

Space Geodesy Seminar - SIO 239

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

Instructors

Yuri Fialko yfialko@ucsd.edu

David Sandwell dsandwell@ucsd.edu

Seminar class

Fri 3-4 pm, Munk Conference Room

class@ucsd.edu

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
10 JAN	Organizational meeting		Y. Fialko
17 JAN	SAR image formation - theory	Appendices A, B	D. Sandwell
24 JAN	InSAR - theory	Simons and Rosen, 2007 (Chapter 3.12.2) Appendix C	Y. Fialko
31 JAN	InSAR image alignment for stacking and time series		D. Sandwell and X. Tong
07 FEB	InSAR time series and atmospheric phase screens		Katia
14 FEB	GPS - theory	notes	
21 FEB	GPS data processing - tutorial		Eric
28 FEB	Deformation in Southern California	Johnson et al., Present-day crustal deformation in southern California, JGR 1994 Bilham and Williams, Sawtooth segmentation and deformation processes on the southern San Andreas Fault, California, GRL, 1985	
07 MAR	Along-track interferometry and ionospheric phase screens	notes	

14 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

[Back to Top](#)