Subject: Remote Sensing course
Posted by Achim Hein on Tue, 29 Apr 1997 07:00:00 GMT
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SYNTHETIC APERTURE RADAR (SAR) SYSTEMS AND SIGNALS: SYSTEM THEORY, PROCESSING, INTERFEROMETRY

Topics:

- SAR-System
- Bandpass and Chirp-Signals
- SAR-Processing
- SAR-Interferometry
- Phase Unwrapping
- Layover
- Radar Shadow

This course explains Synthetic Aperture Radar Systems by using a geometrical description, a physical description and by using the methods of
system theory. The course will give a introduction into SAR-Systems, the geometry, the basics of physics and applications.

After introducing principal SAR-Geometry and the theory of the doppler shift, the signal theory of bandpass signals in the equivalent lowpass domain
the SAR-Sensor will be specified in the equivalent lowpass domain. Using the geometrical describtion, first the SAR-Sensors point spread function will be derived in the time domain to be evaluated as SAR-System transfer function in the two-dimensional frequency domain.

Various processing (focussing) methods will be discussed in the time and frequency domain. As next step there will be an introduction in the SAR-Interferometry and the phase unwrapping resulting in the height generation of SAR images. The last step will focus several problems of SAR
technology as motion compensation, range migration compensation, phase unwrapping, height conversion, layover and shadow areas.

Summarizing - the course will give the fundamentals to understand the SAR principle beginning with the data acquisition and ending with the threedimensional height and amplitude image of the illuminated surface.

We are currently planning to install this course in October 97.

If you are interested in this course or if you have any comments, please contact:

Hein@nv.et-inf.uni-siegen.de

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Dipl.-Ing. A. Hein
PB2 / ZESS - Uni-GH-Siegen
Paul-Bonatz Str. 9-11
57068 Siegen
Phone: 0271/740-3362
Fax: 0271/740-2336
Mail: Hein@nv.et-inf.uni-siegen.de

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Please have a look at our Web-Sites:

http://www.nv.et-inf.uni-siegen.de/pb2/

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