University of New South Wales

GMAT9600 Assignment 1
Monitoring the 2009 Victorian Bushfires with Optical Satellite Remote Sensing

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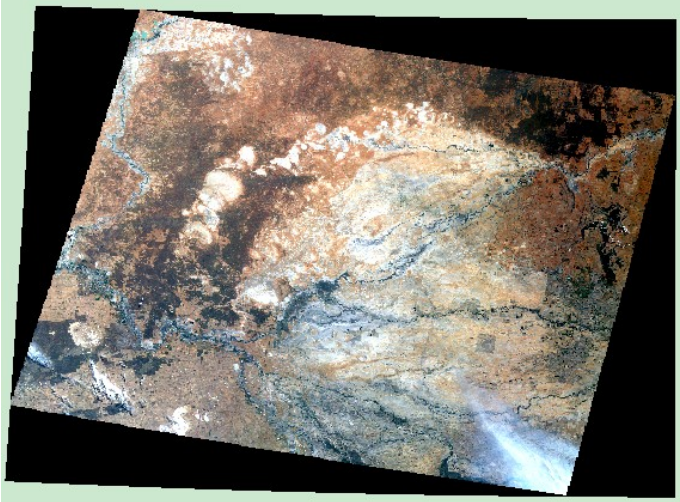
Quiz A

Since spatial coverage is determined by swath width, the infrared camera has a swath

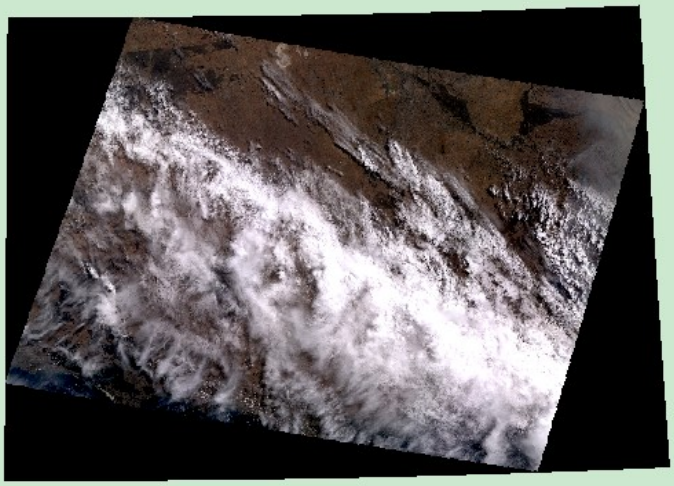
width of 720 km, while the number for CCD Camera is only 360 km. Trade-offs have to be made between spatial coverage and spatial resolution after all.

Quiz B

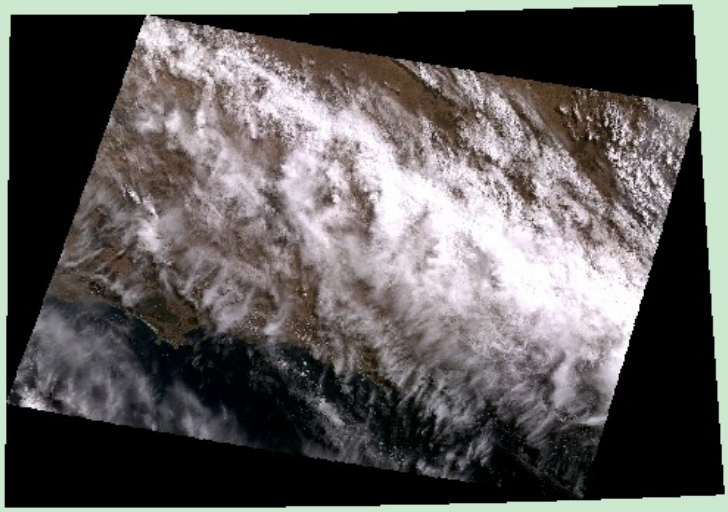
True colour images for HJ CCD data:



