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Personal: Born, Iran, March 21, 1958

Interests: Remote Sensing, Terrestrial Carbon Budget, Land Cover and Land Use Change,
Biodiversity and Conservation, Surface Hydrology,
Wave Propagation in Random Media, Radar Science

Education:

Ph.D., Electrophysics and Applied Mathematics, George Washington University, 1988
M.S., Electrical Engineering, University of Illinois at Chicago, 1983
B.S. Electrical Engineering, University of Illinois at Chicago, 1981

Employment:

Senior Scientist. Radar Science and Engineering Section, Jet Propulsion Laboratory, California Institute of Technology,
2000-Present, Scientist, 1996-2000, Technical Staff, 1991-1996.

Senior Research Fellow: Center for Tropical Research, Institute Environment, UCLA, 2002-Present.

Research Fellow. University Space Research Association, Hydrological Science Branch,
NASA Goddard Space Flight Center, 1990-1991.

Postdoctoral Research Associate: National Research Council, Laboratory for Terrestrial Physics, NASA/GSFC, 1988-1990.

Honors and Awards:

Excellent Achievement Decade Award, NASA/Jet Propulsion Laboratory, 2001

Excellent Achievement Award, NASA/Jet Propulsion Laboratory, 1998.

Technical Achievement Award, Space Shuttle Imaging Radar Program, NASA/Jet Propulsion Laboratory, 1994.

Young Scientist Award of the Union Radio-Scientifique Internationale (URSI, General Assembly, Prague, Czechoslovakia, 1990).

Professional Activities:

Project Scientist, BIOMM ESSP Mission Concept	2003-Present
MODIS and MISR Science Team Member	2003-Present
Forest Ecology Management, Special Issue Editor	Apr. 2004
AGU, Radio Science Member	1989-Present
IEEE, Geoscience and Remote Sensing, Senior Member	1988-Present
Senior Research Associate, Yellowstone Ecological Research Center.	2002-Present
Science Team Member, NASA Instrument Incubator Program.	2001-Present
Science Team Member, North American Carbon Program, NACP.	Jul. 2001-Present
Science Team Member, Large-Scale Biosphere Atmosphere in Amazonia (LBA)	Sep 00-Present
Science Team Member, BIOMASCA Mission, European Space Agency.	Oct 01- 2002

Guest Editor, International Journal of Remote Sensing.	Oct 01- 2002
Member of Biological Fingerprinting, Center for Applied Biodiversity (CI)	2001
Science Team Member, Advance Land Observing Satellite (ALOS) of Japan	Nov 00-Present
Scientist, EX-6 Vegetation Recovery Mission	1999
Board Member, NASA/CCAD Meso-American Biological Corridor Program.	Sep 99-Present
Member, Organizing Committee of Conservation Biology and NASA Program.	Sep 99-Present
Science Team Member, Land Cover and Land Use Change Program (LCLUC), NASA.	Sep 98-2001
Science Team Member, LIGHTSAR Mission.	1998
Member of Working Group of Oak Ridge National Laboratory DAAC.	May 99-2003
Science Team Member, <u>B</u> oreal <u>E</u> cology <u>A</u> tmosphere <u>S</u> tudy (BOREAS), NASA.	Apr 93-1998
Science Team Member, NASA Shuttle Endeavor Mission, SIR-C/X-SAR.	1993-1994
Member, Technical Committee, International Geoscience & Remote Sensing Symposium	1994
Science Team Member, First ISLSCP (International Satellite Land Surface Climatology Project).	Sep 91-1993
Science Team Member, HAPEX-Sahel: the Hydrology-Atmosphere Pilot Experiment in the Sahel.	Sep 90-1992
Science Team Member, Multisensor Airborne Campaign for Hydrology (MACHYDRO) in Spain.	1990-1993
Member, Technical Committee, IEEE, International Geoscience & Remote Sensing Symposium.	1990
Lecturer, Electrical Engineering, George Washington University.	1988-1991
Staff, Science System Applications, Hydrological Sciences Branch, NASA/GSFC, Maryland.	1986-1988
Research Assistance, Telecommunications Laboratory, Electromagnetic Imaging Group (UIC)	1981-1983

