HOWARD ALLAN ZEBKER

Curriculum Vitae
June, 2005

CURRENT POSITION:

Associate Professor
Departments of Geophysics and Electrical Engineering
Mitchell 360
Stanford University
Stanford, CA 94305-2215

TEL: (650) 723-8067
FAX: (650) 725-7344
Email: zebker@stanford.edu

EDUCATION:

Ph.D., Electrical Engineering, Stanford University, 1984.
Major Subjects: Radiowave Scattering Theory, Digital Signal Processing
Thesis Title: *Analysis and Interpretation of the Voyager 1 Radio Occultation Measurements of Saturn's Rings with Emphasis on Particle Size Distribution*

M.S., Engineering, University of California at Los Angeles, 1979.
Major Subjects: Information Theory and Coding, Detection, Estimation
Comprehensive Exam Title: A Numerical Method for Evaluating Steady State Probability Distributions

B.S., Engineering and Applied Science, California Institute of Technology, 1976.
Major Subjects: Circuit Design, Applied Mathematics, Computer Science

POSITIONS HELD:

1995-present:
Associate Professor
Departments of Geophysics and Electrical Engineering (joint appt.)
Stanford University
Stanford, CA

1984-1995:
Assistant Manager
Radar Science and Engineering Section
Jet Propulsion Laboratory, Radar Science and Engineering Section

Major responsibilities: i) management of research and development activity for NASA/JPL radar program activities, specializing in measurement and interpretation of scattered radio signals, ii) section administration, iii) task management for ARPA-supported interferometric radar research task, and iv) advanced planning activities.

1984:
Post-doctoral Research Affiliate, Stanford University, Stanford CA 94306

1976-1980:
Jet Propulsion Laboratory, Radar Science and Engineering Section

1975-1976: Jet Propulsion Laboratory, Physics Section

RESEARCH INTERESTS:

Earth crustal deformation: measurements and subsurface processes, planetary exploration, interferometric radar remote sensing techniques and applications, EM propagation and scattering, digital signal processing.

COURSES TAUGHT:

Stanford University courses:

Fall 2003: EE254 Radar Principles
Fall 2003: EE60Q/GP60Q: Remote Sensing of the Environment
Fall 2003: EE350 Radioscience Seminar
Fall 2003: GP385Z Radar Remote Sensing Seminar
Winter 2004: EE168 Introduction to Digital Image Processing
Winter 2004: GP385Z Radar Remote Sensing Seminar
Spring 2004: EE355/GP265 Imaging Radar and Applications
Spring 2004: GP385Z Radar Remote Sensing Seminar

Fall 2002: EE262 Two-dimensional Imaging
Fall 2002: EE/GP60Q Man vs. Nature: Coping with Disaster Using Space Technology
Fall 2002: GP 385Z Radar Remote Sensing Seminar
Winter 2003: EE168 Introduction to Digital Image Processing
Winter 2003: GP385Z Radar Remote Sensing Seminar
Spring 2003: EE140/ GP40 The Earth from Space: An introduction to remote sensing
Spring 2003: GP385Z Radar Remote Sensing Seminar

Fall 2001: EE168 Introduction to Digital Image Processing
Fall 2001: EE/GP60Q Man vs. Nature: Coping with Disaster Using Space Technology
Fall 2001: EE 350 Radioscience Seminar
Fall 2001: GP 385Z Radar Remote Sensing Seminar
Winter 2002: EE254 Radar Principles
Winter 2002: GP385Z Radar Remote Sensing Seminar
Spring 2002: EE255/ GP265 Imaging Radar and Applications
Spring 2002: GP385Z Radar Remote Sensing Seminar

Fall 2000: EE262 Two-dimensional Imaging
Fall 2000: GP60/EE60 Viewing Hazards on Earth from Space
Winter 2001: EE168 Introduction to Digital Image Processing
Winter 2001: SME5 (GP7) The Water Course
Spring 2001: GP40 The Earth from Space: An introduction to remote sensing

Fall 1999: EE262 Two-dimensional Imaging
Fall 1999: EE350 Radioscience Seminar
Winter 2000: EE254 Radar Principles
Winter 2000: GP60/EE60 Viewing Hazards on Earth from Space
Spring 2000: GP40 The Earth from Space: An introduction to remote sensing

Fall 1998: EE262 Two-dimensional Imaging
Winter 1999: EE355 Imaging Radar and Applications
Winter 1999: GP60/EE60 Viewing Hazards on Earth from Space
Spring 1999: GP40 The Earth from Space: An introduction to remote sensing

Fall 1997: EE262 Two-dimensional Imaging
Fall 1997: EE350 Radioscience Seminar
Winter 1998: GP60/EE60 Viewing Hazards on Earth from Space
Winter 1998: EE254 Radar Principles
Spring 1998: GP40 The Earth from Space: An introduction to remote sensing

Fall 1996: EE262 Two-dimensional Imaging
Winter 1997: EE355 / GP355 Imaging Radar and Applications
Spring 1997: GP40 The Earth from Space: An introduction to remote sensing

Fall 1995: EE350 Radioscience Seminar
Winter 1996: EE254 Radar Principles
Spring 1996: GP40 The Earth from Space: An introduction to remote sensing

Other Stanford teaching:

Stanford Summer Engineering Academy (SSEA) faculty, 1999.
Stanford Mathematical Geosciences Summer School faculty, 2000.

Teaching while at JPL:

Instructor for internal JPL short courses on synthetic aperture radar design and applications
Organizer, JPL Radar Program Seminar Series
Guest lecturer, Caltech "Introduction to the Physics of Remote Sensing"

AWARDS AND HONORS:

Best reviewer award, IEEE Transactions on Geoscience and Remote Sensing, 1999.
Robert Noyce Faculty Scholar, Stanford University School of Engineering, 1999.
Fellow, IEEE, 1999.
Member, American Geophysical Union
Affiliate member, American Astronomical Society - Division for Planetary Sciences
Dana Adams Griffin Award, School of Engineering, Stanford University, 1998.
Best paper award, International Geoscience and Remote Sensing Symposium, 1995.
Jet Propulsion Laboratory Director's Research Achievement Award, 1988.
Best paper award, IEEE Geoscience and Remote Sensing Society, 1988.

NASA Certificates of Achievement for New Technology: Imaging radar polarimeter, Topographic mapping from interferometric synthetic aperture radar measurements, Interferometric radar measurement of ocean surface currents, Synthetic aperture radar processor for large drift angles, Data volume reduction for imaging radar polarimetry, Imaging radar polarimeter measures orientation of calibration corner reflectors, Preliminary simultaneous L/C-band images from the JPL aircraft synthetic aperture radar, Radar imaging polarimetry, Phase calibration of imaging radar polarimeter Stokes matrices, Mapping small elevation changes over large areas: differential radar interferometry, Approaches to modelling polarization characteristics of surfaces for radar polarimetry, Software for polarimetric radar analysis: MacMultiview 5.0, Calibration of Stokes and scattering matrix format polarimetric SAR data, Topographic mapping using radar interferometry: processing techniques, Decorrelation in interferometric radar echoes, The TOPSAR interferometric radar topographic mapping instrument (1984-1995)

NASA Group Achievement Awards: Seasat-A Synthetic Aperture Radar Team, 1979; Shuttle Imaging Radar (SIR-A) Development Team, 1982; Airborne Imaging Radar System Team, 1990.

PATENTS (US):

No. 4,975,704: Andrew K. Gabriel, Richard M. Goldstein, and Howard A. Zebker, "Method for Detecting Surface Motions and Mapping Small Terrestrial or Planetary Surface Deformations with Synthetic Aperture Radar," 1990.

No. 4,829,303: Howard A. Zebker, Daniel N. Held, Jakob J. van Zyl, Pascale C. Dubois, and Lynne Norikane, "Data Volume Reduction for Imaging Radar Polarimetry," 1989.

No. 4,450,447: Howard A. Zebker, Daniel N. Held, Richard M. Goldstein, and Thomas Bickler, "Synthetic Aperture Radar Target Simulator," 1984.

PANELS AND COMMITTEES:

International Union of Radioscience (URSI) Board of Experts for Medal Evaluations, 2005.
Organizing Committee, Interagency Interferometric Synthetic Aperture Radar Workshop, 2004
Executive committee, Western North America Interferometric SAR (Winsar) consortium, a division of the Southern California Earthquake Center (member, 1999-2002, Vice Chair, 2002-4, Chair 2004-5)
National Astronomy and Ionospheric Center- Arecibo Observatory, Visiting Committee, 2002-2004 (Chair, 2003-4)
NASA Technical Review Committee for HICP planetary missions, 2004
NASA Review Committee, Earth System Science Fellowships, 2004
Technical Program Committee, 2003 Progress in Electromagnetics Research Symposium
NASA Antarctic Mapping Mission (AMM) Science Advisory Group, 2001-
Technical Program Committee, 2002 Progress In Electromagnetic Research Symposium
Solid Earth Science Proposal Review Panel, NASA Earth Science Enterprise, 2002.
Technical Program Committee, 2001 Progress In Electromagnetic Research Symposium
Steering Committee and Earthquake Working Group Chair, National Science Foundation Workshop on Scientific Applications of Synthetic Aperture Radar, University of Southern California, June 28-30, 2000,
ESTO (Earth Science Technology Office), NASA Earth Science Enterprise, Advanced Radar Technology Panel, 2000.
Solid Earth Science Proposal Review Panel, NASA Earth Science Enterprise, 2000.
International Scientific Committee, 8th International Symposium on Physical Measurements and Signatures in Remote Sensing, ISPRS, 2000
WinSAR Executive Committee, Southern California Earthquake Center, 1999-2002
Technical Program Committee, Progress in Electromagnetics Research Symposium 2000
NASA ASF Data Quality Team, 1998-2002
NASA Alaska SAR Facility Users Working Group, 1998-2004
NASA Europa Radar Instrument Definition Team, 1998-1999
NASA LightSAR Science Working Group, 1996-1999.
NASA-ASI Topographic Mission Concept Working Group, 1992-1993.
Advanced Radar Technology Panel, Naval Studies Board, National Research Council, 1991-1992.
Panel on Soviet Oceanographic SAR, Foreign Applied Sciences Assessment Center (FASAC), 1988-90.
Earth Observing System (EOS) Geodynamics Laser Ranging System Review Board, 1989.

OTHER PROFESSIONAL ACTIVITIES:

Associate Editor, IEEE Transactions on Geoscience and Remote Sensing

Session chair and organizer, Geophysical Modeling Using Spaceborne InSAR Measurements, American Geophysical Union 2002 Fall Meeting
Session chair, Remote Sensing and Geophysical Problems, Progress in Electromagnetics Research Symposium (PIERS 2002)

Session chair, Interferometric and Differential Interferometric SAR, International Geoscience and Remote Sensing Sensing Symposium, July 24-28, 2000, Honolulu, Hawaii.

Session convenor, Imaging Geodesy I & II, 1998 American Geophysical Union Fall Meeting, San Francisco, CA, December 6-10, 1998.

Session chair, "SAR Interferometry: Signal Processing and Phase Unwrapping," 1998 Progress in Electromagnetic Research Symposium (PIERS '98), July 13-17, 1998, Nantes, France.

Session chair, "Interferometry." 1998 Progress in Electromagnetic Research Symposium (PIERS '98), July 13-17, 1998, Nantes, France.

Session organizer and co-chairman, "Applications of Radar Interferometry," American Geophysical Union Fall meeting, San Francisco, CA, December 15-19, 1996.

Session organizer, "Radar Interferometry," Progress in Electromagnetics Research Symposium (PIERS 96), Innsbruk, Austria, July 8-12, 1996.

Session chair, "Advances in Radar Interferometry," Progress in Electromagnetics Research Symposium (PIERS 95), University of Washington, Seattle, WA, July 24-28, 1995.

Technical committee member for Progress in Electromagnetic Research Symposium, Symposium (PIERS 93), California Institute of Technology, Pasadena, CA, July 12-16, 1993.

Session chair, "Interferometry I and II," Progress in Electromagnetics Research Symposium (PIERS 93), California Institute of Technology, Pasadena, CA, July 12-16, 1993.

Session chair, "Foliage Penetration and Scattering," Progress in Electromagnetic Research Symposium, Symposium (PIERS 91), Cambridge, MA, July 1-5, 1991.

