

Andrés E. Santamaría-Artigas

DEPARTMENT OF GEOGRAPHICAL SCIENCES | UNIVERSITY OF MARYLAND
TERRESTRIAL INFORMATION SYSTEMS LABORATORY | NASA GODDARD SPACE FLIGHT CENTER

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Appointments

Research Scientist

TERRESTRIAL INFORMATION SYSTEMS LABORATORY, NASA GODDARD SPACE FLIGHT CENTER

Greenbelt, MD 20711, USA

2018 - Present

Graduate Research Assistant

DEPARTMENT OF GEOGRAPHICAL SCIENCES, UNIVERSITY OF MARYLAND

College Park, MD 20742, USA

2015 - Present

Researcher

LABORATORY FOR ANALYSIS OF THE BIOSPHERE, UNIVERSITY OF CHILE

Santiago, Chile

2013 - 2015

Education

Doctoral Candidate

DEPARTMENT OF GEOGRAPHICAL SCIENCES, UNIVERSITY OF MARYLAND

College Park, MD 20742, USA

2015 - Present

Renewable Natural Resources Engineer

UNIVERSITY OF CHILE

Santiago, Chile

2011 - 2015

Bachelor in Sciences of the Renewable Natural Resources

UNIVERSITY OF CHILE

Santiago, Chile

2007 - 2011

Publications

Franch, B., E. Vermote, S. Skakun, J.-C. Roger, J. Masek, J. Ju, J. L. Villaescusa-Nadal, and **A. Santamaria-Artigas** (2019). "A Method for Landsat and Sentinel 2 (HLS) BRDF Normalization". In: *Remote Sensing* 11.6. doi: 10.3390/rs11060632. URL: <http://www.mdpi.com/2072-4292/11/6/632>.

Santamaria-Artigas, A., B. Franch, P. Guillevic, J.-C. Roger, E. F. Vermote, and S. Skakun (2019). "Evaluation of Near-Surface Air Temperature From Reanalysis Over the United States and Ukraine: Application to Winter Wheat Yield Forecasting". In: *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, pp. 1–10. doi: 10.1109/JSTARS.2019.2902479. URL: <https://ieeexplore.ieee.org/document/8672472/>.

Becker-Reshef, I., B. Franch, B. Barker, E. Murphy, **A. Santamaría-Artigas**, M. Humber, S. Skakun, and E. Vermote (2018). "Prior season crop type masks for winter wheat yield forecasting: A US case study". In: *Remote Sensing* 10.10, pp. 1–20. doi: 10.3390/rs10101659. URL: <http://dx.doi.org/10.3390/rs10101659>.

Franch, B., E. Vermote, S. Skakun, J.-C. Roger, **A. Santamaría-Artigas**, J. L. Villaescusa-Nadal, and J. Masek (2018). "Toward Landsat and Sentinel-2 BRDF Normalization and Albedo Estimation: A Case Study in the Peruvian Amazon Forest". In: *Frontiers in Earth Science* 6.October, pp. 1–5. doi: 10.3389/feart.2018.00185. URL: <http://dx.doi.org/10.3389/feart.2018.00185>.

Jimenez, J. C., J. Barichivich, C. Mattar, K. Takahashi, **A. Santamaría-Artigas**, J. A. Sobrino, and Y. Malhi (2018). "Spatio-temporal patterns of thermal anomalies and drought over tropical forests driven by recent extreme climatic anomalies". In: *Philosophical transactions of the Royal Society of London. Series B, Biological sciences* 373.1760. doi: 10.1098/rstb.2017.0300. URL: <http://dx.doi.org/10.1098/rstb.2017.0300>.

Mattar, C., **A. Santamaría-Artigas**, F. Ponzoni, C. T. Pinto, C. Barrientos, and G. Hulley (2018). "Atacama Field Campaign: laboratory and in-situ measurements for remote sensing applications". In: *International Journal of Digital Earth* 11.4, pp. 1–19. doi: 10.1080/17538947.2018.1450901. URL: <http://dx.doi.org/10.1080/17538947.2018.1450901>.