Papers in Refereed Journals

1. Saatchi, S. and Lang, R. 1991. Average reflected power from a one dimensional slab of discrete scatterers. *Radio Science*, vol. 25, 407-417.
2. Saatchi, S. and Lang, R.H.1992. Mean wave propagation in a slab of one-dimensional discrete random medium, *Wave Motion*, vol. 15, 301-314.
3. Jackson, T., Kostov, K., and Saatchi, S. 1992 Rock Fraction effects on the interpretation of microwave emission from soils. *IEEE Transaction on Geoscience and Remote Sensing*. 30:610-616.
4. Ranson J., and Saatchi, S. 1992. C-band microwave scattering from small balsam fir, *IEEE Transactions on Geoscience and Remote Sensing*, 30:924-932.
5. Lin, D., Wood, E., Beven, K., and Saatchi, S. 1994. Soil moisture estimation over grass-covered areas using AIRSAR. *International Journal of Remote Sensing*. Vol. 15. 2323-2343
6. Saatchi, S., LeVine, D., and Lang, R.1994. Microwave backscatter and emission model for grass canopies. *IEEE Transactions on Geoscience and Remote Sensing*, 32:177-186.
7. Ranson J., Saatchi, S., Sun, G. 1995. Boreal forest ecosystem characterization with SIR-C/X-SAR. *IEEE Transactions on Geoscience and Remote Sensing*. 23. 867-876.
8. Moghaddam, M. and Saatchi, S.1995. Analysis of scattering mechanisms in SAR imagery over boreal forest: Results from BOREAS'93. *IEEE Transactions on Geoscience and Remote Sensing*. GE-33, 1290-1296.
9. Saatchi, S., van Zyl, J., and Assrar, G.1995. Estimation of canopy water content in Konza prairie grasslands using synthetic aperture radar measurements during FIFE, *Journal of Geophysical Research*. 100, D12, 25481-25496.
10. Saatchi, S. 1996. Application of SAR remote sensing in land surface processes over tropical region, *Proceedings of VIII Simposio Brasileiro de Sensoriamento Remoto*, April 14-19, 1996, Salvador, Bahia, 213-222..

11. Izenberg, N., Arvidson, E., Brackett, R., and Saatchi, S. 1996. Damage Assessment from the 1993 Missouri river floods using Landsat, SPOT, SIR-C, and TOPSAR data. *Journal Geophysical. Research-Planets*, Vol. 101, No. E10, 23149-23167.
12. LoSeen, D., Chehbouni A., Njoku, E.G., Saatchi, S. Mougin, E., Monteny, B. A coupled Biomass production, water and surface energy balance model for remote sensing application in semiarid grasslands. *Agric. For. Meteorol.* vol 83, No 1-2, pp 49-74, 1997.
13. Saatchi, S., and Rignot, E. 1997. Land cover classification of BOREAS modeling grid using AIRSAR images. *Remote Sensing. of Environment*, Vol. 35, 270-281.
14. Saatchi, S., Soares, J.V., and Alves, D.S. 1997. Mapping deforestation and land cover in Amazon rainforest using SIR-C imagery. *Remote Sensing of Environment*. Vol. 59, No. 2, 191-202.
15. Moghaddam, M., and Saatchi, S. 1999. Monitoring tree moisture using an estimation algorithm applied to SAR data from BOREAS. *IEEE Transaction on. Geoscience and. Remote Sensing*, vol. 37, no. 2, pp. 901-916.
16. Kimball, J, Keyser, A., Running, S., Saatchi, S. 2000. Regional assessment of boreal forest productivity using an ecological process model and remote sensing parameter maps, *Tree Physiology*, vol. 20,, 761-775.
17. Simard, M., Saatchi , S., and De Grandi, G.F. 2000. The use of decision tree and multiscale texture for classification of JERS-1 SAR data over tropical forest", *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 38, No. 5, pp. 2310-2321.
18. Saatchi , S., B. Nelson., E. Podest, and J. Holt. 2000. Mapping land cover types in the Amazon Basin using 1 km JERS-1 mosaic, *Int. J. Remote Sensing*, vol. 21, 1201-1234.
19. Saatchi, S.. and M. Moghaddam. 2000. Estimation of crown and stem water content and biomass of boreal forest using polarimetric SAR imagery, *IEEE Transactions on Geoscience and Remote Sensing*. vol. 38, 697-709.
20. De Grandi, G.F., Mayaux, P., Rauste, Y., Rosenqvist, A., Simard, M, and Saatchi, S. 2000. The Global Rain Forest Mapping Project JERS-1 radar mosaic of tropical Africa. *IEEE Transactions on Geoscience and Remote Sensing*. 38, 2218-2233.
21. Rosenqvist, A., Shimada, M., Chapman, B., Freeman, A., De Grandi, G.F., Saatchi, S., Rauste, Y. 2000. The global rain forest mapping project-a review. *International Journal of Remote Sensing*. Vol. 21, 1375-1389.

