

# CURRICULUM VITAE

University of Idaho

**NAME:** Luigi Boschetti

**DATE:** 4/1/2014

**RANK OR TITLE:** Associate Professor

**DEPARTMENT:** Forest, Rangeland and Fire Sciences

**OFFICE LOCATION AND CAMPUS ZIP:** CNR 203E, MS 1133

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## EDUCATION BEYOND HIGH SCHOOL:

**Degrees:** (List most recent degree first: Degree, institution name, city, state, date, major or area of specialization.)

- PhD Geodesy and Geomatics (2005), Politecnico di Milano, cum laude
- BSc/MSc Environmental Engineer (2000), Politecnico di Milano – School of Environmental Engineering (Milano, Italy).

**Certificates and Licenses:**

## EXPERIENCE:

**Teaching, Extension and Research Appointments:** (List position titles and locations since receipt of Bachelor's degree)

November 2009 – August 2012	Research Associate Professor, University of Maryland, Department of Geographical Sciences
July 2005 – November 2009	Assistant Research Scientist, University of Maryland, Department of Geography
April 2005 – July 2005	Faculty Research Assistant, University of Maryland, Department of Geography
April 2004 – April 2005	Research Fellow, Institute for the Electromagnetic Sensing of the Environment National Research Council (CNR-IREA), Milano, Italy
March 2002 – April 2004	Research Fellow, Institute for Environment and Sustainability (IES) Joint Research Centre (JRC) of the European Commission, Ispra, Italy
October 2000 – March 2002	Visiting Scientist, Natural Resource Institute (NRI), University of Greenwich Chatham Maritime, United Kingdom

## TEACHING ACCOMPLISHMENTS: (Academic and Extension teaching)

### Areas of Specialization:

Remote Sensing, Carbon Monitoring, Fire

**Courses Taught:** (title, course number, date(s))

University of Idaho:

2014 Instructor, Remote Sensing of Fire (FOR 435/535)

2013 Instructor, Introduction to Geospatial Analysis (FOR 375)

**University of Maryland:**

2012 Instructor, "Italy: Land, Culture, Development", (winter term study abroad course, GEOG328G, ECON314, ANTH448O, HONR 328R)

2011 Instructor, "Remote Sensing for Carbon Stock Estimation" (GEOG 778)

2011 Instructor, "Italy: Land, Culture, Development", (winter term study abroad course GEOG328G, ECON314, ANTH448O, HONR 328R))

2010 Instructor, "Introduction to Remote Sensing" (GEOG 372)

2008 Instructor, "Remote Sensing and Digital Image Processing" (GEOG472)

2006 Co-instructor, "Introduction to Remote Sensing" (GEOG 372)

2006 Lectures on geolocation and burned area mapping, course "Advances in Remote Sensing of

- 2005 Terrestrial Global Change: Past Present & Future”, (GEOG 778)  
Guest lecture on algorithms for mapping burned areas with MODIS data, University of Maryland, Department of Geography, course “Fire in the Global Environment”, coordinated by Prof. Chris Justice

**Politecnico di Milano**

- 2000-2005 Guest lectures on global Earth Observation Systems, Global Landcover Mapping and Validation, Politecnico di Milano, School of Environmental Engineering, course of Remote Sensing coordinated by Prof. Giovanmaria Lechi.  
2000-2001 Guest lectures on Remote Sensing for monitoring desertification and land degradation, Politecnico di Milano, School of Environmental Engineering, course of Environmental Impact Assessment coordinated by Prof. Giulio de Leo

**European Social Fund Professional Master Courses**

- 2004 Instructor of GIS and Remote Sensing (25 hours) at the European Social Fund Master course in Remote Sensing organized by Centro Camuno Studi Preistorici, Capodiponte, Brescia, Italy  
2000 Instructor of Remote Sensing (40 hours) at the European Social Fund Master course in Remote Sensing, organized by CNR-Istituto di Ricerca sul Rischio Sismico and Parco Lombardo del Ticino, Milano, Italy.

**Students Advised:**

Graduate Students:

Currently advising – major professor:

- Erik Boren (MS-Thesis)
- Andrea Melchiorre (PhD)
- Luca Marini (PhD)

Advised to completion of degree-major professor (student name, degree, and date)

Annamaria Kunzle, MSc. completed 2005, Politecnico di Milano, “Analisi e valutazione di serie temporali di dati telerilevati sull’Africa.” Co-advisor with Prof. Luigi Mussio. Ms. Kunzle was awarded the ‘Eugenio Zilioli’ prize for best M.Sc. thesis in Remote Sensing by the Italian Remote Sensing Association.

Ilaria Palumbo, MSc. completed 2003, Università degli Studi di Milano, “Analisi della distribuzione spazio-temporale degli incendi nei parchi naturali in Africa nell' anno 2000” (published as Publications of the European Commission, SP. I.03.100, 2003). Co-advisor with Prof. Carlo Maria Marino.

Served on graduate committee (student name, degree, and date)

Sanath Kumar, PhD completion scheduled for Spring 2014, South Dakota State University, GIS Centre of Excellence, the thesis will focus on Fire Monitoring in the Amazon Basin. Main supervisor: Prof. David Roy.

Kelley O’Neal, PhD. (completion scheduled for Spring 2014), University of Maryland, Department of Geography, the thesis will be focused on the distribution of natural fires in Western US, on their interaction on landcover and on the prediction of changes of fire regimes in the next decades. Main supervisor: Prof. Chris Justice.

Jessica Mc Carthy, PhD. completed 2009, University of Maryland, Department of Geography “Seasonal and Interannual Variability of Carbon and Related Air Quality Emissions from Crop Residue Burning in the Contiguous United States.” Main supervisor: Prof. Chris Justice.