Session chair, "Imaging Radar Polarimetry: Systems and Applications," NSF Workshop on Future Directions in Electromagnetics Research, Boston, MA, July 25-27, 1991.

UNIVERSITY SERVICE:

Faculty Senate Committee for Review of Undergraduate Majors (C-RUM), 2002- (Chair, 2003, 2004-5)
Department of Electrical Engineering Qualification Examination Appeals Committee, 2004-2005
School of Earth Sciences Committee on Establishment of a School-wide Undergraduate major, 2004-2005
Geophysics Department Curriculum Committee, Chair, 2002-
EE Graduate Admissions Committee, STARLAB representative, 1998-2005
School of Earth Sciences Committee on Computational Geosciences, 2003-2004
Geological and Environmental Sciences Search Committee for Surface Processes, 2002-3
EE Graduate Program Committee, 1997-2003
Chair, George A. Thompson Fellowship Committee, Department of Geophysics, 2003
EE Search Committee for Digital Image and Video Systems, 1998-1999
EE Search Committee for Medical Imaging Systems, 2000.
University Freshman Advisor, 1997-2003
Geophysics Department Graduate Program Coordinator, 1998-2002

STUDENTS SUPERVISED and GRADUATION DATES:

Ph.D. students in Electrical Engineering:

Schmidt, Arlen	January, 2000
Chen, Curtis	June, 2001
Hoen, Weber (Applied Physics)	November, 2001
Harcke, Leif	2004 (est.)
Onn, Fayaz	2005 (est.)
Oveisgharan, Shadi	2005 (est)
Bertran-Ortiz, Ana	2006 (est)
Wye, Lauren	2007 (est)
Casey, Michelle	2009 (est)
Liang, Yi	transferred to another group
Landesman, Roxanne	On leave

Ph.D. students in Geophysics:

Jonsson, Sigurjon	June, 2002
Hoffmann, Joern	January, 2003
Yun, Sang-Ho	2005 (est.)
Hooper, Andy	2005 (est)
Bechor, Noa	2006 (est)
Fleishman, Michael	On leave

Post-Doctoral students:

Amelung, Falk	Geophysics	1997–2000
Gelautz, Margrit	Electrical Engineering	1998–2000
Habambyingwe, Jean-Eudes	Electrical Engineering	1998–2000
Akiko Tanaka	Electrical Engineering	2000

Student Visiting Scholars (pre-Ph.D.):

Hanssen, Ramon	Geodetics, Technical University of Delft At Stanford CY 1997–1998
Peiri, Shachak	Geophysics and Planetary Science, Tel Aviv University, At Stanford Jan.-Mar., 2000, and Sept-Nov, 2001, 2003
Colclough, Sarah	Geography, Cambridge University At Stanford CY2001-2002
Lin, John	Earth Sciences, Cambridge University At Stanford CY 2001, Spring 2002
Tengonciang, Arlene	National Institute of Geological Sciences and University of the Philippines – Diliman, 2002
Ferraiuolo, Giancarlo	University of Naples, Italy, 2003-4

Graduated Geophysics Master's students with thesis:

Oh, Hyang-Im	September, 1996
Lu, Yanping	June, 1996(?)
Lessick, David	September, 1997
Boyd, Danielle	June, 1998
Day-Lewis, Amy	June, 1998
Sinha, Mamta	June, 2000
Fleishman, Michael	June, 2004

Graduated Electrical Engineering students with Engineer's thesis:

Ishikawa, Takuya	June, 2001

RESEARCH ACTIVITIES: (by expiration date)

1990–2008, Facility Instrument Team Member, NASA Cassini Mission: Synthetic Aperture Radar Facility, “Calibrated multiangle measurements of Titan”
2004-2007, Principle Investigator, ESA Category 1 Data Proposal, “Western North America Crustal Dynamics Research: WINSAR Consortium”
2004-2007, Co-Investigator, NSF grant, “Crustal Dynamics Research in Western North America: Data Acquisition for the WInSAR Consortium”
2003-2006, Principle Investigator, NASA grant, “Characterizing Subsurface Processes with Subtle Deformation Using Envisat ScanSAR Interferometry and Spatio-Temporal Modeling”
2003-2006, Principle Investigator, NSF grant, “Beyond Single Interferograms: Inference of Subsurface Processes with Subtle Deformation Signatures from Time Series InSAR”
2003-2005, Principle Investigator, NASA/JPL contract, “Rapid repeat deformation studies of the Earth from unmanned aerial vehicles”
2003-2004, Principle Investigator, Southern California Earthquake Center grant, “Reengineering the WInSAR data archive system”
2001-2004, Principle Investigator, NASA grant, “Antarctic Ice Sheet Penetration Depths, Grain Size, and Accumulation Rates from InSAR and SAR Analysis of ERS and Radarsat Observations”
1999-2004, Principle Investigator, ESA Envisat Radar Data grant, “Studies of interferometric radar correlation and propagation”
1999-2004, Principle Investigator, ESA Envisat Radar Data grant, “Implications for oilfield production from high-resolution subsidence”
1989-2004, Co-Investigator, NASA Earth Observing System Interdisciplinary Science Investigation, "A Global Assessment of Active Volcanism, Volcanic Hazards, and Volcanic Inputs to the Atmosphere from the Earth Observing System"
1999-2004, Principal Investigator, ESA Envisat Radar Data grant, Studies of Interferometric Radar Correlation and Propagation Artifacts Using Polarimetric Envisat ASAR Data
1999-2004, Co-Investigator, ESA Envisat Radar Data grant, Implications For Oilfield Production From High-Resolution Subsidence Measurements Derived Using Interferometric Envisat ASAR Data
2002-2003, Principle Investigator, University of Alaska contract, “Alaska Topographic Mapping Project”
2000-2003, Principle Investigator, NSF grant, “Subsurface magmatic processes in the western Galapagos Islands from high-resolution interfermetric radar deformation measurements”
1999-2003, Principal Investigator, NASA Grant “Validation and improvement of SRTM performance over rugged terrain”
1999-2003, Principle Investigator, NSF Grant “Radar Observations to Constrain Surface Lithospheric Processes on the Galilean Satellites”
2001-2002, Principle Investigator, Chevron/Texaco contract, “Monitoring the Injection and Storage of C02 in Aquifers and Gas Reservoirs Using Satellite Radar Interferometry”
1999-2002, Principal Investigator, National Earthquake Hazards Reduction Program, USGS, “Measurement and Modeling of Interseismic Deformation Near Parkfield, CA Using Radar Interferometry”
1999-2002, Co- Investigator, ESA ERS-1/2 Data Archive grant, Recent Crustal Deformation History of the San Andreas Fault System
1999-2002, Principal Investigator, ESA ERS-1/2 Data Archive grant, Distributions of atmospheric phase artifacts in radar interferograms
2001, principle Investigator, NASA/JPL contract, “Characterizing Space-Time of Slip at Depth Along Fault Systems: InSAR Measurement and System Requirements”

1999-2000, Principal Investigator, NASA-JPL Research contract “Radar study of Mars surface features”
1997-2000, Principal Investigator, NSF grant, Integration of SAR interferometry, continuous GPS, and GPS meteorology for crustal deformation
1998-2000, Principal Investigator, NASA Grant "Topographic Mapping in the Antarctic Environment Using Radarsat Interferometry"
1995-1999, Principal Investigator, NASA/JPL study, Radar Interferometric and Penetration Investigations Using SIR-C Data
1995-1999, Principal Investigator, NASA/JPL study, Multifrequency Imaging Radar Interferometry: Adding an L-band Channel to TOPSAR
1996-1999, Principal Investigator, NASA grant, Surface Deformation and Topographic Measurements from Radar Interferometry in the Presence of Vegetation from SIR-C/XSAR
1998-1999, Principal Investigator, Max Cade Foundation grant, Fusion of Interferometric and Radar Stereo Topographic Data
1997-1999, Principal Investigator, U. Alaska research contract, Engineering Support for Alaska Facility Implementation of ERS-1 and ERS-2 Radar Interferometry
1996-1999, Principal Investigator, NASA Grant, Long-term Monitoring of Earth Surface Change Using ERS-1 and ERS-2 Radar Interferometry
1996-1999, Co- Investigator, NASA grant, Inversion of time dependent space geodetic data
1997-1998, Co- Investigator, NASA Center of Excellence for Integrated InSAR and GPS Sudies of Natural Hazards and Land Subsidence, NASA
1997-1998, Principal Investigator, NASA/JPL study, "Topographic Mapping in the Antarctic Environment Using Radarsat Interferometry"
1996-1997, Principal Investigator, JPL study, Examination of ERS and GPS data to aid in the detection of subsidence in The Geysers geothermal field, California
1986-1995, Principal Investigator, NASA Shuttle Imaging Radar - C "Geophysical Factors from Penetration Phenomena"
1991-1995, Principal Investigator, NASA RTOP "Airborne Interferometric Topography: Development of the TOPSAR Instrument"
1992-1995, Principal Investigator and Task Manager, ARPA study "Radar Interferometry and Ground Cover Experiments"
1991-1994, Principal Investigator, NASA RTOP "ERS-1 Radar Interferometry"
1991-1994, Co-investigator, ERS-1 experiment "Radar Ice Stress and Motion Experiment"
1987-1993, Co-investigator, NASA RTOP "New Techniques for Quantitative Analysis of SAR Images"
1986-1993, Principal Investigator, NASA RTOP "Radar Scattering from Forested Areas"
1988-1989, Co-investigator, DARPA study for "Remote Sensing of Ocean Surface Currents"
1985-1988, Principal Investigator, NASA RTOP "Radio and Photopolarimetric Determination of Subcentimeter-size Particles in Saturn's Rings"
1987-1988, Principal Investigator, DARPA study "Ocean Surface Polarization"
1985-1986, Task Manager, Navy NRL study "Synthetic Aperture Radar: Ocean Waves Imaged at Different Chirp Rates"

BIBLIOGRAPHICAL CONTRIBUTIONS (student authors boldface):

REFEREED JOURNAL ARTICLES

1. Donnellan, A., Glasscoe, M., and Zebker, H.A., Community InSAR Workshop Calls for Robust Program and Dedicated Satellite Mission, EOS Transactions of the AGU, vol. 86, no. 8, p. 79, 22 Feb. 2005.

2. C. Elachi, S. Wall,* M. Allison, Y. Anderson, R. Boehmer, P. Callahan, P. Encrenaz, E. Flamini, G. Franceschetti, Y. Gim, G. Hamilton, S. Hensley, M. Janssen, W. Johnson, K. Kelleher, R. Kirk, R. Lopes, R. Lorenz, J. Lunine, D. Muhleman, S. Ostro, F. Paganelli, G. Picardi, F. Posa, L. Roth, R. Seu, S. Shaffer, L. Soderblom, B. Stiles, E. Stofan, S. Vetrella, R. West, C. Wood, L. Wye, H. Zebker, Cassini Radar Views the Surface of Titan, Science, Vol 308, Issue 5724, 970-974 , 13 May 2005.

3. Zebker, H. and **K. Chen**, Accurate Estimation of Correlation in InSAR Observations, IEEE Geoscience and Remote Sensing Letters, Volume 2, Issue 2, pp. 124 – 127, Apr. 2005.

4. **Hooper, A**., H.A. Zebker, P. Segall, and B. Kampes, A New Method for Measuring Deformation on Volcanoes and Other Natural Terrains Using InSAR Persistent Scatterers, Geophysical Research Letters, vol. 31, no. 23, L23611, Dec. 2004

5. **S. Yun**, J. Ji., H.A. Zebker, and P. Segall, On Merging High and Low Resolution DEMs from TOPSAR and SRTM Using a Prediction-Error Filter, IEEE Transactions on Geosci. Rem. Sensing, Volume 43, Issue 7, , pp.1682 – 1690, July 2005.

6. **S. Pe'eri**, H.A. Zebker, Z. Ben-Avraham, A. Frumkin, and J.K. Hall, Spatially-resolved uplift rate of the Mount Sedom (Dead Sea) salt diapir from InSAR observations, Israel Journal of Earth Sciences, vol. 53, no. 2, pp. 99-106, 2004.

7. **Jonsson, S**., H.A. Zebker, and **F. Amelung**, On trapdoor faulting at Sierra Negra volcano, Galapagos, Journal of Volcanology and Geothermal Research, in press, Sept. 2004. Journal of Volcanology and Geothermal Research, Volume 144, Issues 1-4, pp. 59-71, 15 June 2005.