Olivera-Guerra, L., C. Mattar, O. Merlin, C. Durán-Alarcón, **A. Santamaría-Artigas**, and R. Fuster (2017). "An operational method for the disaggregation of land surface temperature to estimate actual evapotranspiration in the arid region of Chile". In: *ISPRS Journal of Photogrammetry and Remote Sensing* 128, pp. 170–181. doi: 10.1016/j.isprsjprs.2017.03.014. URL: <http://dx.doi.org/10.1016/j.isprsjprs.2017.03.014>.

Jiménez-Muñoz, J. C., C. Mattar, J. Barichivich, **A. Santamaría-Artigas**, K. Takahashi, Y. Malhi, J. A. Sobrino, and G. van der Schrier (2016). “Record-breaking warming and extreme drought in the Amazon rainforest during the course of El Niño 2015–2016”. In: *Scientific Reports* 6.September, p. 33130. DOI: 10.1038/srep33130. URL: <http://dx.doi.org/10.1038/srep33130>.

Mattar, C., **A. Santamaría-Artigas**, C. Durán-Alarcón, L. Olivera-Guerra, R. Fuster, and D. Borvarán (2016). “The LAB-Net Soil Moisture Network: Application to Thermal Remote Sensing and Surface Energy Balance”. en. In: *Data* 1.1, p. 6. DOI: 10.3390/data1010006. URL: <http://dx.doi.org/10.3390/data1010006>.

Santamaría-Artigas, A., C. Mattar, and J. P. Wigneron (2016). “Application of a Combined Optical-Passive Microwave Method to Retrieve Soil Moisture at Regional Scale over Chile”. In: *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing* 9.4, pp. 1493–1504. DOI: 10.1109/JSTARS.2015.2512926. URL: <http://dx.doi.org/10.1109/JSTARS.2015.2512926>.

Mattar, C., C. Durán-Alarcón, J. C. Jiménez-Muñoz, **A. Santamaría-Artigas**, L. Olivera-Guerra, and J. A. Sobrino (2015). “Global Atmospheric Profiles from Reanalysis Information (GAPRI): a new database for earth surface temperature retrieval”. In: *International Journal of Remote Sensing* 36.19–20, pp. 5045–5060. DOI: 10.1080/01431161.2015.1054965. URL: <http://dx.doi.org/10.1080/01431161.2015.1054965>.

Pinto, C. T., F. J. Ponzoni, C. Barrientos, C. Mattar, **A. Santamaría-Artigas**, and R. M. Castro (2015). “Spectral and Atmospheric Characterization of a Site at Atacama Desert for Earth Observation Sensor Calibration”. In: *IEEE Geoscience and Remote Sensing Letters* 12.11, pp. 2227–2231. DOI: 10.1109/LGRS.2015.2460454. URL: <https://dx.doi.org/10.1109/LGRS.2015.2460454>.

Durán-Alarcón, C., **A. Santamaría-Artigas**, N. Valenzuela, and C. Mattar (2014). “RSR Calculator, a tool for Calibration / Validation activities”. In: *Revista de Teledetección* 42, pp. 111–117. DOI: 10.4995/raet.2014.3230. URL: <http://dx.doi.org/10.4995/raet.2014.3230>.

Mattar, C., J. Hernández, **A. Santamaría-Artigas**, C. Durán-Alarcón, L. Olivera-Guerra, M. Inzunza, D. Tapia, and E. Escobar-lavín (2014). “A first in-flight absolute calibration of the Chilean Earth Observation Satellite”. In: *ISPRS Journal of Photogrammetry and Remote Sensing* 92, pp. 16–25. DOI: 10.1016/j.isprsjprs.2014.02.017. URL: <http://dx.doi.org/10.1016/j.isprsjprs.2014.02.017>.

Santamaría-Artigas, A., C. Mattar, C. Durán-Alarcón, L. Olivera-Guerra, M. Inzunza, D. Tapia, and E. Escobar-lavín (2013). “First application of FASAT-Charlie Imagery for the assessment of semiarid prairies in Chile”. In: *Revista de Teledetección* 40, pp. 78–87. URL: http://www.aet.org.es/revistas/revista40/Numero40%7B%5C_%7D07.pdf.

