

Space Geodesy Seminar - SIO 239

<http://igppweb.ucsd.edu/~fialko/insar>

Instructors

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Seminar class

Fri 3-4 pm, Munk Conference Room

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OBJECTIVES: The objectives of this seminar course are to learn the basics of GPS and InSAR, and apply both techniques to study deformation in various places of interest (Southern California and elsewhere). There will be field trips during which we will visit active faults and conduct campaign GPS surveys.

SYLLABUS

Date	Topic	Reading	Discussion Leader
09 JAN	Organizational meeting		Y. Fialko
16 JAN	Penner Lecture		
23 JAN	SAR processing of strip-mode data	Image Formation from SAR Radar Signals Appendix B CosmoSkyMed SAR processing example for Hawaii	D. Sandwell
30 JAN	InSAR - theory	Simons and Rosen, 2007 (Chapter 3.12.2) Appendix C	Y. Fialko
06 FEB	ScanSAR Processing	Scanner Focusing and Interferometry ScanSAR-to-Stripmap Mode Interferometry Processing Using ENVISAT/ASAR Data, Ortiz and Zebker, 2007 ALOS-2 ScanSAR InSAR example for Napa	Daniel
		TOPS Imaging With TerraSAR-X: Mode Design and	

13 FEB	TOPS-mode ScanSAR processing	Performance Analysis Sentinel-1 System Capabilities and Applications	Eric
20 FEB	Time series analysis. "Refined" SBAS	Lee et al., 2010, pp. 455-461	Wes and John
27 FEB	Time series analysis. "Intermittent" SBAS	Bateson et al., 2015, pp. 251-253	Soli
06 MAR	Time series analysis. DEM corrections in SBAS	Fattahi and Amelung 2013	Katia, Kang
13 MAR	class projects	notes	

SIO 239 SUGGESTED BOOKS (some on reserve at SIO Library):

Bracewell, Ronald Newbold, 1921-. The Fourier transform and its applications, [by] Ron Bracewell. New York, McGraw-Hill [1965] viii, 381 p. illus. 23 cm. Series title: McGraw-Hill electrical and electronic engineering series UCSD Scripps QA403.5 .B7

Bendat, Julius S.. Random data : analysis and measurement procedures /, Julius S. Bendat, Allan G. Piersol. 2nd ed., rev. and expanded. New York: Wiley, c1986. xvii, 566 p. UCSD Scripps TA340 .B43 1986

Curlander, John C.. Synthetic aperture radar : systems and signal processing /, John C. Curlander, Robert N. McDonough. New York : Wiley, c1991. xvii, 647 p. : ill. ; 24 cm. Series title: Wiley series in remote sensing Language: English UCSD S & E TK6592.S95 C87 1991

Elachi, C., Introduction to the Physics and Techniques of Remote Sensing, .New York: Wiley, c1987. xvii, 413 p.

Ghiglia, Dennis C.. Two-dimensional phase unwrapping : theory, algorithms, and software /, Dennis C. Ghiglia, Mark D. Pritt. New York : Wiley, c1998. xiv, 493 p. : ill. ; 25 cm.

Computer-based exercises for signal processing using MATLAB 5 /, James H. McClellan ... [et al.] Upper Saddle River, N.J. : Prentice Hall, c1998. xii, 404 p. : ill. ; 28 cm. Series title: The MATLAB curriculum series Related titles: Signal processing using MATLAB 5

Spotlight-mode synthetic aperture radar : a signal processing approach /, Charles V. Jakowatz, Jr. ... [et al.]. Boston : Kluwer Academic Publishers, c1996. 429 p. : ill. ; 24 cm. Language: English

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