Jose Roa, PhD., completed 2007, University of Maryland, Department of Geography, “Identifying Landslide Hazards in a Tropical mountain Environment, Using Geomorphological and Probabilistic Approaches.” Main supervisor: Prof. Michael Kearney.

**Materials Developed: (non-scholarship activity)**

**Courses Developed:**

- 2013 “Remote Sensing of Fire” (FOR435/FOR535) for Spring 2014
- 2013 “Introduction to Geospatial Analysis” (FOR 375) for Fall 2013

2011 "Remote Sensing for Carbon Stock Estimation" (GEOG 778)

**Non-credit Classes, Workshops, Seminars, Invited Lectures, etc.:**

**Honors and Awards:**

**SCHOLARSHIP ACCOMPLISHMENTS:** (Including scholarship of teaching and learning, artistic creativity, discovery, and application/integration)

**Publications, Exhibitions, Performances, Recitals:**

**Refereed/Adjudicated:** (i.e. books, book chaps., journals, proc., abstr., etc.; provide citations-author, date, title, publisher)

1. Kumar, S.S., Roy, D.P., Cochrane, M.A., Souza JR, C.M., Barber, C., Boschetti, L., A quantitative study of the proximity of satellite detected active fires to roads and rivers in the Brazilian tropical moist forest biome, *International Journal of Wildland Fire*. *In press*.
2. Smith, A.M.S., Kolden, K.A., Tinkham, W. T., Talhelm, A., Marshall, J., D., Hudak, A.T., Greenberg, J., Falkowski, M.J., Anderson, J. W., Kliskey, A., Alessa, L., Boschetti, L., Keefe, R.F. and Gosz, J.R., Remote Sensing the Vulnerability of Vegetation in Natural Terrestrial Ecosystem, *Remote Sensing of Environment*, *in press*.
3. Sparks, A.M., **Boschetti, L.**, Tinkham, W.T., Smith, A.M.S., and Lannom, K.O., An accuracy assessment of the MTBS burned area product for shrub-steppe fires in the northern Great Basin, United States, *International Journal of Wildland Fire*, *in press*.
4. Baraldi, A., **Boschetti, L.**, and Humber, M., 2014., Probability sampling protocol for thematic and spatial quality assessments of classification maps generated from spaceborne/airborne very high resolution images. *IEEE Transactions on Geoscience and Remote Sensing*, 51(1), pp 701-760.
5. Smith, A.M.S., Tinkham, W.T., Roy, D.P., **Boschetti, L.**, Kremens, R.L., Kumar, S.S., Sparks, A., Falkowski, M.J., 2013, Quantification of fuel moisture effects on biomass consumed derived from fire radiative energy retrievals, *Geophysical Research Letters*, 40, 6298–6302, doi:10.1002/2013GL058232.
6. Baraldi, A., **Boschetti, L.**, and Humber, M., 2013, Quality Assessment of Pre-Classification Maps Generated from Spaceborne/Airborne Multi-Spectral Images by the Satellite Image Automatic Mapper (TM) and Atmospheric/Topographic Correction (TM)-Spectral Classification Software Products: Part 2-Experimental Results, *Remote Sensing*, 5(10), 5209-5264
7. Clerici, N., Weissteiner, C.J., Paracchini, M.L., **Boschetti, L.**, and Baraldi, A., 2013, Pan-European distribution modelling of stream riparian zones based on multi-source Earth Observation data, *Ecological Indicators* 24, 211-223.
8. Loboda, T.V., Giglio, L., **Boschetti, L.**, and Justice, C.O., 2012, Regional fire monitoring and characterization using global NASA MODIS fire products in dry lands of Central Asia, *Frontiers of Earth Science*, 1-10.
9. Baraldi, A. and **Boschetti, L.**, 2012, Operational Automatic Remote Sensing Image Understanding Systems: Beyond Geographic Object-Based and Object-Oriented Image Analysis (GEOBIA/GEOOIA). Part 1: Introduction, *Remote Sensing*, 4 (9), 2694-2735.
10. Baraldi, A. and **Boschetti, L.**, 2012, Operational Automatic Remote Sensing Image Understanding Systems: Beyond Geographic Object-Based and Object-Oriented Image Analysis (GEOBIA/GEOOIA). Part 2: Novel system architecture, information/knowledge representation, algorithm design and implementation, *Remote Sensing*, 4 (9), 2768-2817.
11. Stroppiana, D., Bordogna, G., Boschetti, M., Carrara, P., **Boschetti, L.**, Brivio, P. A., 2012, A new method for extracting burned areas from Landsat TM images by soft aggregation of spectral indices