8. **S. Yun,** P. Segall, and H.A. Zebker, Constraints on Magma Chamber geometry at Sierra Negra Volcano, Galapagos islands, based on InSAR Onservations, Journal of Volcanology and Geothermal Research, in press, Aug. 2005.

9. **Gelautz, M**; Paillou, P; **Chen, CW**; Zebker, HA, Radar stereo- and interferometry-derived digital elevation models: comparison and combination using

Radarsat and ERS-2 imagery, Int. J. Remote Sensing; v.24, no.24, p.5243-5264, Dec. 2003.

10. **Hoffmann, J**., D. Galloway, and H. Zebker, Inverse modeling of interbed storage parameters using land subsidence observations, Antelope Valley, California, Water Resources Research, Vol. 39, No. 2, 1031, Feb. 2003

11. **Chen, C.W.;** Zebker, H.A., Phase unwrapping for large SAR interferograms: statistical segmentation and generalized network models, IEEE Transactions on Geoscience and Remote Sensing; vol.40, no.8, p.1709-19, Aug. 2002.

12. **Jónsson, S**., H. Zebker, P. Segall, and **F. Amelung**, Fault Slip Distribution of the 1999 Mw7.2 Hector Mine Earthquake, California, estimated from Satellite Radar and GPS Measurements, *Bull. Seismol. Soc. Am.*, vol.92, no.4, pp.1377-1389, May 2002.

13. **Hoffmann, J**., Zebker, H. A., Galloway, D. L., and **Amelung, F**., Seasonal subsidence and rebound in Las Vegas Valley, Nevada observed by synthetic aperture radar interferometry, Water Resources Research, Vol. 37 , No. 6 , p. 1551, June 2001.

14. **Chen, C.W.,** Zebker, H.A., Two -dimensional phase unwrapping with use of statistical models for cost functions in nonlinear optimization, Journal of the Optical Society of America A (Optics, Image Science and Vision), Vol.18, No.2, p.338-51, Feb. 2001.

15. **Hoen, E.**, Zebker, H.A., Penetration depths inferred from interferometric volume decorrelation observed over the Greenland Ice Sheet, IEEE Transactions on Geoscience and Remote Sensing, Vol.38, No.6, p.2571-83, Nov. 2000.

16. **Amelung, F., Jonsson, S**.; Zebker, H.A.; Segall, P., Widespread uplift and `trapdoor' faulting on Galapagos volcanoes observed with radar interferometry, Nature, Vol.407, No.6807, p.993-6, 26 Oct. 2000.

17. **Amelung, F**.; Oppenheimer, C.; Segall, P.; Zebker, H.A., Ground deformation near Gada 'Ale volcano, Afar, observed by radar interferometry, Geophysical Research Letters, Vol.27, No.19, p.3093-6, Oct. 1, 2000.

18. Zebker, H., "Studying the Earth with Interferometric Radar," Computing in Science and Engineering, Volume 2, No. 3, pp. 52-60, May-June, 2000..

19. Zebker, H. A., **F. Amelung**, and **S. Jonsson**, "Remote Sensing of Volcano Surface and Internal Processes Using Radar Interferometry," in press: AGU Monograph on Remote Sensing of Active Volcanoes, September 1999.

20. **Chen, C.**, and H. A. Zebker, "Network Approaches to Two-dimensional Phase Unwrapping: Intractability and Two New Algorithms," J. Optical Society of America A, Vol. 17, No. 3, pp. 401-414, March, 2000.

21. **Hoen, E. W.,** and H. A. Zebker, "Penetration depths inferred from interferometric volume decorrelation observed over the Greenland ice sheet," in press, IEEE Trans. Geo. Rem. Sensing, June, 1999.

22. **Amelung, F.**, D. L. Galloway, J. W. Bell, H. A. Zebker, and R. J. Laczniak,, "Sensing the ups and downs of Las Vegas: InSAR reveals structural control of land subsidence and aquifer-system deformation," Geology, Vol. 27, No. 6, pp. 483-486, June 1999.

23. **Hanssen, R. F.**, T.W. Weckwerth, H. A. Zebker, and R. Klees, "High-resolution water vapor mapping of clouds, fronts, and rolls from interferometric radar measurements," Science, Vol. 283, No. 5406, pp. 1297-1299, Feb. 26, 1999.

24. **Jonsson, S.**, H. Zebker, **P. Cervelli**, P. Segall, **H. Garbeil**, P. Mouginis-Mark, S. Rowland, "A shallow-dipping dike fed the 1995 flank eruption at Fernandina volcano, Galapagos, observed by satellite radar interferometry," Geophys. Res. Lett., vol. 26, no. 8, p. 1077-80, April 15, 1999.

25. Zebker, H. A., and **Y. Lu**, "Phase unwrapping algorithms for radar interferometry: residue/cut, least-squares, and synthesis algorithms," J. Opt. Soc. Am., Vol. 5, No. 3, pp. 586–598, March, 1998.

26. Zebker, H. A., P. A. Rosen, and S. Hensley, "Atmospheric effects in interferometric synthetic aperture radar surface deformation and topographic maps," J. Geophys. Res. - Solid earth, Vol. 102, No. B10, pp. 7547–7563, April 10, 1997.

27. Rosen, P. A., S. Hensley, H. A. Zebker, F. H. Webb, and E. Fielding, "Surface deformation and coherence measurements of Kilauea Volcano, Hawaii from SIR-C radar interferometry," J. Geophy. Res.-Planets, Vol. 101, No. E10, pp. 23,109–23,125, October, 1996.

28. Zebker, H. A., P. A. Rosen, S. Hensley, and P. Mouginis-Mark, "Analysis of active lava flows on Kilauea volcano, Hawaii, using SIR-C radar correlation measurements," Geology, Vol. 24, No. 6, pp. 495–498, June, 1996.

29. Farr, T. G., D.Evans, H. A. Zebker, D. Harding, J. Bufton, T. Dixon, S. Vetrella, and D. Gesch, "Mission in the works promises precise global topographic data," EOS Transactions, Vol. 76, No. 22, pp.225–228, May 30, 1995.

30. Madsen, S. N., J. Martin, and H. A. Zebker, "Analysis and evaluation of the NASA/JPL TOPSAR interferometric SAR system," IEEE Transactions on Geoscience and Remote Sensing, Vol. 33, No. 2, pp. 383–391, March, 1995.

31. Zebker, H. A., T. G.Farr, R.P. Salazar, and T.H. Dixon, Mapping the world's topography using radar interferometry: the TOPSAT mission, Proceedings IEEE, Vol. 82, No. 12, pp. 1774–1786, December, 1994.

32. Zebker, H. A., P. A. Rosen, R. M. Goldstein, A. Gabriel, and C. Werner, "On the derivation of coseismic displacement fields using differential radar interferometry: the Landers earthquake," Journal of Geophysical Research - Solid Earth, Vol. 99, No. B10, pp. 19617–19634, October 10, 1994.

33. Zebker, H. A., C.L. Werner, P. Rosen, and S. Hensley, “Accuracy of topographic maps derived from ERS-1 radar interferometry,” IEEE Transactions on Geoscience and Remote Sensing, Vol. 32, No. 4, pp. 823–836, July, 1994.

34. Moghaddam, M., S. Durden, and H. Zebker, “Radar measurement of forested areas during OTTER,” Remote Sensing of the Environment, Vol. 47, No. 2, pp. 154–166, February, 1994.

35. Durden, S. L., J. D. Klein, and H. A. Zebker, “Measurement and simulation of signal fluctuations caused by propagation through trees,” Radio Science, Vol. 28, No. 6, pp. 1049–1051, November–December, 1993.

36. Madsen, S. N., H. A. Zebker, and J. Martin, “Topographic mapping using radar interferometry: processing techniques,” IEEE Trans. Geosci. Rem. Sensing, Vol. 31, no. 1, pp. 246–256, January, 1993.

37. Evans, D. L., T. G. Farr, H. A. Zebker, and P.J. Mouginis-Mark, “Radar interferometric studies of the Earth's topography,”EOS, Vol. 73, No. 52, pp. 553 and 557–558, December 29, 1992.

38. Zebker, H. A., S. N. Madsen, J. Martin, K.B. Wheeler, T. Miller, Y. Lou, G. Alberti, S. Vetrella, A. Cucci, “The TOPSAR interferometric radar topographic mapping instrument, IEEE Transactions on Geoscience and Remote Sensing,” Vol 30, no. 5, pp. 933–940, September, 1992.

39. Zebker, H. A., and J. Villasenor, “Decorrelation in interferometric radar echoes,” IEEE Trans. Geo. Rem. Sensing, Vol 30, no. 5, pp. 950–959, September, 1992.

40. Freeman, A., J. J. van Zyl, J. Klein, H. A. Zebker, and Y. Shen, “Calibration of Stokes and scattering matrix format polarimetric SAR data,” IEEE Trans. Geosci. Rem. Sensing, Vol.30, no. 3, pp. 531–539, May, 1992.

41. Lin, Q., J.F. Vesecky, and H. A. Zebker, “New approaches in interferometric SAR data processing,” IEEE Transactions on Geoscience and Remote Sensing, Vol 30, no. 3, pp. 560–567, May, 1992.

42. Zebker, H. A. and J. J. van Zyl, “Imaging radar polarimetry,” Proceedings IEEE, Vol. 79, no. 11, pp. 1581–1606, November, 1991.

43. Zebker, H. A., J. J. van Zyl, S. L. Durden, and L. Norikane, “Calibrated imaging radar polarimetry: technique, examples, and applications,” IEEE Trans. Geosci. Rem. Sensing, Vol. 29, no. 6, pp. 942–961, November, 1991.

44. Durden, S. L., J. D. Klein, and H. A. Zebker, “Radar measurement of L-band signal fluctuations caused by propagation through trees,” IEEE Trans. Ant. Prop., Vol 39, no. 10, pp.1537–39, October, 1991.

45. Durden, S. L., J. D. Klein, and H. A. Zebker, “Polarimetric radar measurements of a forested area near Mt. Shasta,” IEEE Trans. Geosci. Rem. Sensing, Vol 29, no. 3, pp. 444–450, May, 1991.

46. Mouginis-Mark, P., S. Rowland, P. Francis, T. Friedman, J. Gradie, S. Self, L. Wilson, J. Crisp, L. Glaze, K. Jones, A. Kahle, D. Pieri, H. A. Zebker, A. Kreuger, L. Walter, C. Wood, W. Rose, J. Adams, and R. Wolff, “Analysis of active

volcanoes from the Earth Observing System," Remote Sensing of the Environment, Vol. 36, pp. 1–12, April, 1991.

47. Yueh, S. H., J. A. Kong, J. K. Jao, R.T. Shin, H. A. Zebker, and T. Le Toan, "K-distribution and multifrequency polarimetric terrain radar clutter," J. Electromagnetic Waves and Applications, Vol. 5, no. 1, pp. 1–15, 1991 (pub. ann.).

48. Durden, S. L., J. J. van Zyl, and H. A. Zebker, "The unpolarized component in polarimetric radar observations of forested areas," IEEE Trans. Geosci. Rem. Sens., Vol 28, no. 2, pp. 268–271, March, 1990.

49. Zebker, H. A. and Y. Lou, "Phase calibration of imaging radar polarimeter Stokes matrices," IEEE Trans. Geosci. Rem. Sens., Vol. 28, no. 2, pp. 246–252, March, 1990.

50. Goldstein, R. M., T. P. Barnett, and H. A. Zebker, "Remote sensing of ocean currents," Science, Vol. 246, 1282–85, December 8, 1989.

51. Gabriel, A. G., R. M. Goldstein, and H. A. Zebker, "Mapping small elevation changes over large areas: Differential radar interferometry," J. Geophys. Res., Vol. 94, No. B7, 9183–91, July 10, 1989.

52. Durden, S. L., H. A. Zebker, and J. J. van Zyl, "Modeling and observation of forest radar polarization signatures," IEEE Trans. Geosci. Rem. Sens., Vol. 27, No. 3, 290–301, March, 1989.

53. Evans, D. L., T. G. Farr, J. J. van Zyl, and H. A. Zebker, "Imaging radar polarimetry: analysis tools and applications," IEEE Trans. Geosci. Rem. Sens. , Vol. 26, No. 6, 774–789, November, 1988.