22. De Grandi, G.F., Mayaux, P., Malingreau, J.P., Rosenqvist, A., Saatchi, S., Simard, M. 2000. New perspectives on global ecosystems from wide-area radar mosaics: flooded forest mapping in tropics. *International Journal of Remote Sensing*. Vol. 21, 1235-1250.
23. Saatchi, S., Agosti, D., Alger, K., Delabi, J., and Musinsky, J. 2000. Examining fragmentation and loss of primary forest in the southern Bahian Atlantic forest of Brazil with Radar Imagery, *Conservation Biology*. Vol. 15, 867-875.
24. Simard, M., De Grandi, F., Saatchi, S., and Mayaux, P. 2001. Mapping tropical coastal vegetation using JERS-1 and ERS-1 radar data with a decision tree classifier, *International Journal of Remote Sensing*, vol. 23:7, 1461-1474.
25. Kimball, J., Running, S., Saatchi, S., 2001. Sensitivity of boreal forest regional water flux and net primary production simulations to sub-grid-scale land cover complexity, *J. Geophysical Research*, vol. 104, D22, 22789-27801.
26. Rosenqvist, A., Shimada, M., Chapman, B.D., Dutra, L.V., Saatchi, S., and Tanaka, O. 2002. The Global Rain Forest Mapping: Project: Introduction from Guest Editors. *International Journal of Remote Sensing*. vol. 23. 1215-1216.
27. Long D., M. Drinkwater, B. Holt, S. Saatchi, and C. Bertoia, 2002. Global ice and land climate studies using scatterometer image data, *EOS, Transaction of American geophysical Union*, October.
28. Mayaux P, De Grandi GF, Rauste Y, Simard M, Saatchi S. 2002. Large-scale vegetation maps derived from the combined L-band GRFM and C-band CAMP wide area radar mosaics of Central Africa. *International Journal of Remote Sensing*, 23 (7): 1261-1282.
29. Podest, E. and Saatchi, S. 2002. Application of multiscale texture in classifying JERS-1 radar data over tropical vegetation, *International Journal of Remote Sensing*. vol. 23. 1487-1506.
30. Smith, N., Saatchi, S., and Randerson, J. (2004). Trends in High Latitude Soil Freeze and Thaw Cycle from 1988-2002, *Journal of Geophysical Research*, Vol. 109, D12101.
31. Freeman, A., and Saatchi, S. 2004. On the detection of Faraday rotation in linearly polarized L-band SAR backscatter signatures. *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 42:8, 1607-1616.