- and a region growing algorithm, *submitted October 2011 to ISPRS Journal of Photogrammetry and Remote Sensing*, 69, 88-102.
12. Bresciani M, Giardino C. and **Boschetti L.**, 2011, Evaluation of dynamics of bio-physical parameters in lake waters from MODIS and MERIS images, *Rivista italiana di Telerilevamento* 43(3),49-62
  13. Brivio, P.A. and Boschetti. L., 2011, Introduction to Special Issue “MODIS 2000-2010: Ten Years of Success in the Earth Observation”, *Rivista italiana di Telerilevamento*, 43(3), 3-5.
  14. Stroppiana, D., Bordogna, G., Boschetti, M., Carrara, P., **Boschetti, L.**, Brivio, P. A., 2011, Positive and Negative Information for Assessing and Revising Scores of Burn Evidence , *IEEE Geoscience and Remote Sensing Letters*, 10.1109/LGRS.2011.2167953.
  15. Kumar, S., Roy, D., **Boschetti, L.**, Kremens, R., Exploiting the Power law Distribution Properties of Satellite Fire Radiative Power Retrievals - a Method to Estimate Fire Radiative Energy and Biomass Burned From Sparse Satellite Observations, 2011, *Journal of Geophysical Research-Atmospheres*, vol 116, D19303 DOI: 10.1029/2011JD015676
  16. Pepe, M., **Boschetti, L.**, Brivio, P.A., Rampini, A., 2010, Comparing the performance of fuzzy and crisp classifiers on remotely sensed images: a case of snow classification, *International Journal of Remote Sensing*, 31(23):6189-6203.
  17. Archibald, S., Scholes, R., Roy, D., Wooster, M. and **Boschetti, L.**, 2010 Southern African fire regimes as revealed by remote Sensing, *International Journal of Wildland Fires*, 19:861-878
  18. **Boschetti L.**, Roy, D., Justice, C. and Giglio, L., 2010, Global assessment of the temporal reporting accuracy and precision of the MODIS burned area product, *International Journal of Wildland Fire*, 19(6), pp.705-709.
  19. Roy, D., Boschetti, L., Maier, S. and Smith, A.M.S, 2010, Field estimation of ash color-lightness using a standard grey scale, *International Journal of Wildland Fires*, 19(6), pp.698,704.
  20. Petropoulos, G, Knorr, W., Sholze, M., **Boschetti, L.** and Karantounias, G., 2010, Combining ASTER Multispectral Imagery Analysis and Support Vector Machines for Rapid and Cost-Effective Post-Fire Assessment: A case study from the Greek Wildland Fires of Year 2007, *Natural Hazards and Earth System Sciences*, vol 10, pp. 1-13.
  21. **Boschetti, L.** and Roy, D, 2009, Strategies for the fusion of satellite fire radiative power with burned area data for fire radiative energy derivation, *Journal of Geophysical Research, Atmospheres*, vol.114, D20302, doi:10.1029/2008JD011645 .
  22. Roy, D.P. and **Boschetti, L.**, 2009, Southern Africa Validation of the MODIS, L3JRC and GlobCarbon Burned Area Products, *IEEE transactions on Geoscience and Remote Sensing*, vol. 47(4), pp. 1032 – 1044, doi:10.1109/TGRS.2008.2009000.
  23. Roy, D.P., **Boschetti, L.**, Justice, C.O. and Ju, J. 2008. The Collection 5 MODIS Burned Area Product - Global Evaluation by Comparison with the MODIS Active Fire Product, *Remote Sensing of Environment*, vol. 112, pp. 3690-3707
  24. **Boschetti, L.** and Roy, D.P., 2008, Defining a fire year for reporting and analysis of global fire inter-annual variability, *Journal of Geophysical Research - Biogeosciences*, vol. 113, G03020, doi:10.1029/2008JG000686,
  25. **Boschetti, L.**, Roy, D. and Justice, C., 2008, Using NASA’s World Wind Virtual Globe for Interactive Visualization of the Global MODIS Burned Area Product, *International Journal of Remote Sensing*, vol 29(11), pp.3067-3072.
  26. **Boschetti, L.**, Roy, D. Barbosa, P., Boca, R. and Justice, C., 2008, A MODIS assessment of the summer 2007 extent burned in Greece, *International Journal of Remote Sensing*, vol. 29, pp.2433-2436.
  27. Boschetti, M., **Boschetti, L.**, Oliveri, S., and Casati, L., 2007, Tree species mapping with Airborne hyper-spectral MIVIS data: the Ticino Park study case, *International Journal of Remote Sensing*, vol 28(6), pp 1251-1261.
  28. Roy, D., Lewis, P., Schaaf, C., Devadiga, S., **Boschetti, L.**, 2006, The Global impact of cloud on the production of MODIS n-day and daily rolling n-day bi-directional reflectance model based composites for terrestrial monitoring , *IEEE Geoscience and Remote Sensing Letters*, vol. 3(4), pp 452 - 456, doi:10.1109/LGRS.2006.875433

29. **Boschetti, L.**, Brivio, P. A., Eva, Hugh D., Gallego, J., Baraldi, A. and Grégoire, 2006, J-M., A Sampling Method for the Retrospective Validation of Global Burned Area Products, *IEEE-Transactions on Geoscience and Remote Sensing*, vol 44(7), pp.176-1773, doi: 10.1109/TGRS.2006.874039
30. Roy, D.P., **Boschetti, L.**, Trigg, S., Remote Sensing of Fire Severity: Assessing the performance of the Normalized Burn Ratio, 2006, *IEEE Geoscience and Remote Sensing Letters*, vol.3(1), pp.112-116, doi:10.1109/LGRS.2005.858485.
31. **Boschetti, L.**, Eva, H., Brivio, P.A. and Grégoire, J.M., 2004, Lessons to be learned from the intercalibration of three satellite-derived biomass burning products, *Geophysical Research Letters*, vol. 31(21),doi: L21501 10.1029/2004GL021229.
32. Tansey K., Grégoire, J-M., Stroppiana, D., Sousa, A., Silva, J.M.N., Pereira, J.M.C., **Boschetti, L.**, Maggi, M., Brivio, P.A., Fraser, R., Flasse, S., Ershov, D., Binaghi, E., Graetz D. and Peduzzi, P., 2004, Vegetation burning in the year 2000: Global burned area estimates from SPOT VEGETATION data, *Journal of Geophysical. Research - Atmospheres*, vol.109, D14S03, doi:10.1029/2003JD003598.
33. Tansey K., Grégoire, J.M., Binaghi, E., **Boschetti, L.**, Brivio, P.A., Ershov, D, Flasse, S., Fraser, R., Graetz, D., Maggi,M, Peduzzi, P., Pereira, J.M.C., Silva, J.M.N. , Sousa, A. and Stroppiana, D., 2004, A global inventory of burned areas at 1km resolution for the year 2000 derived from SPOT VEGETATION data, *Climatic Change*, vol. 67(2), pp.1573-1580.
34. **Boschetti L.**, Flasse, S. and Brivio, P.A., 2004, Analysis of the conflict between omission and commission in low spatial resolution thematic products: the Pareto Boundary, *Remote Sensing of Environment*, vol. 91 (3-4), pp. 280-292.
35. **Boschetti L.**, Brivio, P.A. and Grégoire, J.M.,2003, The use of Meteosat and GMS imagery to detect burned areas in tropical environments, *Remote Sensing of Environment*, vol. 85(1), pp. 78-91.