Mattar, C., **A. Santamaría-Artigas**, and C. Durán-Alarcón (2012). “Estimating the burned area of the Torres del Paine National Park using remote sensing data”. In: *Revista de Teledetección* 38, pp. 36–50. URL: http://www.aet.org.es/revistas/revista38/Numero38%7B%5C_%7D04.pdf.

Book Chapters

Mattar, C., **A. Santamaría-Artigas**, J. A. Sobrino, and J. C. Jiménez-Muñoz (2016). “Soil Moisture Retrieved From a Combined Optical and Passive Microwave Approach: Theory and Applications”. In: *Satellite Soil Moisture Retrieval: Techniques and Applications*. Ed. by P. K. Srivastava, G. C. Petropoulos, and Y. H. Kerr. Elsevier. Chap. 7, pp. 135–158. DOI: 10.1016/B978-0-12-803388-3.00007-3. URL: <https://dx.doi.org/10.1016/B978-0-12-803388-3.00007-3>.

Proceedings

Jimenez, J. C., J. Gomis-Cebolla, J. A. Sobrino, G. Soria, D. Skokovic, Y. Julien, S. García-Monteiro, C. Mattar, **A. Santamaría-Artigas**, and J. J. Pasapera-Gonzales (2018). “Sentinel 2 and 3 for Temperature Monitoring Over the Amazon”. In: *International Geoscience and Remote Sensing Symposium (IGARSS)*. Valencia, Spain, pp. 5925–5928. DOI: 10.1109/IGARSS.2018.8518130. URL: <https://dx.doi.org/10.1109/IGARSS.2018.8518130>.

Santamaría-Artigas, A., B. Franch, P. C. Guillevic, J.-C. Roger, and E. F. Vermote (2018). “Comparison of Surface Air Temperature Products from Reanalysis over United States and Ukraine : Application to Wheat Yield Forecasting”. In: *International Geoscience and Remote Sensing Symposium (IGARSS)*. Valencia, Spain, pp. 5359–5362. DOI: 10.1109/IGARSS.2018.8518644. URL: <https://dx.doi.org/10.1109/IGARSS.2018.8518644>.

Skakun, S., B. Franch, J. C. Roger, E. Vermote, I. Becker-Reshef, C. Justice, and **A. Santamaría-Artigas** (2016). “Incorporating yearly derived winter wheat maps into winter wheat yield forecasting model”. In: *International Geoscience and Remote Sensing Symposium (IGARSS)*. Beijing, China, pp. 7164–7167. DOI: 10.1109/IGARSS.2016.7730869.

Olivera-Guerra, L. E., O. Merlin, C. Mattar, C. Durán-Alarcón, **A. Santamaría-Artigas**, and V. Stefan (2015). “Combining meteorological and lysimeter data to evaluate energy and water fluxes over a row crop for remote sensing applications”. In: *International Geoscience and Remote Sensing Symposium (IGARSS)*. Milan, Italy, pp. 4649–4651. DOI: 10.1109/IGARSS.2015.7326865. URL: <https://dx.doi.org/10.1109/IGARSS.2015.7326865>.

Santamaría-Artigas, A., C. Mattar, J. P. Wigneron, L. Olivera-Guerra, and C. Durán-Alarcón (2015). “Calibration and evaluation of an optical-passive microwave approach to estimate soil moisture over several land cover types”. In: *International Geoscience and Remote Sensing Symposium (IGARSS)*. Milan, pp. 1992–1995. DOI: 10.1109/IGARSS.2015.7326188. URL: <https://dx.doi.org/10.1109/IGARSS.2015.7326188>.

Conferences

Jimenez, J. C., J. Gomis-Cebolla, J. A. Sobrino, G. Soria, D. Skokovic, Y. Julien, S. García-Monteiro, C. Mattar, **A. Santamaría-Artigas**, and J. J. Pasapera-Gonzales (2018). “Sentinel 2 and 3 for Temperature Monitoring Over the Amazon”. In: *International Geoscience and Remote Sensing Symposium (IGARSS)*. Valencia, Spain, pp. 5925–5928. DOI: 10.1109/IGARSS.2018.8518130. URL: <https://dx.doi.org/10.1109/IGARSS.2018.8518130>.