54. Goldstein, R. M., H. A. Zebker, and C. L. Werner, "Satellite radar interferometry: two dimensional phase unwrapping," Radio Science, Vol. 23, No. 4, 713–720, July–August, 1988.

55. Zebker, H. A., and L. Norikane, "Radar polarimeter measures orientation of calibration corner reflectors," Proceedings IEEE, Vol. 7 5, No. 12, 1686–1688, December, 1987.

56. Goldstein, R. M., and H. A. Zebker, "Interferometric radar measurement of ocean surface currents," Nature, Vol. 328, 707–9, August 20, 1987.

57. van Zyl, J. J., H. A. Zebker, and C. Elachi, "Imaging Radar Polarization Signatures: Theory and Observation," Radio Science, Vol. 22, No. 4, 529–543, July–August, 1987.

58. Zebker, H. A., J. J. van Zyl, and D. N. Held, "Imaging Radar Polarimetry from Wave Synthesis," J. Geophys. Res., Vol. 91 B2, 683–701, January, 1987.

59. Zebker, H. A., and R. M. Goldstein, "Topographic Mapping Derived from Synthetic Aperture Radar Measurements," J. Geophys. Res., Vol. 91, 4993–9, April 10, 1986.

60. Zebker, H. A., E. A. Marouf, and G. L. Tyler, "Saturn's Rings: Particle Size Distributions for Thin-layer Models," Icarus, Vol. 64, 531–548, December, 1985.

61. Simpson, R. A., G. L. Tyler, E. A. Marouf, H. A. Zebker, and V. R. Eshleman, "Saturn's Rings: Voyager 1 Radio Occultation Experiment Results," IEEE Transactions on Geoscience and Remote Sensing, Vol. GE-22, 656–664, November, 1984.

62. Zebker, H. A. and G. L. Tyler, "Thickness of Saturn's Rings Inferred from Voyager 1 Observation of Microwave Scatter," Science, Vol. 223, 396–8, January, 1984.

63. Zebker, H. A., G. L. Tyler, and E. A. Marouf, "On Obtaining the Forward Phase Functions of Saturn Ring Features from Radio Occultation Observations," Icarus, Vol. 56, 209–228, November, 1983.

64. Marouf, E. A., G. L. Tyler, H. A. Zebker, R. A. Simpson, and V. R. Eshleman, "Particle Size Distributions in Saturn's Rings From Voyager 1 Radio Occultation," Icarus, Vol. 54, 189–211, May, 1983.

65. Tyler, G. L., E. A. Marouf, R. A. Simpson, H. A. Zebker, and V. R. Eshleman, "The Microwave Opacity of Saturn's Rings at Wavelengths of 3.6 and 13 cm from Voyager 1 Radio Occultation," Icarus, Vol. 54, 160–188, May, 1983.

INVITED CONFERENCE AND SYMPOSIUM PRESENTATIONS

66. Zebker, H.A., and **S. Oveisgharan**, Estimation of ice accumulation rates over the Earth's polar ice sheets using InSAR geodetic methods, 2004 Western Pacific Geophysics Meeting, Honolulu, HI, 16-20 August, 2004.

67. Zebker, H.A., Time-dependent deformation associated with natural hazards, 30th International Symposium on Remote Sensing of the Environment, Nov. 10-14, 2003, Honolulu, Hawaii.

68. Zebker, H. A., Beyond the single interferogram: time series analysis of InSAR data, International Geoscience and Remote Sensing Symposium 2003, July 21-25, 2003, Toulouse, France.

69. Zebker, H. A. 4-d imaging of the Earth's subsurface using insar: moving beyond the single interferogram, International Union of Geodesy and Geophysics (IUGG) 2003 General Assembly, June 30-July 11, 2003, Sapporo, Japan.

70. Zebker, H.A., Design of a radar sounder to detecting a subsurface ocean on Europa, Remote Sensing Applications Seminar Series, Earth Sciences Department, University of California, Santa Cruz, March 4, 2002.

71. Zebker, H.A., Inference of subsurface magmatic processes using spaceborne InSAR, 2002 Volcano Hazards Team Seminar Series, United States Geological Survey, Menlo Park, California, February 12, 2002.

72. Zebker, H.A., Detecting a subsurface ocean on Europa with an orbiting radar sounder, Cecil H. and Ida M. Green Institute of Geophysics and Planetary Physics, Friday Geophysics Seminar Series, Scripps Institution of Oceanography, University of California, San Diego. February 1, 2002.

73. Zebker, H.A., Time-Lapse Imaging of Subsurface Flow Using SAR Interferometry, SEG 2001 Summer Research Workshop, Synergies in Geophysical, Medical and Space Imaging, July 22- 26, Newport Beach, California.

74. Zebker, H.A., Measuring Earth Crustal Deformation With Interferometric Synthetic Aperture Radar, Xerox Palo Alto Research Center Forum, February 1, 2001.

75. Zebker, H.A., Measuring Subsurface Flow with Interferometric Synthetic Aperture Radar, UC Davis Hydrology Seminar Series, University of California at Davis, January 18, 2001

76. Zebker, H.A., Measuring Earth Crustal Deformation with Interferometric Synthetic Aperture Radar, University of California, Santa Barbara, Dept.of Geology Lecture Series, Santa Barbara, CA, Feb. 28, 2001.

77. Zebker, H.A., and P. Segall, 2010: Speculating on Radar Volcanology in the Coming Decade, American Geophysical Union 2000 Fall Meeting, December 15-19, 2000, San Francisco, California. Published: EOS, Transactions, American Geophysical Union, Vol. 81, No. 48, p. F1255, November 28, 2000.

78. Zebker, H.A., Inference of volcano subsurface processes from InSAR crustal deformation observations, Third Joint Meeting, U.S.-Japan Natural Resources Panel on Earthquake Research, USGS Menlo Park, Ca., Nov. 13-15, 2000.

79. Zebker, H.A., P. Segall, **S. Jonsson, and F. Amelung**, Using the Offset Field to Improve InSAR Measurements: Slip Distribution of the Hector Mine M7.1 Marthquake, Proceedings of the International Geoscience and Remote Sensing Sensing Symposium, July 24-28, 2000, Honolulu, Hawaii.

80. Zebker, H.A., P. Rosen, and J.B. Minster, We Don't Need a New InSAR Mission, Proceedings of the International Geoscience and Remote Sensing Sensing Symposium, July 24-28, 2000, Honolulu, Hawaii.

81. Zebker, H.A., P. Segall, **and S. Jonsson**, Subsurface volcanic processes in the Galapagos Islands from Interferometric SAR, Progress in Electromagnetics Research Symposium 2000 (PIERS 2000), July 6-11, 2000, Cambridge, Mass.

82. Zebker, H.A., Radar science and technology: Speculating on the next 20 years, Workshop on Scientific Applications of Synthetic Aperture Radar (SAR) Satellites, June 26-28, 2000, University of Southern California, Los Angeles.

83. Zebker, H.A., Time-Lapse Imaging of Subsurface Flow Using SAR Interferometry, SEG 2001 Summer Research Workshop, Synergies in Geophysical, Medical and Space Imaging, Newport Beach, California, July 22- 26, 2001.

84. **Amelung, F., Jonsson, S.,** Segall, P., and H.A. Zebker, "On the use of Radar Interferometry for Volcano Geodesy," AGU Fall Meeting, December 13-17, 1999, San Francisco, CA. Abstract in EOS, Transactions, American Geophysical Union, 1999 Fall Meeting, Vol. 80, No. 46, p. F1195, Nov. 16, 1999.

85. Zebker, H. A., and **F. Amelung**, "Imaging subsurface fluid flow using spaceborne interferometric radar," International Scientific Radio Union XXVI General Assembly, August 13-21, 1999, Toronto, Canada.

86. Zebker, H. A., and **C. Chen**, "Advances in interferometric phase unwrapping: network flow algorithms," International Geoscience and Remote Sensing Sensing Symposium, June 28 –July 2, 1999, Hamburg, Germany.

87. Zebker, H. A., and **J. Hoffmann**, "Using subaperture processing and interferometric correlation measurements to infer subsurface scattering properties," International Geoscience and Remote Sensing Sensing Symposium, June 28 –July 2, 1999, Hamburg, Germany.

88. Zebker, H. A., "Phase unwrapping algorithms for radar interferometry: residue/cut, least-squares, and synthesis algorithms," 1998 Progress in Electromagnetic Research Symposium (PIERS '98), July 13–17, 1998, Nantes, France.

89. Zebker, H. A., "Volume scattering effects in radar interferograms: foliage and icy targets," 1998 Progress in Electromagnetic Research Symposium (PIERS '98), July 13–17, 1998, Nantes, France.

90. Zebker, H. A., "Contributions to Earth Crustal Deformation Studies from Interferometric Synthetic Aperture Radar," IGARSS 98: International Geoscience and Remote Sensing Symposium, July 6–10, 1998, Seattle, Washington.

91. Zebker, H. A., "Interferometric radar measurement of the viscosity of salt near the Dead Sea," IGARSS 98: International Geoscience and Remote Sensing Symposium, July 6–10, 1998, Seattle, Washington.

92. Zebker, H. A., "Measuring Earth Crustal Deformation with Interferometric Synthetic Aperture Radar," 1998 AAAS Annual Meeting and Science Innovation Exposition, February 12–17, 1998, Philadelphia, PA.

93. Zebker, H. A., "Interferometruc SAR Processing Tutorial, "NASA Dynamics of the Solid Earth/Topography and Surface Change Synthetic Aperture Radar

Interferometry and Laser Altimetry Workshop, November 13, 1996, Arcadia, California.

94. Zebker, H. A., "History of radar interferometry," Alaska SAR Facility Meeting for SAR Interferometry, July 31–Aug. 2, 1996, Fairbanks, Alaska.

95. Zebker, H. A., "Radar interferometry, National Research Council Commission on Geosciences, Environment, and Resources Panel on SAR Interferometry," May 23–24, 1996, Washington, D.C.

96. Zebker, H. A., "Imaging Radar Polarimetry," Second Spaceborne Imaging Radar Symposium, April 28–30, 1986, Jet Propulsion Laboratory, Pasadena, California.

CONFERENCE AND SYMPOSIUM PRESENTATIONS WITH PUBLISHED ABSTRACTS

97. **S Oveisgharan**, H.A. Zebker, (2004), A Snow Accumulation Map For the Dry Snow Region of Greenland Derived from InSAR Correlation Observations, *Eos Trans. AGU, 85*(47), Fall Meet. Suppl., Abstract C33A-0338, Dec. 13-17, 2004, San Francisco, CA

98. **F Onn,** H.A. Zebker, (2004), On the Applicability of Taylor's ``Frozen-Flow'' Hypothesis to Spatial and Temporal Observations of Atmosphere Path Delay From InSAR and GPS, *Eos Trans. AGU, 85*(47), Fall Meet. Suppl., Abstract G31A-0786, Dec. 13-17, 2004, San Francisco, CA

99. **A Hooper,** P Segall, H.A. Zebker, (2004), A New Method for Measuring Volcanic Deformation Using InSAR Persistent Scatterers, *Eos Trans. AGU, 85*(47), Fall Meet. Suppl., Abstract G42A-05, Dec. 13-17, 2004, San Francisco, CA

100. **S Yun,** H.A. Zebker, P Segall, (2004), Uplift, Subsidence, and Trapdoor Faulting at Sierra Negra Volcano, Galapagos Islands, from InSAR Observations and Mechanical Modeling, *Eos Trans. AGU, 85*(47), Fall Meet. Suppl., Abstract G42A-06, Dec. 13-17, 2004, San Francisco, CA

101. **N Bechor,** H.A. Zebker, (2004), Time Series Interferometry: Toward Weekly Observations, *Eos Trans. AGU, 85*(47), Fall Meet. Suppl., Abstract G51B-0090, Dec. 13-17, 2004, San Francisco, CA

102. C Elachi, R D Lorenz, Y Anderson, R Boehmer, P Callahan, G Hamilton, M Janssen, B Johnson, K Kelleher, R Lopes, S Ostro, L Roth, S Wall, R West, S Hensley, Y Gim, B Stiles, S Schaffer, J Shimada, M Allison, L Soderblom, C Wood, F Posa, E Stofan, H.A. Zebker, J Lunine, G Francescetti, G Picardi, R Seu, D Muhleman, P Encrenaz, R Kirk, (2004), First Cassini RADAR Observations of