32. Lu, L., A.S. Denning, M.A. da Silva Dias, P. Silva-Dias, M. Longo, S.R. Freitas, and S. Saatchi, 2005: Mesoscale circulation and atmospheric CO₂ variation in the Tapajos Region, Para, Brazil. *Journal of Geophysical Research*, 110, D21102, doi:10.1029/2004JD005757.
33. Gillespie, T.W. Zutta, B., Early M. and S. Saatchi. 2006. Predicting and quantifying the structure of tropical dry forests in South Florida And the Neotropics. *Global Ecology and Biogeography*, vol. 16, 225-236.
34. Saatchi, S., Houghton, R., Avala, R., Yu, Y., Soares, J-V., 2007, Spatial Distribution of Live Aboveground Biomass in Amazon Basin, *Global Change Biology* (2007) 13, 816–837.
35. Chambers, J.Q., Asner, G., Morton, D., Anderson, L., Saatchi, S. Espírito-Santo, F.D.B. Palace, M., and Souza Jr, C. 2007. Regional ecosystem structure and function: ecological insights from remote sensing of tropical forests, *Trends in Ecology and Evolution*. Vol 22. pp. 10.
36. Myneni, et al. 2007. Large seasonal swings in leaf area of Amazon rainforests, *PNAS*, vol. 104: 4820-4823.
37. Aragao, L., Malhi, Y., Roman-Cuesta, R-M., Saatchi, S., Anderson, L. Shimabukuro, E. 2007. Fingerprints of the 1997/1998 and 2005 droughts in Amazonian Rainforests. *Geophysical Research Letters*, Vol. 34, L07701, doi:10.1029/2006GL028946.
38. Saatchi, S., Despain, D. Halligan, K., Crabtree, R. Yu, Y. 2007. Estimating forest fire fuel load from radar remote sensing, *IEEE Geoscience and Remote Sensing*, Vol. 45, No 6, 1726-1740.
39. Moghaddam, M. Y. Rahmat-Samii, E. Rodriguez, D. Entekhabi, J. Hoffman, D. Moller, L. Pierce, S. Saatchi, M. Thomson, 2007. Microwave Observatory of Subcanopy and Subsurface (MOSS): A Mission Concept for Global Deep Soil Moisture Observations *IEEE Transaction on Geoscience and Remote Sensing*, Volume 45, Aug. 2630 – 2643.
40. T. Smith, B. Mila, G. Grether, H. Slabbeorn, I. Sepil, W. Buermann, S. Saatchi, J. Pollinger, 2007. Evolutionary Consequences of human disturbance in a rain forest bird species in Central Africa, *Molecular Ecology*, DOI: 10.1111/j.1365-294X.2007.03478
41. Hecht, S.B. and Saatchi, S. Globalization and Tropical Forest Recovery in Densely Populated Landscapes, *Bioscience*, vol. 57, 8, 663-672. 2007.

42. Prates, C., Saatchi, S., and Agosti, D. 2007 Modeling Geographical Distribution of Tropical Timber Trees Using Remotely Sensed Environmental Variables, Submitted to Ecological Modeling. 09.024.
43. Saatchi, S., Buermann, W., Mori, S. and ter Steege, H. (2008) Modeling distribution of Amazonian tree species and diversity using remote sensing measurements, *Remote Sensing of Environment*, 112 (5): 2000-2017.
44. Buermann, W. S. Saatchi, B.R. Zutta, J. Chaves, B. Milá, C. H. Graham, and T. B. Smith. 2006. Application of Remote Sensing Data in Predictive Models of Species' Distribution, *Journal of Biogeography*, doi:10.1111/j.1365-2699.2007.01858.x.
45. Bush, M.B., Silman, M.R., McMichael, C., Restrepo-Correa, A., Urrego, D.H., Correa, A., Saatchi, S. 2008. Fire, climate change, and biodiversity in Amazonia: A late-Holocene perspective. *Transactions of Royal Society, Biological Sciences*, 363: 1795-1802.
46. Aragao, L., Malhi, Y., Barbier, N., Anderson, L. Saatchi, S., Shimabukuro, E. 2008 Interactions between rainfall, deforestation and fires during recent years in the Brazilian Amazonia, *Transactions of Royal Society, Biological Sciences*, 363: 1779-1785.

In Press

Lucas, R.M., Mitchell, A.L. and Saatchi, S. Baseline datasets for assessing natural and anthropogenic changes in mangroves: a role for remote sensing. *Submitted to Progress in Physical Geography*.

Saatchi, S. Avala, R.. Forest Structure and Above Ground Biomass in Amazonian Tropical Rain Forest, *Forest Ecology and Management*.

Saatchi, S., Wilks, C., and White, L., Simard, M. Characteristics of Coastal Vegetation of West Africa. Submitted to *International Journal of Remote Sensing*.

Gillespie, T., Saatchi, S., Lewis, S., Shin, M., Bohman, S., Giorgi, A.P. Towards Predicting Species Richness in Tropical Rainforests: A Case Study from Panama, *Remote Sensing of Environment*, In Press

Bonneaud, C., Sepil, I. Mila, B., Buermann, W., Sehgal, R. G. Valkinunas, Izhova, T., Saatchi, S. and Smith, T. Host and habitat specificities of Plasmodium species in African rainforest birds, *Molecular Biology*, 2007.

