashed line.

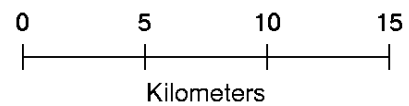
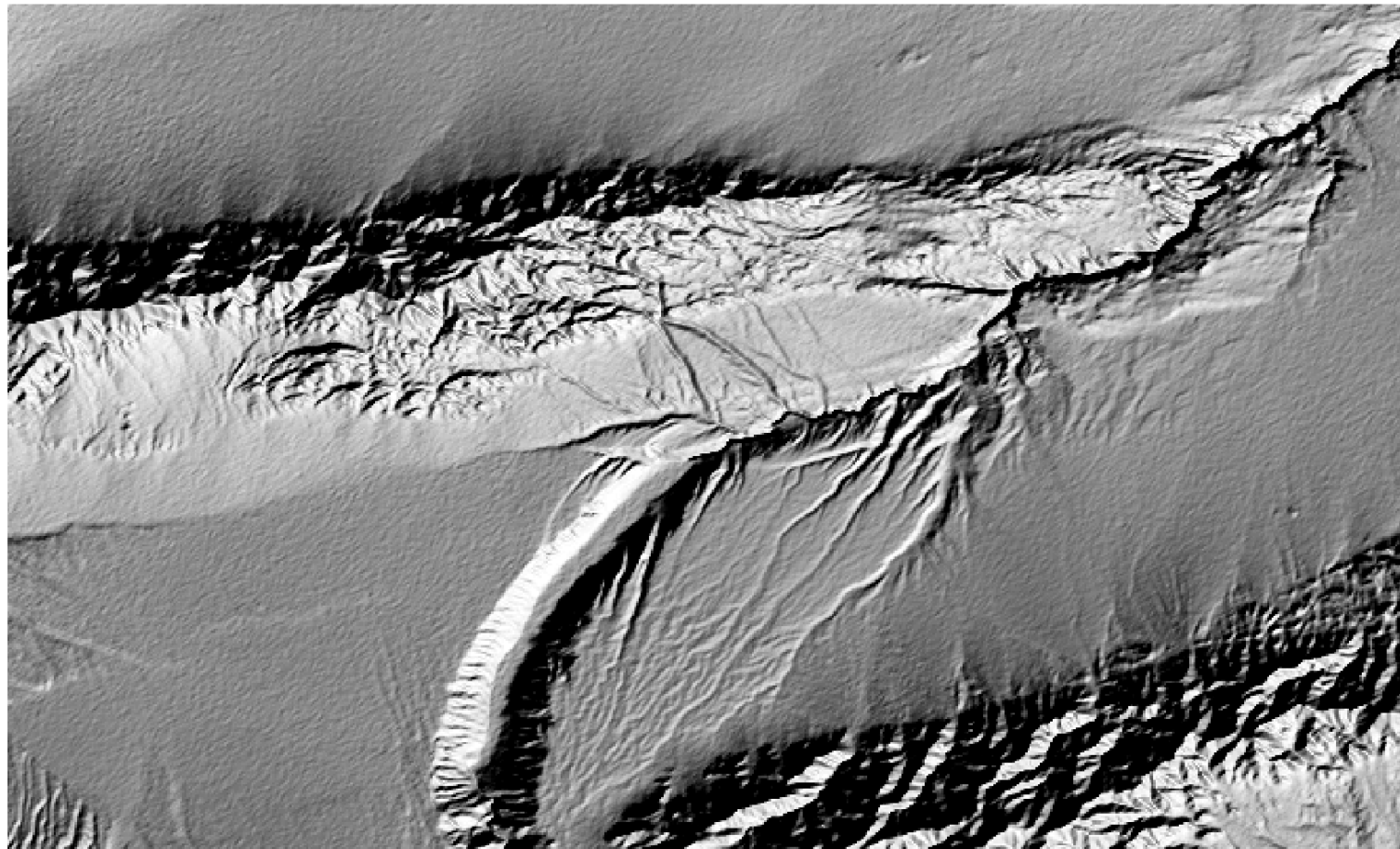


Figure 3. SRTM digital topography for an area of active reverse faulting. The topography is illuminated from the east, and with higher elevations represented in lighter shades of grey.

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Remote Sensing of Reverse Faults

Figures 1 and 2 shows false colour composite images of two areas of active reverse faulting.

Image 1 is a Landsat image with band 4 (0.75-0.90 μm) displayed as red, band 3 (0.63 - 0.69 μm) as green, and band 1 (0.45-0.52 μm) as blue. Image 2 is derived from ASTER data with band 3 (wavelengths in the range 0.76-0.86 μm) displayed in red, band 2 (0.63-0.69 μm) in green, and band 1 (0.52-0.60 μm) in blue. North is at the top of the images in each case.

1. What colour do vegetated areas appear as in these 2 images? Why is this?

Figure 3 is derived from SRTM digital topography, illuminated from the east, and with higher elevations represented in lighter shades of grey.

2. In at least one of the images, mark an example of the following features: (i) two generations of alluvial fans, (ii) laterally displaced drainage, and (iii) a dry valley.

3. Draw the location of the faults on the images, and note which is the footwall and which the hanging wall.

4. The images contain examples of the growth of faults in amplitude and length and of the existence of more than one generation of faults. What are the observations that enable these processes to be identified?