Titan, *Eos Trans. AGU, 85*(47), Fall Meet. Suppl., Abstract P41B-02, Dec. 13-17, 2004, San Francisco, CA

103. S J Ostro, C Elachi, Y Anderson, R Boehmer, P Callahan, G Hamilton, M Janssen, W Johnson, K Kelleher, R Lopes, L Roth, S Wall, R West, M Allison, R Kirk, C Wood, F Posa, E Stofan, H.A. Zebker, R Lorenz, J Lunine, G Francescetti, G Picardi, R Seu, D Muhleman, P Encrenaz, (2004), Cassini RADAR Observations of Phoebe, *Eos Trans. AGU, 85*(47), Fall Meet. Suppl., Abstract P43B-05, Dec. 13-17, 2004, San Francisco, CA

104. R D West, S Ostro, **L Wye,** H.A. Zebker, P Callahan, Y Gim, G Hamilton, S Hensley, M Janssen, W T Johnson, S Shaffer, J Shimada, B Stiles , (2004), Techniques for Calibrating the Cassini RADAR, *Eos Trans. AGU, 85*(47), Fall Meet. Suppl., Abstract P53A-1446, Dec. 13-17, 2004, San Francisco, CA

105. C. Elachi, M. D. Allison,Y. Anderson, R. Boehmer, P. Callahan, P. Encrenaz, G. Francescetti, G. Hamilton, S. Hensley, M. A. Janssen, W. T. K. Johnson, K. Kelleher, R. L. Kirk, R. M. Lopes, R. D. Lorenz, J. I. Lunine, D. O. Muhleman, S. J. Ostro, F. Paganelli, G. Picardi, F. Posa, L. E. Roth, R. Seu, L. A. Soderblom, B. Stiles, E. Stofan, S. Vetrella, S. D. Wall, R. West, C. A. Wood, **L. Wye**, and H. A. Zebker, Cassini RADAR: First Encounter with Titan, Bulletin of the American Astronomical Society, vol. 36, no. 4, 2004, 2004 Division for Planetary Sciences Meeting, Nov. 8-12, 2004. Louisville, KY

106. S. J. Ostro, C. Elachi, Y. Anderson, R. Boehmer, P. Callahan, G. Hamilton, M. Janssen, W. Johnson, K. Kelleher, R. Lopes, L. Roth, S. Wall, R. West (JPL/Caltech), M. Allison (NASA/Goddard), R. Kirk (USGS), C. Wood (PSI), F. Posa (Politechio di Bari), E. Stofan (Proxemy Rsch.), H. Zebker (Stanford U.), R. Lorenz, J. Lunine (U. Arizona), G. Francescetti (U. Naples), G. Picardi, R. Seu (U. Rome La Sapienza), D. Muhleman (Caltech), P. Encrenaz (DEMIRM/Obs. de Paris), Cassini RADAR Science and Instrument Operations Teams, Cassini RADAR Observations of Phoebe, Bulletin of the American Astronomical Society, vol. 36, no. 4, 2004, 2004 Division for Planetary Sciences Meeting, Nov. 8-12, 2004. Louisville, KY

107. **Yun, S**., P. Segall, and H.A. Zebker, Inference of Magma Chamber Geometry at Sierra Negra Volcano, Galapagos Islands, Using a 3D Boundary Element Method With Pressure Boundary Conditions and InSAR Observations, American Geophysical Union 2003 Fall Meeting, Eos Trans. AGU, 84(46), Fall Meet. Suppl., Abstract V52E-05, 2003.

108. **J. Hoffmann**, D. Galloway, and H.A. Zebker, Inverse modeling of interbed storage parameters using land subsidence observations, Antelope Valley, California, American Geophysical Union 2003 Fall Meeting, Eos Trans. AGU, 84(46), Fall Meet. Suppl., Abstract G41A-05, 2003.

109. **F. Onn** and H.A. Zebker, Compensating atmospheric distortions in SAR interferograms using continuous GPS time series of Zenith Wet Delay estimates, American Geophysical Union 2003 Fall Meeting, Eos Trans. AGU, 84(46), Fall Meet. Suppl., Abstract G51B-0032, 2003

110. **S. Oveisgharan** and H.A. Zebker, A Snow Accumulation Map of Part of Greenland Derived From InSAR Correlation Observations, American Geophysical Union 2003 Fall Meeting, Eos Trans. AGU, 84(46), Fall Meet. Suppl., Abstract C31B-0407, 2003

111. Zebker, H.A., InSAR decorrelation noise as signal: estimating snow accumulation rates in the Earth's polar ice sheets from correlation observations, Proc. of the Progress in Electromagnetics Research Symposium 2003, p. 657, October 13-16, 2003, Honolulu, Hawaii.

112. **Onn, F**., and H.A.Zebker, Compensating atmospheric distortions in SAR interferograms using continuous GPS zenith wet delay time series estimates, Proc. of the Progress in Electromagnetics Research Symposium 2003, p. 603, October 13-16, 2003, Honolulu, Hawaii.

113. Rosen, P.R., S. Hensley, S. Madsen, and H.A. Zebker, A minimally piloted airborne repeat pass interferometer for rapid hazard mapping, Proc. of the Progress in Electromagnetics Research Symposium 2003, p. 606, October 13-16, 2003, Honolulu, Hawaii.

114. **Onn, F., Wynn, D T.,** and Zebker, H A, On the Detectability of Ground Deformation for Monitoring CO2 Sequestration in Underground Reservoirs Using InSAR and GPS, American Geophysical Union 2002 Fall Meeting, 6-10 December, 2002, EOS Trans. AGU, Vol. 83, No. 47, 19 Nov. 2002, p. F362, San Francisco, CA.

115. **Hoffmann, J**., and H.A. Zebker, Prospecting for Horizontal Surface Displacements Accompanying Land Subsidence in Antelope Valley, CA Using InSAR, American Geophysical Union 2002 Fall Meeting, 6-10 December, 2002, EOS Trans. AGU, Vol. 83, No. 47, 19 Nov. 2002, p. F359, San Francisco, CA.

116. **Harcke, L. J.,** Butler, B. J., Zebker, H. A., Slade, M. A., and Jurgens, R. F., Full-disk mapping of Ganymede and Callisto by 3.5 cm Goldstone/VLA radar, Bulletin of the American Astronomical Society, Vol. 34, p.882, American Astronomical Society Division for Planetary Sciences 34th annual meeting October 6-11, 2002, Birmingham, Alabama

117. **Chen, C. W.,** and Zebker, H. A., Phase Unwrapping for Large InSAR Data Sets Through Statistical-Cost Tiling, presented at AGU 2001 Fall Meeting, Dec. 10-14, San Francisco, CA, Eos Trans. AGU, 82(47), Fall Meet. Suppl., Abstract G22B-0223, 2001.

118. **Hoffmann, J.,** Galloway, D. L., and Zebker, H. A., Calibrating a Regional Ground-Water Flow and Subsidence Model in Antelope Valley, California, Using InSAR-Derived Subsidence Maps, presented at AGU 2001 Fall Meeting, Dec. 10-14, San Francisco, CA, Eos Trans. AGU, 82(47), Fall Meet. Suppl., Abstract H41E-0320, 2001.

119. **Hoffmann, J.,** Zebker, H. A., Galloway, D. L., and **Amelung, F**., Constraining Spatially Varying Elastic Storage Properties in Deforming Aquifer Systems Using Interferometric Synthetic Aperture Radar, presented at AGU 2001 Fall Meeting, Dec. 10-14, San Francisco, CA, Eos Trans. AGU, 82(47), Fall Meet. Suppl., Abstract G22D-06, 2001.

120. Zebker, H., **Jonsson, S., Amelung, F**., and Segall, P., Widespread Uplift and Trap-door Faulting of Galapagos Volcanoes Observed with Satellite Radar Interferometry, presented at AGU 2001 Fall Meeting, Dec. 10-14, San Francisco, CA, Eos Trans. AGU, 82(47), Fall Meet. Suppl., Abstract T42B-09, 2001.

121. **Jonsson, S.,** Zebker, H., and Segall, P., InSAR Covariance Estimation, Data Reduction, and Combination of Multiple Datasets in Deformation Modeling, presented at AGU 2001 Fall Meeting, Dec. 10-14, San Francisco, CA, Eos Trans. AGU, 82(47), Fall Meet. Suppl., Abstract G31B-0140, 2001.

122. **Harcke, L. J**., Butler, B. J., Zebker, H. A., Slade, M. A., and Jurgens, R. F., Unambiguous 3.5 cm Reflectivity Images of Ganymede and Callisto From Bistatic Goldstone/VLA Radar Observations, presented at AGU 2001 Fall Meeting, Dec. 10-14, San Francisco, CA, Eos Trans. AGU, 82(47), Fall Meet. Suppl., Abstract P12B-0498, 2001.

123. **Harcke, L. J.;** Zebker, H. A.; Tyler, G. L.; Simpson, R. A.; Ostro, S. J.; Harmon, J. K.; "Radar Imaging of Europa, Ganymede, and Callisto with the Upgraded Arecibo 13 cm Radar," American Astronomical Society Meeting 198, Pasadena, CA, June 2001.

124. **Jónsson, S**., H. Zebker, P. Segall, **F. Amelung**. Fault slip distribution in the 1999 Hector Mine earthquake, Southern California, estimated from InSAR, offsets of amplitude radar images and GPS (abstract). *In: proceedings for the XXVII General Assembly,* European Geophysical Society, 2001.

125. **Jónsson, S., F. Amelung**, H. Zebker, P. Segall, Widespread uplift and trapdoor faulting of Galapagos volcanoes, observed with satellite radar interferometry (abstract), *In: proceedings for the XXVII General Assembly,* European Geophysical Society, 2001.

126. **Harcke, L.J.,** H.A. Zebker, R.F. Jurgens, M.A. Slade, B.J. Butler, and J.K. Harmon, Radar Observations of the Icy Galilean Satellites During 2000 Opposition,

32nd Lunar and Planetary Science Conference, NASA Johnson Space Center, Houston, Texas, March 12–16, 2001.

127. **Chen, C.W.,** and H.A. Zebker, Comparison of InSAR Phase Unwrapping Techniques for DEM Generation, American Geophysical Union 2000 Fall Meeting, December 15-19, 2000, San Francisco, California. Published: EOS, Transactions, American Geophysical Union, Vol. 81, No. 48, p. F313, November 28, 2000.

128. **Hoffmann, J**., D.L. Galloway, and H.A. Zebker, InSAR-derived Displacement Maps Provide an Additional Constraint for Ground-Water Flow Modeling, American Geophysical Union 2000 Fall Meeting, December 15-19, 2000, San Francisco, California. Published: EOS, Transactions, American Geophysical Union, Vol. 81, No. 48, p. F472, November 28, 2000.

129. **Jonsson, S., F. Amelung**, H. Zebker, and P. Segall, Moving Beyond Mogi Sources in Volcano Deformation Modeling of InSAR Data, American Geophysical Union 2000 Fall Meeting, December 15-19, 2000, San Francisco, California. Published: EOS, Transactions, American Geophysical Union, Vol. 81, No. 48, p. F338, November 28, 2000.

130. **Harcke, L.J.;** Zebker, H.A.; Jurgens, R.F.; Slade, M.A.; Butler, B.J.; Harmon, J.K.; "Planned radar imaging of the Galilean satellites during 2000 opposition," 32nd Annual Meeting of the American Astronomical Society Division for Planetary Sciences, Pasadena, California, October 2000.

131. **Harcke, L.J**.; Zebker, H.A.; Jurgens, R.F.; Slade, M.A.; Butler, B.J.; Harmon, J.K.; Planned radar imaging of the Galilean satellites during 2000 opposition, 32nd Annual Meeting of the American Astronomical Society Division for Planetary Sciences, Pasadena, California, October 2000.

132. **Jonsson, S., F. Amelung**, H. Zebker, and P. Segall, Rapid uplift of Galapagos volcanoes observed with InSAR (abstract), Ridge/Nordvulk Iceland summer school on Plume-Ridge interactions, Myvatn, Iceland, August 2000.