Saatchi, S. Brondizio, E., Moran, E., Fortini, L. and Nelson, B. Extent, inundation and structure of tidal floodplains in the Amazon estuary, Submitted to Remote Sensing of Environment, 2007.

Yu, Y., Saatchi, S., Heath, L. LaPoint, E., Myneni, R. Knyazikhin, Y. 2008. Regional distribution of forest height and biomass from multisensor data fusion: A case study in the state of Maine, IEEE, Transactions on Geoscience and Remote Sensing, In Press.

Marlier, M. and Saatchi, S. 2008. Measuring tropical forest canopy structure using high resolution IKONOS imagery. Remote Sensing of Environment, In Press.

Gillespie, T., Foody, G., Rocchini, D., Giorgi, P., Saatchi, S. 2008. Measuring and modeling biodiversity from space. Progress in Physical Geography, In Press.

Book Chapters

Smith, T.B., Saatchi, S., Graham, C., Slabbekoorn, H., and Spicer, G. 2005. Putting process on the map: why ecotones are important for preserving biodiversity, in A. Purvis, J. Gittleman, and T. Brooks (Eds.). Phylogeny and Conservation. Cambridge University Press, Cambridge, United Kingdom.

Lucas, R. Held, A.A., Phinn, S.R., and Saatchi, S. S. 2004. Tropical Forests. *Remote Sensing of Earth Sciences: Manual of Remote Sensing volume 4*. Ustin, S. et al. (eds). John Wiley & Sons.

Quiroz, R., and Saatchi, S. 1999. Mapping Aquatic and Agricultural Vegetation of Altiplano, *Agriculture and Agroforestry Management*, CIFOR, Lima, Peru.

Saatchi, S., Njoku, E., and Wegmüller, U. 1995. Synergism of active and passive microwave data for estimating bare soil surface moisture, in *Passive Microwave Remote Sensing Research Related to Land-Atmosphere Interactions*, B. Choudhury, Y. Kerr, E. Njoku, P. Pampaloni, VSP, Amsterdam, The Netherlands.

Saatchi, S., and Lang, R. H. 1990. Wave intensity fluctuations in a one dimensional discrete random medium, in *Directions in Electromagnetic Wave Modeling*, Edited by H.L. Bertoni and L.B. Felsen, Plenum Press, New York.

Advisees

Shadi Oviesgharan, PhD, Stanford University, Postdoctoral Fellow CALTECH	2008-present
Wolfgang, Buermann, PhD., Postdoctoral Fellow, UCLA Institute of Environment	2005-2008
Henri Thomassen, PhD, Postdoctoral Fellow, UCLA Institute of Environment	2007-present
Cassia Prates, PhD, Postdoctoral Fellow, UCLA, Institute of Environment	2005-2006

Yifan Yu, PhD Student, UCLA, Atmospheric Sciences	2006-present
Miriam Marlier, Graduate Student, UCLA Atmospheric Sciences	2006-2008
Ana Paula Giorgi, UCLA, PhD student, Department of Geography, UCLA	2005-present
Nicole Smith, Ph.D. Student, Dept. of Environmental Science, CALTECH.	2002-2006
Donat Agosti, Ph.D. American Museum of Natural History, Visiting Scientist, NASA/Jet Propulsion Laboratory	2003-2005
Claudia Cordero, M.S. Department of Environmental Sciences, University of Salvador, Brazil	2001-2003
Marc Simard, Ph.D. Post Doctoral Fellow at NASA/Jet Propulsion Laboratory.	2000-2002
Erika Podest, M.S. University of Redding, UK.	1996-1999
Jose Moreno, Ph.D. University of Valencia, Spain, Visiting Scientist at NASA/Jet Propulsion Laboratory.	1995-1996
Roberto Quiroz, Ph.D. CIP Institute, Lima, Peru, Visiting Scientists at NASA/Jet Propulsion Laboratory	1998
Nirmal Kashava, Ph.D. Department of Electrical Engineering, University of Pittsburg.	1995
Dashin Lin, Ph.D. Department of Earth Sciences, Princeton University.	1994

Conference Papers & Presentations

The list of over 500 conference presentations, seminars, and honorary lectures papers is available upon request.

Language Skills

ENGLISH, PERSIAN, SPANISH