HJ1B-CCD2-400-166-20090208-L200002

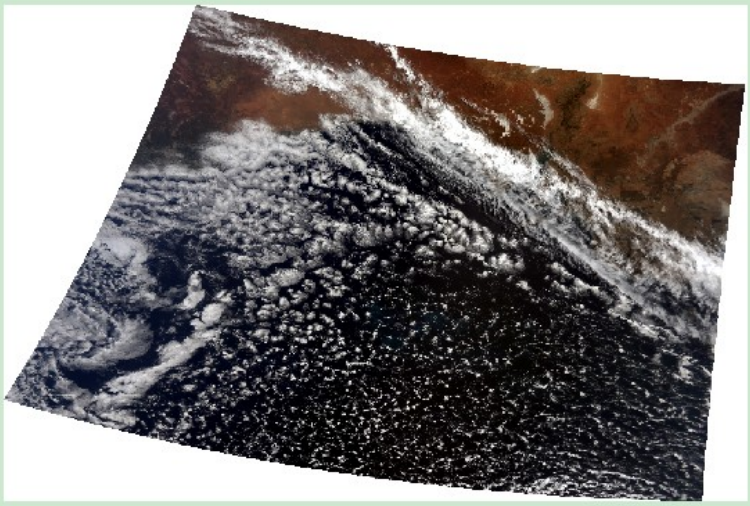


HJ1B-CCD2-400-170-20090208-L20000



HJ1B-CCD2-400-171-20090208-L200001

MODIS image:

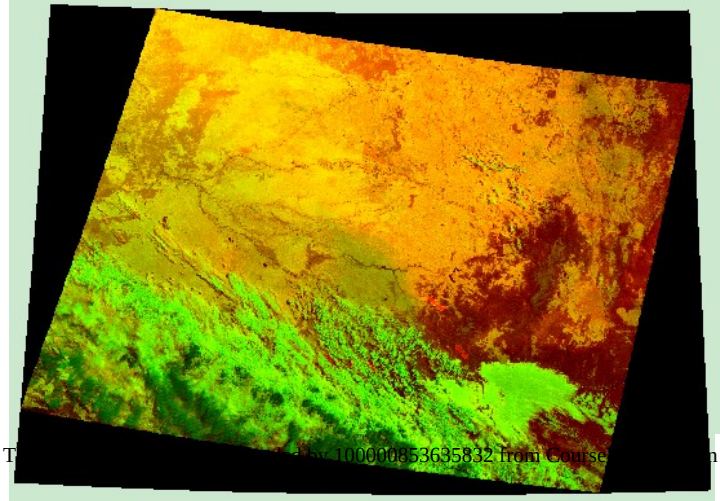


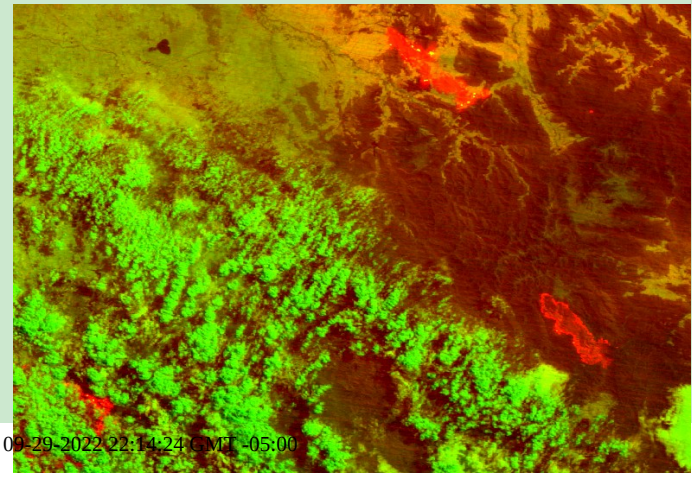
For HJ, I assigned band 3, 2, 1 to Red, Green and Blue respectively. But for MODIS, I assigned band 1, 4, 3 to Red, Green and Blue respectively.

The main problem in these images is that ground features are blocked by smoke or clouds. Optical satellite cannot penetrate clouds.

Quiz C

According to the channel information provided for HJ-1A and HJ-1B, I can assume that band 7 (i.e. Infrared band 3) is suitable to capture the strong radiation of bush fire, while band 6 (i.e. Infrared band 2) is used for the weak radiation of bush fire. So I generate the fusion image with band 7 assigned to Red and band 6 assigned to Green. The image is shown below.





The fire areas are those bloody spots in the image. There are in total five areas on fire in the image.