**Peer Reviewed/Evaluated:** (i.e. journals, articles, proceedings, abstracts, etc.)

#### BOOK CHAPTERS AND MONOGRAPHS

1. Csiszar, I.A., Justice, C.O., Goldammer, J.G., Lynham, T. , de Groot, W.J, Prins, E.M., Elvidge, C.D., Oertel, D., Lorenz, E., Bobbe, T., Quayle, B., Davies, D., Roy, D., Boschetti, L. Korontzi, S., Ambrose, S., Stephens, G., 2014, The GOF/GOLD Fire Mapping and Monitoring theme: assessment and strategic plans, in “*Remote Sensing Modeling and Applications to Wildland Fires*”, Qu, J.J.; Sommers, W.; Yang, R.; Riebau, A.; Kafatos, M. (Eds.), Springer Verlag, 550p, ISBN 978-3-642-32529-8,
2. Chris Justice, Ivan Csiszar , **Luigi Boschetti**, Stefania Korontzi, Wilfrid Schroeder, Louis Giglio and David Roy, 2013, Satellite Monitoring and Inventory of Global Vegetation Fire, in *Vegetation Fires and Global Change – Challenges for Concerted International Action. A White Paper directed to the United Nations and International Organizations, A publication of the Global Fire Monitoring Center (GFMC)* (Goldammer Ed.), Kessel Publishing House
3. Roy, D.P, **Boschetti, L.**, and Smith, A.M, 2013, Satellite Remote Sensing of Fires, in *Fire Phenomena and the Earth System: An Interdisciplinary Guide to Fire Science*, Belcher, C.M. (Ed.), Wiley, London.
4. Justice C.O., Giglio L., Roy D., **Boschetti L.**, Csiszar I., Davies D., Korontzi S., Schroeder W., O’Neal K.J., Morisette J.T., 2011, Global Fire Products from the MODIS instruments, in *Land Remote Sensing and Global Environmental Change: NASA’s EOS and the science Of ASTER and MODIS*”, B. Ramachandran, C. Justice and M. Abrams (Eds), Springer Verlag, New York, ISBN: 978-1-4419-6749-
5. Roy, D.P, **Boschetti, L.**, and Giglio, L., 2010, Remote Sensing of Global Savanna Fire Occurrence, Extent and Properties, in *Ecosystem Function in Global Savannas: Measurement and Modeling at Landscape to Global Scales*, Michael J. Hill and Niall P. Hanan (Eds.), CRC/Taylor and Francis.

6. **Boschetti, L.**, Roy, D and Justice C, 2010, Daily global mapping of vegetation biomass burning from MODIS satellite data, in *Optical observation of vegetation properties and characteristics*, F. Maselli, M. Menenti, P.A. Brivio (Eds.), Research Signpost, Trivandrum
7. Strahler, A., **Boschetti, L.**, Foody, G., Friedl, M., Hansen, M., Harold, M., Mayaux, P., Morisette, J., Stehman, S., Wodcock, C., 2006. *Global Landcover Validation: Recommendations for Evaluation and Accuracy Assessment of Global Landcover Maps*, Luxembourg, Office for Official Publication of the European Communities, EUR 22156 EN, 58p.
8. Boschetti, M., **Boschetti, L.**, Canova, I., Casati, L., Oliveri, S., 2005, *Mappatura delle specie arboree del Parco del Ticino*, Consorzio lombardo della valle del Ticino, pp.121.
9. **Boschetti, L.**, 2005, *Methodology for accuracy assessment of global scale burned area maps derived from satellite images*, Publications of the European Commission, S.P.I.05.67, pp. 109.
10. **Boschetti L.**, S. Flasse, A. Jacques de Dixmude and S. Trigg, 2002, A multitemporal change-detection algorithm for the monitoring of burnt areas with SPOT-Vegetation data, in *Analysis of Multi-temporal Remote Sensing Images*, (L. Bruzzone and P. Smith, Eds.), World Scientific Publishing, Singapore, pp.75-82.
11. **Boschetti L.**, 2002, *Metodologia per l'individuazione delle aree bruciate in ambiente tropicale con dati di satelliti geostazionari*, Publications of the European Commission, SP. I.02.153, European Commission, pp. 151.
12. **Boschetti L.**, 2000, Burnt Area mapping from GMS-VISSR data, in *The SMOKO experiment: development and test of a multi-systems approach to burnt area mapping from optical, thermal and microwave satellite data. A joint Australia-European Union Scientific collaboration, progress report 1*, (J.M. Grégoire Ed.), report EUR 19596 EN,

