GMA 320 Semester study guide

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September 16, 2010

16h30 Thursday, 23rd Sept. 2010
Room 1-2, Geography Building

Pay attention to the following sections while studying:

1 Overview of Remote Sensing

- In situ data collection
- The remote sensing process

2 RS data collection

- Digital remote sensor data collection
- Multispectral imaging using discrete detectors and scanning mirrors {Landsat sensor systems, NOAA MS scanner systems: look at characteristic resolution(s), application}
- XS imaging using linear arrays: SPOT {Sensor onboard, resolution and application}; Very-High-Resolution Linear Array RS systems

3 Digital image processing (DIP) considerations

4 Image quality assessment and statistical evaluation

- Histogram and its significance to DIP
- Univariate descriptive image statistics

- Multivariate image statistics

6 Geometric correction

- Image Registration and rectification
- Systematic and non-systematic distortions
- Types of geometric correction
- DN→ at sensor radiance and temperature conversions
- Intensity interpolation and methods of re-sampling

7 Spatial-based enhancements

- Spatial and spectral profiles
- Texture
- Edge detection, enhancement and sharpening

8 Multi-spectral image manipulation

- The feature space (its role in image classification)
- Spectral ratioing and the Normalized difference ratioing

9 Image classification

- Supervised and unsupervised classification
- Methods of characterizing a training sample or cluster in a remote sensing imagery
- Classification training tools

References

[1] Jensen, John R., (2005), Introductory Digital Image Processing: A Remote Sensing Perspective, 3rd Ed., Upper Saddle River, NJ: Prentice Hall, 526 pages

[2] Thomas, M. L., Ralph, W. K. and Jonathan, W. C. (2008), Remote Sensing and Image Interpretation, 5th/6th Edn. John Wiley & Sons, ISBN 0-471-15227-7 & ISBN 978-0-470-05245-7

[3] Class notes (*There are others that may be available on request*)