

Curriculum Vitae

Izaya Numata, Ph.D.

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Research Interests

Land-cover and land-use change and its effects on ecosystems; remote sensing of agriculture; remote sensing applications to assess regional land-cover and land-use change

Education

- Ph.D. Geography, University of California, Santa Barbara, June 2006.
Dissertation: "Characterization and Analysis of Pasture Degradation in Rondônia using Remote Sensing"
Committee: Dar Roberts (Chair), Oliver Chadwick, and Josh Schimel, University of California, Santa Barbara, João Vianei Sôares, Instituto Nacional de Pesquisas Espaciais (Brazil)
- M.S. Remote Sensing, Instituto Nacional de Pesquisas Espaciais (Brazilian Space Agency), 1999
Advisor: João Vianei Sôares
- B.Sc. Agronomic Engineering, University of São Paulo, 1996.

Research Experience

- Assistant Specialist. June 2006 – Present
Take primary responsibility in generating metadata from the LBA/NASA sponsored research, including the time series Landsat data generated by UCSB team. Continue in research in the use of imaging spectrometry data.
- Ph.D. Research Associate Oct 2000- June 2006
Performed research on the NASA/LBA Hyperspectral founded project, working on several different sensors including AVIRIS, Landsat TM/ETM, Hyperion,

MODIS, ASTER, and ASD (field spectrometer) for biogeochemical analysis on pasture systems.

Research Assistance

Nov 1999 – Sep 2000

Performed research on the NASA/LBA-ECO funded project analyzing land-cover changes in Rondonia, Amazon, using Landsat TM time series data.

M.S. Associate

April 1998 - Mar 1999

Performed research on the PPG7 funded project including the field surveys in Rondônia, analyzing the relationship between soil fertility dynamics and pasture productivity. Worked with Landsat TM image processing, GIS software.

Fellowships and grants

NASA LBA-ECO PhaseII: 2005-2006

NASA LBA Hyperspectral grant: 2001-2005

NASA LBA-ECO grant: 2000-2001

PPG-7 “Carbon sequestration and emission as a function of land-cover and land-use change in the Amazon: 1998 (field survey only)

CNPQ (Brazilian National Counsel of Technological and Scientific Development)

Fellowship for graduate research (Master), 1997-1999

CNPQ Scientific Initiation Fellowship (Undergraduate), 1994-1996

Undergraduate Research Fellowship, University of Sao Paulo/ESAIQ, 1993-1994

Publications

Numata, I., Roberts, D.A., Chadwick, O.A., Schimel, J.P., Galvão, L.S., Soares, J.V. (*in review*). “Evaluation of hyperspectral data for pasture characterization in the Brazilian Amazon using field and imaging spectrometers”. *Remote Sensing of Environment*.

Numata, I., Roberts, D.A., Chadwick, O.A., Schimel, J.P., Sampaio, F.F., Leonidas, F.C., Soares, J.V. (*in review*). “Characterization of pasture biophysical properties and the impact of grazing intensity using remotely sensed data”. *Remote Sensing of Environment*.

Numata, I., Chadwick, O.A., Roberts, D.A., Schimel, J.P., Sampaio, F.F., Leonidas., F.C., Soares., J.V. (*in press*). “Temporal and spatial nutrient variation in post-forest pastures, Rondônia, Brazil”. *Agriculture, Ecosystems & Environment*.

Powell, R.L., Matzke, N., de Souza, C., Clark, M., **Numata, I.**, Hess, L.L., Roberts., D.A. 2004. “Sources of error in accuracy assessment of thematic land-cover maps in the Brazilian Amazon”, *Remote Sensing of Environment*, 90. 2. 221-234

Holmes, K.W., Roberts, D.A., Sweeney, S., **Numata, I.**, Matricardi, E., Biggs, T., Batista, G., Chadwick, O.A. 2004. "Soil databases and the problem of establishing regional biogeochemical trends". *Global Change Biology*, 10. 5. 796-814

Numata, I., Soares, J.V., Roberts, D.A., Leônidas, F.C., Chadwick, O.A., Batista, G.T. 2003. "Relationships among soil fertility dynamics and remotely sensed measures across pasture chronosequences in Rondônia, Brazil". *Remote Sensing of Environment*, 87. 4. 446-455