#### CONFERENCE PROCEEDINGS AND ABSTRACTS

1. Boschetti, L., Roy, D., Baraldi, A., Humber, M., Justice., C., MODIS-Landsat data fusion for automated continental 30 m burned area mapping, Global Vegetation Monitoring and Modeling, Avignon, 3-7 February 2014.
2. Boschetti, L., Roy, D., Baraldi, A., Humber, M., MODIS-Landsat data fusion for automated continental 30 m burned area mapping, AGU, S. Francisco 7-13 December 2013
3. Argona, A., Sparks, A., Tinkham, A., Smith, A., Boschetti, L., Newingham, B., Lannom, K., Preliminary assessment of the Monitoring Trends in Burn Severity burned area accuracy for shrub-steppe wildfires, AGU, S. Francisco 7-13 December 2013
4. Boschetti, L., Roy, D., Stehman S., Design-based validation of the MODIS Global Burned Area Product, 2012 Fall Meeting, AGU, San Francisco, 3-7 December 2012.
5. Kumar S, Roy D P, Souza Jr C, Cochrane M A, Boschetti L (2011). Assessment of the Proximity of MODIS Active Fire Detections to Roads and Navigable Rivers in the Brazilian Tropical Moist Forest Biome. In: 2011 Fall Meeting, AGU. San Francisco, California, 5-9 December 2011
6. Boschetti L, Roy D P (2011). MODIS-Landsat data fusion for continental scale burned area mapping 2011 Fall Meeting, AGU. San Francisco, 2011
7. Roy D., Giglio, L., **Boschetti, L.**, Justice, C., 2009, 10 years of MODIS: The MODIS fire products with an emphasis on Southern African validation", Invited Presentation, *IGARRS Earth Observation Origins to Applications*, 13-17 July 2009, Cape Town, South Africa.
8. **Boschetti, L.**, Roy D., Chris Justice, 2009, The Global MODIS Burned Area Product: validation results, *Proceedings of the VII international EARSEL fire workshop*, Matera, Italy, 2-4 September 2009, pp 155-159.

9. David Roy, **Luigi Boschetti**, Chris Justice, 2008, The Global Modis Burned Area Product, *Proceedings of the 14th Australasian Remote Sensing and Photogrammetry Conference Incorporating NARGIS 08*, Darwin, Australia, 29 September- 3 October 2008.
10. **Luigi Boschetti** and David Roy, 2008, Defining a fire year for reporting and analysis of global inter-annual fire variability, *Proceedings of the 14th Australasian Remote Sensing and Photogrammetry Conference Incorporating NARGIS 08*, Darwin, Australia, 29 September- 3 October 2008.
11. Petropoulos, G., Knorr, W., Scholze, M., **Boschetti, L.**, and Karantounias, G., 2008, Rapid Analysis Of Wildfire Impacts Using ASTER Data And Support Vector Machines: A Case Study From The Greek Fires Season Of Summer 2007, *International Journal of Wildland Fires, Proceedings of the 4<sup>th</sup> International Conference on Information and Communication technologies in Bio and Earth Sciences*, Athens (Greece) 18-20 September 2008.
12. **Boschetti, L.**, Roy, D.P., Justice, C.O., 2007, Using NASA's World Wind Virtual Globe for Interactive Internet Visualisation and Quality Assessment of the Global MODIS Burned Area Product, *Proceedings of the 6<sup>th</sup> International Workshop of the Earsel Special Interest Group on Forest Fires*, ISBN92-79-06680-7, pp: 190-193.
13. Roy, D.P., **Boschetti, L.**, Justice, C.O., 2007, The global MODIS burned area product, *Proceedings of the 6<sup>th</sup> International Workshop of the Earsel Special Interest Group on Forest Fires*, ISBN92-79-06680-7, pp: 182-185.
14. Pepe, M., **Boschetti, L.**, Brivio, P.A. and Rampini, A., 2007, Accuracy benefits of a fuzzy classifier in remote sensing data classification of snow, *Fuzzy Systems Conference. FUZZ-IEEE 2007. IEEE International 23-26 July 2007* Page(s):1 - 6 Digital Object Identifier 10.1109/FUZZY.2007.4295416.
15. Roy, D.P., **Boschetti, L.**, Justice, C.O., 2007, The global MODIS burned area product, *Proceedings of the 4<sup>th</sup> International Wildland Fire Conference*, Seville 13-17 May 2007.
16. **Boschetti L.**, P.A. Brivio, Kunzle A.M, Mussio, L., 2006, Non parametric statistical tests for the analysis of multiple-sensor time series of remotely sensed data, *IGARSS IEEE International Geoscience and Remote Sensing Symposium*, July 2006 pp.200 – 203. Digital Object Identifier 10.1109/IGARSS.2006.56.
17. Roy, D, **Boschetti, L**, Justice, C., 2006, Global mapping of fire-affected areas using multitemporal MODIS data:the MCD45 product, *IGARSS IEEE International Geoscience and Remote Sensing Symposium*, July 2006 Page(s):4165 - 4168 Digital Object Identifier 10.1109/IGARSS.2006.1068
18. **Boschetti, L.**, Roy, D. and Trigg, S., 2005, È possibile utilizzare il telerilevamento satellitare per l'analisi della severità degli effetti degli incendi sulla vegetazione naturale?, *Proceedings of ASITA conference*, Catania-Italy 15-18 November 2005, vol 1, pp. 475-480.
19. Roy, D.P., **Boschetti, L.**, Justice, C.O. , Jin, Y. and Lewis, P.E., 2005, Global mapping of fire-affected area using multi-temporal MODIS data, De la Riva, J., Pérez-Cabello, F. & Chuvieco, E. (Eds), *Proceedings of the 5th International Workshop on Remote Sensing and GIS Applications to Forest Fire Management: Fire Effects Assessment*, Universidad de Zaragoza. ISBN: 84-96214-52-4.
20. **Boschetti L.**, H. Eva, P.A. Brivio and J. Gallego, 2004, the validation protocol of GBA2000 global burned area maps, *IGARSS IEEE International Geoscience and Remote Sensing Symposium, session Land Degradation and Fires, Anchorage, 20-24 September 2004*, vol. 3, pp. 2107-2110.
21. **Boschetti L.**, P.A. Brivio and S.P. Flasse, 2004, Pareto boundary: a useful tool in the accuracy assessment of low spatial resolution thematic products, *IGARSS IEEE International Geoscience and Remote Sensing Symposium, session Data Correction and Calibration*, Anchorage, 20-24 September 2004, vol.6, pp. 3759-3762.
22. Clerici N., **L. Boschetti** and H. Eva, 2004, Assessing vegetation fires activity in West and Central Africa using MODIS and TRMM data, *IGARSS IEEE Int. Geoscience & Remote Sensing Symposium, session Land Degradation and Fires*, Anchorage, 20-24 September 2004, vol.3, pp.2087-2090.

