



XXIII International Society for Photogrammetry and Remote Sensing (ISPRS) Congress
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ABSTRACT OF THE TUTORIAL 3

Airborne SAR

Duration:

Half-day - 12 July 2016

Convener:

Batuhan Osmanoglu, Ph.D.

Keywords:

NASA's airborne SAR sensors, Airborne SAR imaging, differences and parallels with spaceborne SAR

Target Group:

Graduate and PhD students, young scientists, remote sensing specialists, geoscience professionals, preferably with some signal processing, engineering, programming, remote sensing or photogrammetry knowledge.

Abstract:

Airborne synthetic Aperture Radar systems have been in existence since the late 1950s. Current operational systems include NASA JPL's UAVSAR (and AIRMOSS), NASA GSFC's DBSAR and EcoSAR, DLR's E-SAR, JAXA's Pi-SAR2 and ONERA's SETHI systems. Data from some of these systems are available online as well as data from some earlier airborne sensors such as AirSAR. This half-day workshop will give an overview of synthetic aperture radar imaging with an emphasis on airborne systems, and will provide application examples.

Technical topics such as transmit and receive beamforming, radio frequency interference detection and mitigation will be covered. Details on geocoding of airborne radar imagery and applications of radiometric and polarimetric corrections for accurate data products will be explained. Polarimetric and interferometric systems will be discussed along with respective applications. Hands-on applications will involve constructing a polarimetric decomposition and analysis of interferometric observations using freely available data and software. Attendants are encouraged to bring a fully charged laptop with USB or CD-ROM boot capability in order to participate in the hands-on session. Familiarity with radar remote sensing is helpful but not required.

Curriculum Vitae:

Batu holds a B.Sc. in telecommunications engineering and a Ph.D. in synthetic aperture radar interferometry time-series analysis. His dissertation was selected to be the most original research, earning him the University of Miami Rosenstiel School's F.G. Walton Smith Prize for 2012. His primary area of expertise is radar remote sensing, and he has worked on applications for observing surface deformation, measuring target velocities, boosting signal-to-noise ratio in target detection algorithms, and radar design and instrumentation. Since June 2013, he has been a contracting scientist for Universities Space Research Association, for which he is employed at the NASA Goddard Space Flight Center. He is currently working on instrument and algorithm development of airborne P- and L-band digital beam forming synthetic aperture radar systems. In 2015, he received a Hydrospheric and Biospheric Sciences (HOBI) Award for his contributions to radar remote sensing efforts at Goddard.