Numata, I., Soares, J.V., Leônidas, F.C. 2002. "Dinâmica da fertilidade de solo da Amazônica sob efeito da conversão de floresta por pastagem". *Revista de Sociedade Brasileira de Ciência de Solos*. 26: 949-955 (in Portuguese)

Roberts, D.A., **Numata, I.**, Holmes, K., Batista, G.T., Krug, T., Monteiro, A., Powell, B., Chadwick, O.A. 2002. "Large area mapping of land-cover change in Rondônia using multitemporal spectral mixture analysis and decision tree classifiers". *J. Geophys. Res. Atm.*, D10.

Ponzoni, F.J., Gomes, A.R., Maldonado, F.D., Sassagawa, H.Y., **Numata, I.**, Araújo, L.S. 2002. "Comparação entre o fator de reflectância bidirecional de um dossel de mudas de *Eucalyptus grandis* e o fator de reflectância direcional hemisférico de suas folhas isoladas". *CERNE*, v.8, n.1, 59-68. (in Portuguese)

Publications in Preparation

Numata, I., Roberts, D.A., Sawada, Y., Chadwick, O.A., Schimel, J.P., Sawada, H., Soares, J.V. "Regional characterization of pasture changes through time and space in Rondônia using remote sensing." (To be submitted Nov. 2006)

Numata, I., Chadwick, O.A., Roberts, D.A., Hatzel, Y. "Analysis of effects of climate and soils on Kohala grassland through Landsat ETM and AVIRIS" (To be submitted Dec. 2006)

Numata, I., Roberts, D.A., Chadwick, O.A., Schimel, J.P., Sampaio, F.F., Leonidas, F.C., Soares, J.V. "Spatio-temporal analysis of pasture degradation in Rondônia through field and remotely sensed data". (To be submitted Feb. 2007).

Conference Presentations and Posters

Proceeding

Numata, I., Roberts, D.A., Chadwick, O.A., Hatzel, Y. Spectral characterization of changes in grassland under climatic and soil gradients in Kohala, Hawaii. In Proceedings,

AVIRIS Workshop 2004, 29-31. March, 2004. Pasadena, CA.

ftp://popo.jpl.nasa.gov/pub/docs/workshops/04_docs/Numata_aviris_2004_web.pdf

Numata, I., Soares, J.V., Batista, G.T., Roberts, D.A., Chadwick, O.A., 2000. Evaluation of the conversion from Forest to pasture using remote sensing for soil fertility analysis. In. Proceedings of the International Society of Remote Sensing. International Archives of Photogrametry and Remote Sensing, Vol. XXXIII , Part B7. Amsterdam 2000. 1033-1038.

Poster

Numata, I., Roberts, D.A., Chadwick, O.A., Soares, J.V., Leônidas, F.C., Sampaio, F.F., Fendt, F., Esteves, J.L. Extensive analyses for pasture biophysical and biogeochemical dynamics under the interactions between human and soil types in Rondônia. Abstracts, III LBA Scientific Conference, 27-29. July, 2004, Brazilia, Brazil.

Powell, R., Matzke, N., Souza, C., Clark., **Numata, I.**, Hess, L., Roberts, D. Source of error in a video-derived reference data set for accuracy assessment of land-cover in the Amazon. Abstracts, XI Simposio Brasileiro de Sensoriamento Remoto, 05-10. April, 2003, Belo Horizonte, Brazil.

Andrade, N.S., Araújo, L.S., **Numata, I.**, Valerio Filho, M. Estudo da dinâmica da cobertura vegetal e uso da terra na região de Ji-Paraná/RO. Abstracts, IX Simposio Brasileiro de Sensoriamento Remoto, 11-18. September, 1998, Santos, Brazil.

Technical Skills

Relevant computer software: ENVI, ArcGIS, R (S+)

Programming language: IDL and R (S+)

Language

Japanese (speak fluently and write well)

English (speak fluently and write well)

Portuguese (speak fluently and write well)

Service

Manuscript reviewer, *Remote Sensing of Environment, Int. Journal of Remote Sensing*