23. S. Oliveri, Boschetti M., **Boschetti L.**, Furlanetto D., Canova I., Castrovinci R., Casati L., 2004, Mappatura delle specie arboree del parco del Ticino mediante telerilevamento iperspettrale; *Proceedings 6a Conferenza Nazionale ASITA*; Roma, 14 - 17 December 2004, vol.1 pp. 1577-1582.
24. **Boschetti L.**, 2003, A multitemporal algorithm for burned area detection in Mexican woodland and shrubland environment with SPOT-VEGETATION data, *International Geoscience And Remote Sensing Symposium IGARSS 2003 - Learning from Earth's Shapes and Colors*, vol. 2, pp. 1293 – 1295.
25. Palumbo I., e **L. Boschetti**, 2003, Analisi della distribuzione spazio-temporale degli incendi nei parchi naturali in Africa nell'anno 2000, *Proceedings of the 7<sup>a</sup> Conferenza Nazionale ASITA L'Informazione Territoriale e la dimensione tempo*, 28 - 31 October 2003, Verona.
26. Palumbo I., Grégoire J-M., **L. Boschetti** and H. Eva, 2003, Fire regimes in protected areas of Sub-Saharan Africa, derived from the GBA2000 dataset, *Proceedings of the 4th International Workshop on Remote Sensing and GIS applications to Forest Fire Management: Innovative concepts and methods in fire danger estimation*, Ghent University - EARSel, ISBN: 2-908885-25-5. Editors: Emilio Chuvieco, Pilar Martin and Chris Justice (2003). pp. 139-149.
27. Grégoire J-M., K. Tansey, **L. Boschetti**, P.A. Brivio, D. Ershov, R. Fraser, D. Graetz, M. Maggi, P. Peduzzi, J.M.N. Pereira, J. Silva, A. Sousa, and D. Stroppiana, 2002, Global scale inventory of the area burnt in the year 2000. The GBA2000 dataset, *Land use and Land Cover Change (LUCC) Newsletter*, No. 8, pp. 13-14.
28. Raffo S., **L. Boschetti**, A. Baraldi, E. Binaghi, and J-M. Grégoire, 2002, Implementazione e test di un algoritmo, *unsupervised change detection*, per l'individuazione di aree bruciate, *Proceedings 6<sup>a</sup> Conferenza Nazionale ASITA Geomatica per l'ambiente, il territorio e il Patrimonio Culturale*, Vol.2, pp.1785-1790.
29. **Boschetti, L.**, Flasse, S., Trigg, S., Brivio, P.A., Maggi, M., 2001, A methodology for the validation of low resolution remotely sensed data products, *Proceeding of the 5a conferenza nazionale ASITA, Rimini 9-12 Ottobre 2001*.
30. **Boschetti, L.**, Brivio, P.A., and Grégoire, J.M., 2001, Detection of burned areas using geostationary satellite data in tropical environments, in *Remote Sensing for Agriculture, Ecosystems and Hydrology* (M. Owe, G. D'Urso, E. Zilioli, Eds.) Proc. SPIE Vol. 4171, pp. 156-165.
31. **Boschetti L.**, P.A. Brivio, and J-M. Grégoire, 2000, Metodologia per l'individuazione delle aree bruciate nella fascia tropicale del globo con dati di satelliti geostazionari. *Proceedings of the 4a Conferenza nazionale ASITA*; 3-6 October, 2000; Genova; Italy; vol.1., pp. 265-270.

#### WHITE PAPERS AND INTERNATIONAL REPORTS

1. Boschetti, L., Justice, C., Roy, D., Csiszar, I., Chuvieco, E., Spessa A, Hoffman, A, Russell-Smith, J, Paganini M., Arino, O, 2012, Methods for estimating GHG emissions from biomass burning, in "A sourcebook of methods and procedures for monitoring and reporting anthropogenic greenhouse gas emissions and removals caused by deforestation, gains and losses of carbon stocks in forests remaining forests, and forestation", GOFCC-GOLD. <http://www.gofccgold.wur.nl/redd/>
2. Chris Justice, Ivan Csiszar, **Luigi Boschetti**, Stefania Korontzi, Wilfrid Schroeder, Louis Giglio and David Roy, Satellite Monitoring and Inventory of Global Vegetation Fire, in *White Paper on Vegetation Fires and Global Change* (Goldammer Ed.), presented at the "Global Platform for Disaster Risk Reduction" workshop at the UN, Geneva, 15-19 June 2009, as the contribution of the UNISDR Wildland Fire Advisory Group to the United Nations system.
3. **Boschetti, L.**, Roy D., Justice, C., 2009, International Global Burned Area Satellite Product Validation Protocol Part I – production and standardization of validation reference data. Available online on <http://lpvs.gsfc.nasa.gov/>
4. **Boschetti, L.**, Justice, C., Roy, D., Csiszar, I., Chuvieco, E. and Spessa, A., Methods for estimating GHG's emissions from Biomass Burning, in *Reducing greenhouse gas emissions from deforestation*