133. **Hoen, E. W.,** and H. A. Zebker, Topography-driven variations in backscatter strength and depth observed over the Greenland ice sheet with InSAR, Proceedings of the International Geoscience and Remote Sensing Sensing Symposium, July 24-28, 2000, Honolulu, Hawaii.

134. **Chen, C.W**., and H. A. Zebker, Two-Dimensional Phase Unwrapping with Statistical Models for Nonlinear Optimization, Proceedings of the International Geoscience and Remote Sensing Sensing Symposium, July 24-28, 2000, Honolulu, Hawaii.

135. **Harcke, L.J**.; Zebker, H.A.; Jurgens, R.F.; Slade, M.A.; Delay-Doppler radar imaging of 'overspread' planets, Proceedings of the International Geoscience and Remote Sensing Sensing Symposium, July 24-28, 2000, Honolulu, Hawaii.

136. **Xu, H**., A. Nur, and H. Zebker. Land subsidence over Belridge and Lost Hills oil fields, Southern California, observed by differential SAR interferometry, Stanford Rockphysics and Borehole Geophysics Annual Meeting, Menlo Park, CA, June 14-16, 2000. Abstract published in Abstracts of the Annual Report: Stanford Rockphysics and Borehole Geophysics Project, Volume 75, June 2000.

137. **Harcke, L.J.;** Zebker, H.A.; Jurgens, R.F.; Slade, M.A.; Imaging Mars with 3.5-cm radar, 31st Lunar and Planetary Science Conference, Houston, Texas, March 2000.

138. **Harcke, L.J**.; Simpson, R.A.; Tyler, G.L.; Zebker, H.A.; Jurgens, R.F.; Ostro, S.J.; Slade, M.A.; Harmon, J.K; Radar imaging of the icy Galilean satellites during 1999 opposition, 31st Lunar and Planetary Science Conference, Houston, Texas, March 2000.

139. Slade, M.A.; **Harcke, L.J**.; Jurgens, R.F.; Harmon, J.K.; Zebker, H.A.; Standish, E.M.; 3.5-cm imaging of the Mercury north polar radar-bright features, 31st Lunar and Planetary Science Conference, Houston, Texas, March 2000.

140. Zebker, H.A., P. Segall, **F. Amelung, and S. Jonsson,** "Slip distribution of the Hector Mine earthquake inferred from interferometric radar," AGU Fall Meeting, San Francisco, CA, December 13-17, 1999. AGU 1999 Fall Meeting program, American Geophysical Union, p. 18.

141. Zebker, H,A., and **M. Sinha**, "ERS-1 and -2 InSAR Observations of creep along the transition region of the San Andreas fault near Parkfield," AGU Fall Meeting, San Francisco, CA, December 13-17, 1999. EOS, Transactions, American Geophysical Union, 1999 Fall meeting, Vol. 80, No. 46, p. F267, Nov. 16, 1999.

142. **Hoen, E.W**., and H.A. Zebker, "Testing Radio-Wave Scattering Models for the Percolation Zone of Greenland with Interferometric Correlation Data." AGU Fall Meeting, San Francisco, CA, December 13-17, 1999. EOS, Transactions, American Geophysical Union, 1999 Fall meeting, Vol. 80, No. 46, p. F329, Nov. 16, 1999.

143. **Hoffmann, J**., H.A. Zebker, and D. Galloway, "Seasonal Subsidence Patterns in Las Vegas Observed by Interferometric Synthetic Aperture Radar," AGU Fall Meeting, San Francisco, CA, December 13-17, 1999. EOS, Transactions, American Geophysical Union, 1999 Fall meeting, Vol. 80, No. 46, p. F348, Nov. 16, 1999.

144. **Jonsson, S., F. Amelung,** H.A. Zebker, and P. Segall, "Rapid Uplift of Galapagos Volcanoes Observed with InSAR," AGU Fall Meeting, San Francisco, CA,

December 13-17, 1999. EOS, Transactions, American Geophysical Union, 1999 Fall meeting, Vol. 80, No. 46, p. F1194, Nov. 16, 1999.

145. **Jonsson, S., F. Amelung**, H. Zebker, P. Segall, Rapid uplift of Galapagos volcanoes observed with InSAR (abstract), UNAVCO Volcano Geodesy Workshop, p 15, Wyoming, September 1999.

146. **Jonsson, S. , F. Amelung**, H. Zebker, and P. Segall, Rapid uplift of Galapagos volcanoes observed with InSAR (abstract), FRINGE 99 workshop, European Space Agency, 1999.

147. **Jonsson, S.,** and H. Zebker, InSAR observations and interpretation of the crustal deformation associated with the 1995 Fernandina eruption, Galapagos (abstract), International Symposium on GPS in Tsukuba, Japan, 1999.

148. Zebker, H,A., and **M. Sinha**, "ERS-1 and -2 InSAR Observations of creep along the transition region of the San Andreas fault near Parkfield," AGU Fall Meeting, December 13-17, 1999, San Francisco, CA. Abstract in EOS, Transactions, American Geophysical Union, 1999 Fall Meeting, Vol. 80, No. 46, p. F267, Nov. 16, 1999.

149. **Hoen, E.W.,** and H.A. Zebker, "Testing Radio-Wave Scattering Models for the Percolation Zone of Greenland with Interferometric Correlation Data." AGU Fall Meeting, December 13-17, 1999, San Francisco, CA. Abstract in EOS, Transactions, American Geophysical Union, 1999 Fall Meeting, Vol. 80, No. 46, p. F329, Nov. 16, 1999.

150. **Hoffmann, J**., H.A. Zebker, and D. Galloway, "Seasonal Subsidence Patterns in Las Vegas Observed by Interferometric Synthetic Aperture Radar," AGU Fall Meeting, December 13-17, 1999, San Francisco, CA. 1999. Abstract in EOS, Transactions, American Geophysical Union, 1999 Fall Meeting, Vol. 80, No. 46, p. F348, Nov. 16, 1999.

151. Zebker, H.A., P. Segall, **F. Amelung,** and **S. Jonsson**, "Slip distribution of the Hector Mine earthquake inferred from interferometric radar," AGU Fall Meeting, December 13-17, 1999, San Francisco, CA. Abstract in Final Program, American Geophysical Union, 1999 Fall Meeting, American Geophysical Union, p. 18, Dec. 13-17, 1999.

152. **Jonsson, S., F. Amelung**, H.A. Zebker, and P. Segall, "Rapid Uplift of Galapagos Volcanoes Observed with InSAR," AGU Fall Meeting, December 13-17, 1999, San Francisco, CA. Abstract in EOS, Transactions, American Geophysical Union, 1999 Fall Meeting, Vol. 80, No. 46, p. F1194, Nov. 16, 1999.

153. **Hoen, E. W.,** and H. A. Zebker, "Radiowave Penetration into the Greenland Ice Sheet Inferred from Interferometric Correlation," International Geoscience and

Remote Sensing Sensing Symposium, June 28 –July 2, 1999, Hamburg, Germany. Abstract in Final program, IGARSS'99, Remote sensing of the system Earth – A challenge for the 21st century, p. 149, plus CD-ROM, 1999.

154. **Amelung, F.**, Galloway, D., Bell, J., Zebker, H., and Laczniak, R., "Sensing Las Vegas' ups and downs: InSAR reveals structural control of land subsidence and aquifer-system deformation," AGU Fall Meeting, December 6–10, 1998, San Francisco, California. Abstract in EOS, Transactions, American Geophysical Union, 1998 Fall Meeting, Vol. 79, No. 45, p. F34, Nov. 10, 1998.

155. **Hanssen, R. F.**, **Amelung, F.**, and Zebker, H. A., "Geodetic interpretation of land subsidence measurements at the Cerro Prieto geothermal field monitored by radar interferometry," AGU Fall Meeting, December 6–10, 1998, San Francisco, California. Abstract in EOS, Transactions, American Geophysical Union, 1998 Fall Meeting, Vol. 79, No. 45, p. F37, Nov. 10, 1998.

156. **Hoen, E. W.**, and Zebker, H. A., "Using Interferometric Decorrelation to Determine Penetration Depths in Glaciers," AGU Fall Meeting, December 6–10, 1998, San Francisco, California. Abstract in EOS, Transactions, American Geophysical Union, 1998 Fall Meeting, Vol. 79, No. 45, p. F328, Nov. 10, 1998.

157. **Jonsson, S.**, Zebker, H ., **Cervelli, P.**, Segall, P., **Garbeil, H.**, Mouginis-Mark, P., and Rowland, S., "SAR Interferometry Shows that a Dipping Dike fed the 1995 Flank Eruption at Fernandina Volcano," Galapagos Islands, AGU Fall Meeting, December 6–10, 1998, San Francisco, California. Abstract in EOS, Transactions, American Geophysical Union, 1998 Fall Meeting, Vol. 79, No. 45, p. F34, Nov. 10, 1998.

158. Mouginis-Mark, P., Garbeil, H., Rowland, S., Zebker, H., and Jonsson, S., "Monitoring Volcanic Hazards with Orbital Radars," AGU Fall Meeting, December 6–10, 1998, San Francisco, California. Abstract in EOS, Transactions, American Geophysical Union, 1998 Fall Meeting, Vol. 79, No. 45, p. F974, Nov. 10, 1998.

159. **Hanssen, R.**, H. Zebker, R. Klees, and S. Barlag, "On the use of meteorological observations in SAR interferometry," IGARSS 98: International Geoscience and Remote Sensing Symposium, July 6–10, 1998, Seattle, Washington. Abstract published on CD-ROM, IGARSS'98 Proceedings on CD-ROM, 1998.

160. **Amelung, F.**, H. Zebker, and P. Segall, "Surface Deformation Measurements of Volcanoes Using SAR-Interferometry," Fall AGU: American Geophysical Union December 8–12, 1997, San Francisco, California. Abstract in EOS, Transactions, American Geophysical Union, 1997 Fall Meeting, Vol. 78, No. 46, p. F818, Nov. 18, 1997.

161. **Hoen, E. W.**, H. A. Zebker, "Interferometric Radar Decorrelation From Volume Scatter and Depth-Dependent Flow in Glaciers," Fall AGU: American Geophysical

Union December 8–12, 1997, San Francisco, California. Abstract in EOS, Transactions, American Geophysical Union, 1997 Fall Meeting, Vol. 78, No. 46, p. F251, Nov. 18, 1997.

162. Zebker, H. A., "Interferometric Radar Measurement of Subtle Dead Sea Salt Dome Growth in the Presence of Large Propagation Artifacts," Fall AGU: American Geophysical Union December 8–12, 1997, San Francisco, California. Abstract in EOS, Transactions, American Geophysical Union, 1997 Fall Meeting, Vol. 78, No. 46, p. F142, Nov. 18, 1997.

163. Zebker, H. A., "Interferometric measurement of microwave phase fluctuations from propagation through vegetation canopies," PIERS 1997 Progress in Electromagnetics Research Symposium, July 7–11, 1997, Cambridge, Massachusetts. Abstract published in Proceedings, PIERS 1997, Progress in Electromagnetics Research Symposium, p. 770, 1997.

164. Rosen, P. A., Minster, J-B., Zebker, H. A., and C.L. Werner, "Radar Interferometry Satellite Mission Concepts for Earth Change and Hazards Observations," Fall 1996 AGU meeting, December 15–19, 1996, San Francisco, California. Abstract in EOS, Transactions, American Geophysical Union, 1996 Fall Meeting, Vol. 77, No. 46, p. F32, Dec. 12, 1996.

165. Zebker, H. A., and Y. Lu, "TI: Phase Unwrapping Techniques in Radar Interferometry," Fall 1996 AGU meeting, December 15–19, 1996, San Francisco, California. Abstract in EOS, Transactions, American Geophysical Union, 1996 Fall Meeting, Vol. 77, No. 46, p. F49, Dec. 12, 1996.

166. Bindschadler, R., E. Rignot, K. Jezek, M. Fahnestock, K. Steffen, S. Gogineni, D. Winebrenner, S. Hensley, R. Kwok, J. Van Zyl, and H. Zebker, "The 1995 Campaign of the NASA/JPL Topographic SAR Instrument in Greenland," Fall American Geophysical Union meeting, December 11–15, 1995, San Francisco, California. Abstract in EOS, Transactions, American Geophysical Union, 1995 Fall Meeting, Vol. 76, p. F214, Nov. 7, 1995.

