XXIII International Society for Photogrammetry and Remote Sensing (ISPRS) Congress
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ABSTRACT OF THE TUTORIAL 6

Practical Remote Sensing: Handling Optical Data

Duration:
Half-day - 12 July 2016

Convener:
Dr. Samantha Lavender

Keywords:
Sentinel Application Platform (SNAP) toolboxes, Quantum GIS (QGIS), hands-on session, basic image processing, spectral and thermal signatures, Landsat, MODIS

Target Group:
The tutorial is aimed at those wanting to make use of open source tools (including the ESA Sentinel Toolboxes and Quantum GIS) to aid in the processing and display of optical satellite imagery. The material will include an introduction to image processing and GIS techniques alongside spectral signatures, vegetation indices and image classification.

Abstract:
The aim of the training course is to provide a practical 'hands-on' session where the participants can practice using the European Space Agency (ESA) Sentinel Application Platform (SNAP) toolboxes alongside Quantum GIS (QGIS). It will provide both a theoretical and practical understanding of remote sensing by following chapters from 'The Practical Handbook of Remote Sensing' (a book authored by Dr and Mr Lavender, which is due to be published in November 2015 by CRC Press):
- Chapter 6: Practical Image Processing: including an introduction to SNAP alongside concepts such as histograms, colour palettes and image filtering.
- Chapter 7: Geographical Information Systems and an Introduction to QGIS: including an explanation of Coordinate Reference Systems.
- Chapter 8: Urban Environments and their Signatures: including spectral and thermal signatures.
- Chapter 9: Landscape Evolution: including vegetation indices and image classification.

Chapters 6 and 7 will be over-viewed as a presentation, and then the participants will put the gained knowledge into practice. Then, participants will work through 8 and/or 9 depending on their personal interests with the tutor providing support. Pre-downloaded example data will be available from the Landsat and MODIS missions alongside Sentinel-2 that was not included in the book itself due to its relatively recent launch date.

Curriculum Vitae:
Dr Samantha Lavender has 20+ years research experience with a focus on the use of satellite Earth observation to help answer questions about our planet's resources and behaviour; currently Honorary Reader of Geomatics at Plymouth University and a co-supervisor of 3 PhD students. She has also been involved in running companies for just over 8 years; currently Managing Director of Pixalytics Ltd.

Sam's always been a scientist who's interested in learning and collaborating across a range of different interests, with a strong focus in developing products for a wide community of users. Therefore, recently, she's been working on both satellite altimetry and the atmospheric correction of high / medium resolution optical imagery alongside the simulation of SAR data. More broadly, her interests extend from mapping vegetated and water surfaces to the movement of sediments in the coastal zone and phytoplankton dynamics / succession in the open ocean.

Sam is also actively involved with volunteering, as a member of the UK Space Agency Earth Observation Advisory Committee , Chairman of the British Association of Remote Sensing Companies (BARSC) and Chair of the ISPRS Working Group VIII/9 - Coastal and Ocean Applications.