*and degradation in developing countries: A sourcebook of methods and procedures for monitoring measuring and reporting*, GOFS-GOLD, <http://www.gofc-gold.uni-jena.de/redd/index.php>

5. Justice, C., Giglio, L., Csiszar, I., **Boschetti, L.**, Korontzi, S. and Wooster, M., *White Paper on a NASA Fire ESDR*, available online (last accessed September 30 2009) at:  
[http://landportal.gsfc.nasa.gov/Documents/ESDR/Fire\\_Justice\\_whitepaper.pdf](http://landportal.gsfc.nasa.gov/Documents/ESDR/Fire_Justice_whitepaper.pdf)

**Presentations and Other Creative Activities:** (i.e. slide sets, web pages, video productions, etc., provide date and location)

Boschetti, L., Roy, D., Stehman, S., Justice, C., Design-Based Validation of the MODIS Global Burned Area Product., Land Product Validation and Evolution, European Space Agency, Frascati, Rome 28-30 January 2014

Schaepman-Strub, G., Román, M., Boschetti, L., Che, T., Dash, J., Fernandes, R., Gobron, N., Hall, D., Herold, M., Hook, S., Jackson, T., Jones, M., Nickeson, J., Olofsson, P., Plummer, S., Sanchez, A., Schaaf, C., Sobrino, J., Tansey, K., Wagner, W., Coordinating Validation of Satellite-Derived Land Surface Products – Mission and Achievements of the CEOS LPV, Land Product Validation and Evolution, European Space Agency, Frascati, Rome 28-30 January 2014, Invited Keynote.

Roy, D.P., Kovalsky, V., Yan, L., Egorov, A., Kommareddy, I., Zhang, H., Hansen, M., Boschetti, L., Votava, P., Nemani, R., Web-Enabled Landsat Data (WELD) for monitoring contemporary terrestrial change nearly everywhere, Frontiers in Earth Observation for Land System Science - a joint workshop of the EARSeL SIG LULC and the NASA LCLUC Science Team, Humboldt-Universität, Berlin, Germany, 17-18 March, 2014, Invited Keynote.

Boschetti, L., Roy, D., Justice, C., Giglio, L., Building a global fire climate record: The challenge of meeting the Essential Climate Variable requirements, 9th Earsel Fire SIG, Coventry 16 October 2013 (Invited Keynote)

Boschetti, L., Roy, D., Justice, C., Giglio, L., Burned Area and Validation – next steps GOFC Symposium, Wageningen, NL, 15 April 2013

Boschetti, L., Hoffman, A., UN-REDD Fire-GOFC source book updates and next steps, GOFC Symposium, Wageningen, NL, 17 April 2013

Boschetti, L., Roy, D., Baraldi, A., Justice, C., systematic burned area mapping with Landsat in the context of emission estimation, invited presentation at the Workshop “Burn Severity and related ecosystem responses” organized by the Brazilian Ministry for Environment, Brasilia Dec 11-14

Boschetti, L., Roy, D., Baraldi, A., Justice, C., MODIS-Landsat Data Fusion for Continental Scale 30m Resolution Burned Area Mapping, invited presentation at the *Sentinel-3 OLCI & MERIS ATSR ESA workshop*, Frascati, Italy, 15-19 October 2013

Boschetti, L., Roy, D., Justice, C., Giglio, L., “Global Burned Area Mapping: MODIS and beyond”, Invited presentation at the NASA Science Meeting, GOFC-GOLD and NEESPI Workshop and Regional Conference Impacts of extreme weather on natural, socio-economic, and land-use systems: Focus on the 2010 summer anomaly in the Volga region June 17 – 22, 2012 Volga State University of Technology, Yoshkar-Ola, Mari El, Russian Federation

Boschetti, L., Roy, D., Justice, C., Giglio, L., Davies, D., “MODIS RapidFire and Burned Area analysis – An operational Success Story”, invited presentation at the 2012 NASA Modis Science Team Meeting, Silver Spring May 7-9 2012

**Grants and Contracts Awarded:**

*Pending*

Development of a Suomi NPP VIIRS Global Burned Area Earth System Data Record, submitted to NASA ROSES 2013, March 2014, PI: Louis Giglio (University of Maryland), Co-Is: Boschetti L., (Idaho PI), Roy, D.P.(South Dakota State University), Vadrevu, K.P (University of Maryland), (602691 USD) .