167. Garvin, J.B., D.J. Harding, J.B. Blair, J. Bufton, J. J. Frawley, V. Realmuto, and H. A. Zebker, "Topographic remote sensing of Mount Rainier," Fall 1995 American Geophysical Union meeting, San Francisco, CA, December 11–15, 1995. Abstract in EOS, Transactions, American Geophysical Union, 1995 Fall Meeting, Vol. 76, p. F645, Nov. 7, 1995.

168. Mouginis-Mark, P., H. Garbeil, S. Zisk, G. Fryer, M. MacKay, S. K. Rowland, and H. A. Zebker, "Volcano Topographic Mapping and Surface Change Detection Using Radar Interferometry," Fall American Geophysical Union meeting, December 11–15, 1995, San Francisco, California. Abstract in EOS, Transactions, American Geophysical Union, 1995 Fall Meeting, Vol. 76, p. F63, Nov. 7, 1995.

169. Zebker, H. A., R. M. Goldstein, P. A. Rosen, and S. Hensley, "Effect of atmospheric variability on interferometric deformation and topography measurements," Fall AGU, December 11–15, 1995 meeting, San Francisco, California. Abstract in EOS, Transactions, American Geophysical Union, 1995 Fall Meeting, Vol. 76, p. F63, Nov. 7, 1995.

170. Rosen, P., H. A. Zebker, and S. Hensley, "SIR-C Interferometric Observations of Kilauea, Hawaii: Surface Coherence and Apparent Displacement Measurements," AGU, May 30–June 2, 1995, Baltimore, Maryland. Abstract in EOS, Transactions, American Geophysical Union, 1995 Spring Meeting, Vol. 76, p. S195, Apr. 25, 1995.

171. Realmuto, V. J., H. A. Zebker, and D. Frank, "Mount Rainier: New Remote Sensing Observations of a Decade Volcano," Fall AGU meeting, December 5–9, 1994, San Francisco, California. Abstract in EOS, Transactions, American Geophysical Union, 1994 Fall Meeting, Vol. 75, p. F716, Nov. 1, 1994.

172. Thompson, T.W., and H. A. Zebker, "The JPL Aircraft Topographic Synthetic Aperture Radar (TOPSAR) System for Rapid Production of DEMs," Fall AGU meeting, December 5–9, 1994, San Francisco, California. Abstract in EOS, Transactions, American Geophysical Union, 1994 Fall Meeting, Vol. 75, p. F161, Nov. 1, 1994.

173. Hensley, S., P. Rosen, and H. A. Zebker, "Generation of high resolution topographic maps of the Galapagos Islands using TOPSAR data," 1994 Int. Geoscience and Remote Sensing Symposium, August 8–12, 1994, Pasadena, California. Abstract published in IGARSS'94 Final Program, Surface and Atmospheric Remote Sensing: Technologies, Data Analysis, and Interpretations, p. 71, abstract volume, and CD-ROM, 1994.

174. Zebker, H. A. and P. A. Rosen, "On the derivation of coseismic displacement fields using differential radar interferometry: the Landers earthquake," 1994 Int. Geoscience. and Remote Sensing Symposium, August 8–12, 1994, Pasadena, California. Abstract published in IGARSS'94 Final Program, Surface and Atmospheric Remote Sensing: Technologies, Data Analysis, and Interpretations, p. 53, abstract volume, and CD-ROM, 1994. Also presented at Progress in Electromagnetic Research Symposium 1994, July 11–15, 1994, Noordwijk, The Netherlands.

175. Zebker, H.A., and S. Madsen, Accuracy of interferomeric radar topographic mapping, Progress in Electromagnetics Research Symposium 1993, July 12-16, 1993, Pasadena, CA. Abstract published in Proceedings, PIERS 1993, Progress in Electromagnetics Research Symposium, p. 847, 1993.

176. Madsen, S., H.A. Zebker, and J. Martin, Performance evaluation of the JPL TOPSAR system: an across track interferometric SAR system for topographic mapping, Progress in Electromagnetics Research Symposium 1993, July 12-16, 1993, Pasadena, CA. Abstract published in Proceedings, PIERS 1993, Progress in Electromagnetics Research Symposium, p. 924, 1993.

177. Zebker, H. A., S. N. Madsen, and J. Martin, "The TOPSAR interferometric radar topographic mapping instrument," 1992 Int. Geosci. and Rem. Sens. Symposium, May 26–29, 1992, Houston, Texas. Also presented at the 1992 Airborne Geosciences Workshop, Jet Propulsion Laboratory, June 1–5, 1992, Pasadena, California. Abstract published in Summaries of the 3rd Annual Airborne Geoscience Workshop, June 1-5, 1992, JPL Publication 92-14, Vol. 3, p. 49-52, 1992.

178. Evans, D. L., T. G. Farr, J. J. van Zyl, and H. A. Zebker, "Characterization of geologic surfaces using multiparameter and interferometric radar data," Progress in Electromagnetic Research Symposium, July 1–5, 1991, Cambridge, Massachusetts. Abstract published in Proceedings, Progress in Electromagnetic Research Symposium 1991, p. 142, 1991.

179. Klein, J. D., S. L. Durden, H. A. Zebker, F. K. Li, and Y. Shen, "SAR penetration studies and motion compensation using tone generators," Progress in Electromagnetic Research Symposium, July 1–5, 1991, Cambridge, Massachusetts. Abstract published in Proceedings, Progress in Electromagnetic Research Symposium 1991, p. 619, 1991.

180. Zebker, H. A., "Topographic mapping using multiple pass radar interferometry," Progress in Electromagnetic Research Symposium, July 1–5, 1991, Cambridge, Massachusetts. Abstract published in Proceedings, Progress in Electromagnetic Research Symposium 1991, p. 178, 1991.

181. Zebker, H.A., "The TOPSAR interferometric radar topographic mapping instrument," 3rd Airborne Synthetic Aperture Radar Workshop, May 23-24, 1991, pasadena, CA. Abstract published in Proceedings of the 3rd Airborne Synthetic Aperture Radar Workshop, JPL Publication 91-30, NASA/JPL, p. 230-234, August 1, 1991.

182. Van Zyl, J.J., and H.A. Zebker, "Earth radar Stokes parameters: measurements and Interpretations," 1988 INTERNATIONAL SCIENTIFIC RADIO UNION Winter Meeting, January 4–8, 1988, Boulder, Colorado. Abstract published in meeting Proceedings, p. 90., 1988.

183. Evans, D. L., T. G. Farr, J. J. van Zyl, and H. A. Zebker, "Radar polarimetry: analysis tools and aplications," 1987 Int. Geoscience and Remote Sensing , May 18–21, 1987, Ann Arbor, Michigan. Abstract in Proceedings, Remote Sensing: Understanding the Earth as a System, IEEE 87CH2434-9, Vol. 1, p. 535, 1987.

184. Held, D. N., and H. A. Zebker, "Imaging radar polarimetry: calibration," 1987 Int. Geoscience and Remote Sensing Symposium, May 18–21, 1987, Ann Arbor, Michigan. Abstract in Proceedings, Remote Sensing: Understanding the Earth as a System, IEEE 87CH2434-9, Vol. 1, p. 493, 1987.

185. van Zyl, J. J., and H. A. Zebker, "Radar polarization signatures of vegetated areas," 1987 Int. Geoscience and Remote Sensing Symposium, May 18–21, 1987, Ann Arbor, Michigan. Abstract in Proceedings, Remote Sensing: Understanding the Earth as a System, IEEE 87CH2434-9, Vol. 2, p. 835, 1987.

186. Zebker, H. A., and R. M. Goldstein, "Interferometric synthetic aperture radar observations of ocean currents," 1987 Int. Geoscience and Remote Sensing Symposium, May 18–21, 1987, Ann Arbor, Michigan. Abstract in Proceedings, Remote Sensing: Understanding the Earth as a System, IEEE 87CH2434-9, Vol. 2, p. 783, 1987.

187. Zebker, H. A., and J. J. van Zyl, "Interpretation of imaging radar polarization signatures of rough surfaces," 1987 Int. Geoscience and Remote Sensing Symposium, May 18–21, 1987, Ann Arbor, Michigan. Abstract in Proceedings, Remote Sensing: Understanding the Earth as a System, IEEE 87CH2434-9, Vol. 1, p. 267, 1987.

188. Zebker, H. A., and J. J. van Zyl, "Inference of surface roughness from polarimetric radar observations," AGU 1986 Fall Meeting, December 8–12, 1986, San Francisco, California. Abstract in EOS, Transactions, American Geophysical Union 1986 Fall Meeting, Vol. 67, No. 44, p. 1075, Nov. 4, 1986.

189. Thompson, T.W., H. A. Zebker, and J. J. van Zyl, "Lunar radar polarimetry," AGU 1986 Fall Meeting, December 8–12, 1986, San Francisco, California. Abstract in EOS, Transactions, American Geophysical Union 1986 Fall Meeting, Vol. 67, No. 44, p. 1075, Nov. 4, 1986. Also presented at Division of Planetary Sciences 1986 Meeting, November, 1986, Paris, France.

190. Zebker, H. A., J. J. van Zyl, and D. N. Held, "Imaging Radar Polarimetry," 1986 Int. Geoscience and Remote Sensing Symposium, Zurich, Switzerland, September 8–11, 1986. Abstract published in IGARSS'86 – Remote Sensing Today's Solutions for Tomorrow's Information Needs, ESA SP-254, IEEE 86CH2268-1, Vol. 1, p 709, 1986.

191. Zebker, H. A., and R. M. Goldstein, "Topographic mapping from interferometric synthetic aperture radar observations," 1985 Int. Symposium on Antennas and Propagation, Kyoto, Japan, August 20–22, 1985. Abstract published in Proceedings ISAP-85, Vol., 2, p. 647, 1985. Also presented at 1985 Int. Geoscience and Remote Sensing Symposium (IGARSS'85), October 7–9, 1985, Amherst, Massachusetts.

CONFERENCE AND SYMPOSIUM PRESENTATIONS
(Abstracts not available)

192. Zebker, H.A., and **F. Onn**, Using GPS to Correct Artifacts in InSAR Deformation Maps, 2002 IEEE International Geoscience and Remote Sensing Symposium (IGARSS'02), 24th Canadian Symposium on Remote Sensing, Toronto, Ontario, June 24-28, 2002.

193. **Harcke, L.J.,** H.A. Zebker, M.A. Slade, and R.F. Jurgens, Radar Imaging of Mercury's North and South Polar Features, 2002 IEEE International Geoscience and Remote Sensing Symposium (IGARSS'02), 24th Canadian Symposium on Remote Sensing, Toronto, Ontario, June 24-28, 2002.

194. Zebker, H. A., and **E.W. Hoen**, Estimating Polar Ice Sheet Accumulation Rates From Interferometric Synthetic Aperture Radar Measurements, Progress in Electromagnetics Research Symposium (PIERS 2002),July 1 - 5, 2002, Cambridge, Massachusetts.

195. Zebker, H. A., **S. Jonsson,** and **F. Onn**, What Is the Joint Covariance Matrix of InSAR and GPS Data?, Progress in Electromagnetics Research Symposium (PIERS 2002),July 1 - 5, 2002, Cambridge, Massachusetts.

196. Zebker, H.A., **F. Onn,** and **D. Wynn**, Satellite Radar Interferometry for Long-Term Monitoring & Verification, CO2 Capture Project (CCP) Workshop on Geological Storage & Verification (SMV) Technology, October 21 – 23, 2002, Santa Cruz, California.

197. Zebker, H.A., "Geophysical Earth Imaging Methods to Map the Distribution of a Subsurface Liquid Ocean on Europa," SEG 2001 Summer Research Workshop, Synergies in Geophysical, Medical and Space Imaging, July 22- 26, 2001, Newport Beach, California

198. Zebker, H.A., An introduction to InSAR, Stanford Rockphysics and Borehole Geophysics Annual Meeting, Menlo Park, CA, June 14-16, 2000.

199. Farr, T. G., D. L. Evans, M. Kobrick, H. A. Zebker, "SIR-C/X-SAR interferometry: the next step toward digital global topography," 1995 Progress in Electromagnetic Research Symposium (PIERS 95), July 24–28, 1995, Seattle, Washington.

200. Rosen, P. A., S. Hensley, H. A. Zebker, "Surface deformation and coherence measurements of Kilauea volcano, Hawaii, from six-month repeat pass interferometry with SIR-C," 1995 Progress in Electromagnetic Research Symposium (PIERS 95, July 24–28, 1995), Seattle, Washington.