Prototyping the next generation of fire science products: geostationary and polar orbiting data fusion for Landsat resolution burned area and biomass consumed retrieval, submitted to NASA ROSES 2013 May 2013, PI: David Roy (South Dakota State University), Co-Is: Boschetti L., (Idaho PI), Smith. A. (617795 USD)

*Awarded (under negotiation)*

Maintenance of the MODIS Global Active Fire and Burned Area Products, NASA, PI: Louis Giglio (University of Maryland), submitted to NASA June 2013, Co-Is: Boschetti (Idaho PI), Roy, Justice. (397,790.00 USD)

*Active grants*

April 2014 – April 2017, “Prototyping global industrial forest mapping, a Landsat spatio-temporal approach”, selected November 2013 to NASA Land-Cover Land-Use Change ROSES 2012, P.I.: Boschetti, L. Co-Is: Keefe, R., (722,333.15 USD)

January 2014 - September 2014, “National Forest Monitoring Systems for a transparent and truthful REDD+”, **Boschetti L.** (Principal Investigator), Source of Support: UN FAO (79,558USD)

April 2011-October 2014, “Land Cover Land Use Change Scientist Program Support.” Justice C. (Principal Investigator), **Boschetti L.** (Co-Principal Investigator), Vadrevu K. (Co-Principal Investigator) Source of support: NASA (918,470 USD)

January 2011-August 2014 "MODIS-Landsat data fusion for high spatial resolution multiannual wall to wall burned area mapping of the Conterminous United States", **Boschetti, L.** (Principal Investigator), Roy, D. (Co-Principal Investigator), Source of Support: NASA ROSES 2009 (278,710 USD)

January 2011-December 2014 "MODIS Burned Area Maintenance, Improvement and Validation", Justice C.O. (Principal Investigator), **Boschetti, L.** (Co- Principal Investigator), Roy, D. (Co-Principal Investigator), Giglio, L. (Co- Principal Investigator) Source of Support: NASA ROSES 2009 (789,598 USD)

January 2011-December 2015 "Sentinel 3 Science Products: a US contribution". Justice C.O. (Principal Investigator), **Boschetti, L.** (Co- Principal Investigator), Giglio, L. (Co- Principal Investigator), Vermote E. (Co- Principal Investigator). Source of Support: NASA ROSES 2010 (464,117 USD)

*Past grants*

September 2010: “Short Term Mobility” award for exchanges between personnel of Italian and Foreign research institution, funded by the Italian National Research Council (2,400 EUR)

August 2009 - August 2010: Reconciliation between the MODIS Active Fires and Burned Area Products for Improved Biomass Burned and Uncertainty Estimation. **Boschetti, L.** (Principal Investigator), Roy, D. (Co- Principal Investigator) and Smith A.M. (Co- Principal Investigator). Source of support: NASA Earth Science Applications Feasibility Studies. (91,855 USD)

July 2008: “Short Term Mobility” award for exchanges between personnel of Italian and Foreign research institution, funded by the Italian National Research Council (1,600 EUR)

December 2007 – December 2010: A Global Burned Area ESDR, Justice, C. O. (Principal Investigator), **Boschetti, L.** (Co- Principal Investigator), Roy, D. (Co- Principal Investigator), Giglio, L. (Co-Principal Investigator). Source of Support: NASA Earth System Science Research using Data and Products from the Terra, Aqua, and ACRIMSAT Satellites, (1,067,586 USD)

July 2006: “Short Term Mobility” award for exchanges between personnel of Italian and Foreign research institution, funded by the Italian National Research Council (1,600 EUR)

BOSCHETTI, Luigi

March 2002-April 2004: "Training through Research" grant by the European Commission, covering a Research Fellowship at the Joint Research Centre (60,000 EUR)

October 2001-February 2002: Grant for research in a foreign university, funded by Italian National Research Council (7,000 EUR)

October 2000-October 2001: Grant for research in a foreign university, funded by Politecnico di Milano (13,000 EUR)

## **SERVICE:**

**Major Committee Assignments:** (National, State, District, County, University, College, Departmental and dates)

### **International Committees and Working groups membership**

GOFC-GOLD REDD Sourcebook Team (2009-present)

GOFC-GOLD Fire Implementation Team (2009-present)

CEOS Cal/Val, Working group on Fire validation, **co-chair** (2008-present)

CEOS Cal/Val Working Group on Global Land Products Validation (2003-present)

### **European Commission**

JRC Institute for Environment and Sustainability Scientific Committee (2003)

### **National Committees**

Italian Ministry for Environment and National Research Council, Scientific Committee of 'Monitoring Fire in Protected Areas' project (2005-2008)

### **Campus, College and Departmental Committees (University of Idaho)**

CNR geospatial committee (2012-present, **chair**)

Campus IT committee (20013-present)

Graduate Council (2013-present, alternate CNR representative)

International Engagement Council (2013-present)

### **Departmental Committees (University of Maryland, Department of Geography)**

Research Faculty Advisory Committee (2010, **chair**)

Research Faculty voting representative in the Faculty Committee (2008-2012)

Graduate Committee (2006-2008)

Research Committee (2005-2006)

Research Faculty Merit Review Committee (2006, 2008)

**Professional and Scholarly Organizations** (including memberships, committee assignments, editorial services, offices held and dates)

American Geophysical Union (member)

Member of Scientific committee, 9th International Workshop of the EARSeL Special Interest Group (SIG) on Forest Fires, Leicester (UK) October 2013.

Co-Convener, Fire Session, EGU Symposium, Vienna, Austria, April 2012

Chair, Burned Area Mapping Session, NASA LCLUC-NEESPI Workshop, Yoshkar-Ola, Russian Federation, June 2012.

Chair, Space Assets Session, 1st workshop on Remote Sensing for Sub-Saharan Africa, Nairobi, Kenya, November 2011

Chair, Fire Validation Session, EARSEL-SIG FIRE workshop, Matera, Italy, September 2009

Member of Scientific committee, 6th International Workshop of the EARSeL Special Interest Group (SIG) on Forest Fires, Thessaloniki (Greece) September 2007.

Co-Chair Fire and Hazards session, Geoscience and Remote Sensing Symposium, 2004. IGARSS '06, Denver, USA, 31 July-5 August 2006.

Co-Chair Fire and Hazards session, Geoscience and Remote Sensing Symposium, 2004. IGARSS '04, Anchorage, USA, 20-24 September 2004.