201. van Zyl, J. J., H. A.Zebker, S. Hensley, D.Haub, "The new dual frequency (C- and L-band) TOPSAR airborne interferometric SAR," 1995 International Symposium on Geoscience and Remote Sensing, July 10–14, 1995, Firenze, Italy. Also presented at the 1995 Progress in Electromagnetic Research Symposium (PIERS 95), July 24–28, 1995, Seattle, Washington.

202. Rosen, P. A., S. Hensley, H. A. Zebker, G. Peltzer, "Recent results in surface deformation measurements: spaceborne repeat pass interferometry with ERS-1, JERS-1, and SIR-C," 1995 International Symposium on Geoscience and Remote Sensing, July 10–14, 1995, Firenze, Italy.

203. Zebker, H. A., P. Rosen, S. Hensley, and P. Mouginis-Mark, "Analysis of short-repeat-interval spaceborne interferometric SAR data of Kilauea, Hawaii," 1995 Progress in Electromagnetic Research Symposium (PIERS 95), July 24–28, 1995, Seattle, Washington. Also presented at 1995 International Symposium on Geoscience and Remote Sensing, July 10–14, 1995, Firenze, Italy.

204. Farr, T. G., H. A. Zebker, and D.J. Harding, "TOPSAT: The global topography mission," Int. Symposium on Spectral Sensing Research, July 10–15, 1994, San Diego, California.

205. Madsen, S. N., H. A. Zebker, and J. Martin, "An evaluation of the TOPSAR topographic SAR interferometer performance," ARPA Interferometric SAR Technology and Applications Symposium, April 13–14, 1993, Ft. Belvoir, Virginia.

206. Zebker, H. A., "The NASA interferometric radar program: application and examples," ARPA Interferometric SAR Technology and Applications Symposium, April 13–14, 1993, Ft. Belvoir, Virginia.

207. Zebker, H. A., and S. N. Madsen, "The JPL TOPSAR interferometric radar topographic mapping instrument," ARPA Interferometric SAR Technology and Applications Symposium, April 13–14, 1993, Ft. Belvoir, Virginia.

208. Zebker, H.A, "Interferometric radar: a review," Third Spaceborne Imaging Radar Symposium, Jet Propulsion Laboratory, January 18–21, 1993, Pasadena, California.

209. Zebker, H. A., S. N. Madsen, T. Dixon, D. Pieri, T. G. Farr, "Geophysical Applications of the NASA TOPSAR Interferometric Radar Topographic Mapper," Microwave Signature 1992, U.R.S.I. Commission F, July 1–3, 1992, Innsbruck-Igls, Austria.

210. Freeman, A., M. Moghaddam, M. Zink, and H. A. Zebker, "Radiometric correction of SAR images of varying terrain heights," 1992 Int. Geoscience and Remote Sensing Symposium, May 26–29, 1992, Houston, Texas.

211. Lin, Q., J.F. Vesecky, and H. A. Zebker, "Registration of interferometric SAR images," 1992 Int. Geoscience and Remote Sensing Symposium, May 26–29, 1992, Houston, Texas.

212. Madsen, S. N., H. A. Zebker, and J. Martin, "Automated absolute phase retrieval in cross-track interferometry," 1992 Int. Geoscience and Remote Sensing Symposium, May 26–29, 1992, Houston, Texas.

213. Villasenor, J., and H. A. Zebker, "Temporal decorrelation in radar interferometry," 1992 Int. Geosci. and Rem. Sens. Symposium, May 26–29, 1992, Houston, Texas.

214. Zebker, H. A., and J. Villasenor, "Topographic mapping from ERS-1 and SEASAT radar interferometry," 1992 Int. Geosci. and Rem. Sens. Symposium, May 26–29, 1992, Houston, Texas.

215. Villasenor, J., and H. A. Zebker, "Studies of temporal change using radar interferometry," SPIE Optics, Electro-optics, and Laser Applications in Science and Engineering, January 19–25, 1992, Los Angeles, California.

216. Durden, S. L., J. D. Klein, H. A. Zebker, and J. J. van Zyl, "Polarimetric radar measurement of forested areas: 1989 Mt. Shasta area experiment," 10th Annual Internationational Geoscience and Remote Sensing Symposium, May 20–24, 1990, College Park, Maryland.

217. Yueh, S. H., J. A. Kong, R.T. Shin, and H. A. Zebker, "Statistical modeling for polarimetric remote sensing of Earth terrain," 10th Annual Internationational Geoscience and Remote Sensing Symposium, May 20–24, 1990, College Park, Maryland.

218. Zebker, H. A., J. J. van Zyl, S. L. Durden, and L. Norikane, "Calibrated imaging radar polarimetry: technique, examples, and applications," 10th Annual Internationational Geoscience and Remote Sensing Symposium, College Park, Maryland, May 20–24, 1990. Also presented at Signature Problems in Microwave Remote Sensing of the Surface of the Earth, May 15–17, 1990, Hyannis, Massachusetts.

219. Zebker, H. A., S. L.Durden, and J. J. van Zyl, "Measurement of forest canopy attenuation of airborne polarimeteric radar signals," Signature Problems in Microwave Remote Sensing of the Surface of the Earth, May 15–17, 1990, Hyannis, Massachusetts.

220. Zebker, H. A., J. J. van Zyl, and T. G. Farr, "Radar scattering classification maps from multifrequency imaging radar polarimetric data," 1989 Int. Geoscience and Remote Sensing Symposium, Vancouver, Canada, July 10–14, 1989. Also

presented at 1989 Progress in Electromagnetic Research Symposium, July 25–27, 1989, Cambridge, Massachusetts.

221. Zebker, H. A., and Y. Lou, "Phase calibration of imaging radar polarimeter Stokes matrices," 1989 Int. Geoscience and Remote Sensing Symposium, July 10–14, 1989, Vancouver, Canada.

222. Durden, S. L., H. A. Zebker, and J. J. van Zyl, "Application of radar polarimetry to forests," 1988 Int. Geoscience and Remote Symposium, September 13–16, 1988, Edinburgh, Scotland.

223. van Zyl, J. J., P. Dubois, H. A. Zebker, and T. G. Farr, "Inference of geologic surface parameters from polarimetric radar observations and model inversion," 1988 Int. Geoscience and Remote Sensing Symposium, September 13–16, 1988, Edinburgh, Scotland.

224. Vesecky, J.F., E. Sperley, and H. A. Zebker, "Electromagnetic wave scattering from a gently undulating rough surface," 1988 Int. Geoscience and Remote Sensing Symposium, September 13–16, 1988, Edinburgh, Scotland.

225. Zebker, H. A., J. J. van Zyl, and S. L. Durden, "Multifrequency imaging radar polarimetry: depolarization at three wavelengths," 1988 Int. Geoscience and Remote Sensing Symposium, September 13–16, 1988, Edinburgh, Scotland.

226. Goldstein, R. M., F. K. Li, and H. A. Zebker, "Radar Forest Interferometry," 1986 Int. Geoscience and Remote Sensing Symposium, September 8–11, 1986, Zurich, Switzerland.

227. van Zyl, J. J., N. Engheta, C.H. Papas, C. Elachi, and H. A. Zebker, "Modeling of backscatter from vegetation layers," 1985 Int. Geoscience and Remote Sensing Symposium, October 7–9, 1985, Amherst, Massachusetts.

228. Zebker, H. A., and D. N. Held, "Radio phase characteristics of terrain from multipolarized synthetic aperture radar data," 1985 Int. Geoscience and Remote Sensing Symposium, October 7–9, 1985, Amherst, Massachusetts.

229. Zebker, H. A., and D. N. Held, "Measurement of complete, complex radar scattering matrices," NASA/JPL Aircraft SAR Workshop, February 4–5, 1985, Jet Propulsion Laboratory, Pasadena, California.

230. Zebker, H. A., and G.L. Tyler, "Constraints on composition of Saturn ring particles from knowledge of particle size distribution functions," Division for Planetary Sciences 1984 meeting, October 8–12, 1984, Kona, Hawaii.

231. Simpson, R. A., H. A. Zebker, G.L. Tyler, and E.A. Marouf, “Visual appearance of Saturn's rings,” Division for Planetary Sciences 1983 meeting, October 16–20, 1983, Ithaca, New York.

232. Zebker, H. A., G.L. Tyler, and E.A. Marouf, “Inference of Saturn ring thickness from Voyager 1 radio occultation measurements,” Division for Planetary Sciences 1983 meeting, October 16–20, 1983, Ithaca, New York.

233. Zebker, H. A., G.L. Tyler, and E.A. Marouf, “Solution of forward phase-functions of Saturn ring features in the presence of multiple scatter,” Division for Planetary Sciences 1982 meeting, October 19–22, 1982, Boulder, Colorado.

234. Marouf, E.A., G.L. Tyler, H. A. Zebker, R. A. Simpson, and V.R. Eshleman, “Particle-size distribution in features of Saturn's rings from Voyager 1 radio occultation,” Proc. of Saturn, May 11–15, 1982, Tucson, Arizona.

235. Zebker, H. A., E.A. Marouf, and G.L. Tyler, “Forward phase-functions of Saturn ring features at 3.6 cm,” Proc. of Saturn, May 11–15, 1982, Tucson, Arizona.

236. Li, F. and H. A. Zebker, “A digital Seasat correlation - simulation program,” Proc. 1981 Int. Geoscience and Remote Sensing Symposium, (IGARSS '81), June 8–10, 1981.

BOOK CHAPTERS

237. Zebker, H. A., **F. Amelung**, and **S. Jonsson**, "Remote Sensing of Volcano Surface and Internal Processes Using Radar Interferometry," in *AGU Monograph on Remote Sensing of Active Volcanoes*, Ed. Mouginis-Mark, pp. 179-205, 2000..

238. Zebker, H. A., "Imaging Radar Interferometry," Chapter 6 in *Manual of Remote Sensing*, *Vol. 2, Principles and Applications of Imaging Radar,* F. M. Henderson and A. J. Lewis, Eds., American Society for Photogrammetry and Remote Sensing, Wiley, New York, 1998.

239. Zebker, H. A., "Topography Mapping," in *Yearbook on Science and Technology*, McGraw-Hill, New York, 1997.

240. van Zyl, J. J., and H. A. Zebker, "Imaging Radar Polarimetry," Chapter 5 in *Progress in Electromagnetics Research: Radar Polarimetry* , Vol. 3 of PIER Series, Ed. J. A. Kong, Elsevier Science, New York, 1990.

241. van Zyl, J. J., H. A. Zebker, and C. Elachi, "Polarimetric SAR Applications," Chapter 7 in *Radar Polarimetry for Geoscience Applications*, F. T. Ulaby and C. Elachi, Eds, Artech House, Inc., Norwood, 1990.

242. Yueh, S. H., J. A. Kong, J. K., Jao, R. T. Shin, H. A. Zebker, T. Le Toan, and H. Öttl, "K-Distribution and Polarimetric Terrain Radar Clutter," Chapter 6 in *Progress in Electromagnetics Research: Radar Polarimetry* , Vol. 3 of PIER Series, Ed. J. A. Kong, Elsevier Science, New York, 1990.

243. Zebker, H. A., J. J. van Zyl, and C. Elachi, "Polarimetric Radar System Design," Chapter 6 in *Radar Polarimetry for Geoscience Applications*, Polarimetric SAR Systems, and parts of Chapter 7, F. T. Ulaby and C. Elachi, Eds, Artech House, Inc., Norwood, 1990.

POPULAR AND OTHER WORKS

244. Zebker, H. A., "Our quivering crust: tectonics from space," *Pacific Discovery*, Vol. 50, No. 2, pp. 34–36, Spring, 1997.

245. Dubois, P.C., S. L. Durden, H. A. Zebker, and J. J. van Zyl, "Imaging radar polarimetry: Forested areas. Volume I. Polarimetric observations," A catalog of observed polarimetric scattering behavior for various forest and man-made targets, prepared under contract for U.S. Army Harry Diamond Laboratories, Jet Propulsion Laboratory, Pasadena, 1987.

246. Zebker, H. A., and F. Burnette, “Imaging Radar Polarimetry,” Short instructional film illustrating radar polarization principles and techniques, Jet Propulsion Laboratory, Pasadena, April, 1986.