Santamaría-Artigas, A., B. Franch, P. C. Guillevic, J.-C. Roger, and E. F. Vermote (2018). “Comparison of Surface Air Temperature Products from Reanalysis over United States and Ukraine : Application to Wheat Yield Forecasting”. In: *International Geoscience and Remote Sensing Symposium (IGARSS)*. Valencia, Spain, pp. 5359–5362. DOI: 10.1109/IGARSS.2018.8518644. URL: <https://dx.doi.org/10.1109/IGARSS.2018.8518644>.

Santamaría-Artigas, A., J.-C. Roger, B. Franch, E. F. Vermote, and C. O. Justice (2018). “Evaluation of the AVHRR surface reflectance long-term data record over multiple land surface types”. In: *American Geophysical Union (AGU) Fall Meeting*. Washington D.C, USA.

Jiménez-Muñoz, J. C., J. A. Sobrino, G. Soria, Y. Julien, D. Skokovic, J. Gomis-Cebolla, C. Mattar, **A. Santamaría-Artigas**, and J. J. Pasapera-Gonzales (2017). “Early validation results of the land surface temperature product derived from Sentinel-3 SLSTR instrument”. In: *5th International Symposium on Recent Advances in Quantitative Remote Sensing*. Valencia, Spain.

Santamaría-Artigas, A., B. Franch, E. F. Vermote, J.-C. Roger, and C. O. Justice (2017). “Intercomparison of 30 years of AVHRR and Landsat-5 TM Surface Reflectance using Multiple Pseudo-Invariant Calibration Sites”. In: *American Geophysical Union (AGU) Fall Meeting*. New Orleans, LA, USA.

Mattar, C., **A. Santamaría-Artigas**, C. Corbari, and M. Mancini (2016). “An intercomparison of soil moisture retrievals in the Po Basin, Italy”. In: *ESA Living Planet Symposium*. Prague, Czech Republic.

Skakun, S., B. Franch, J. C. Roger, E. Vermote, I. Becker-Reshef, C. Justice, and **A. Santamaría-Artigas** (2016). “Incorporating yearly derived winter wheat maps into winter wheat yield forecasting model”. In: *International Geoscience and Remote Sensing Symposium (IGARSS)*. Beijing, China, pp. 7164–7167. DOI: 10.1109/IGARSS.2016.7730869.

Jiménez-Muñoz, J. C., J. A. Sobrino, J. Gomis, C. Mattar, **A. Santamaría-Artigas**, and C. Durán-Alarcón (2015). “Episodios extremos de temperatura a escala global detectados por el sensor MODIS en la última década”. In: *XVI Congress of the Spanish Association of Remote Sensing*. Seville, Spain.

Latorre, C., F. Camacho, C. Mattar, **A. Santamaría-Artigas**, N. Leiva-Büchi, and R. Lacaze (2015). “LAI, FAPAR and FVC derived from FASAT-C and in-situ data from Chimbarongo agricultural zone, Chile”. In: *XVI Congress of the Spanish Association of Remote Sensing*. Seville, Spain.

Mattar, C., **A. Santamaría-Artigas**, C. Durán-Alarcón, L. Olivera-Guerra, F. Ponzoni, F. Teixeira, C. Barrientos, O. Merlin, F. Camacho, N. Leiva-Büchi, and A. Bravo (2015). “Remote Sensing Calibration / Validation Activities in Chile”. In: *XVII Brazilian Remote Sensing Symposium*. Paraíba, Brazil.

Olivera-Guerra, L. E., O. Merlin, C. Mattar, C. Durán-Alarcón, **A. Santamaría-Artigas**, and V. Stefan (2015). “Combining meteorological and lysimeter data to evaluate energy and water fluxes over a row crop for remote sensing applications”. In: *International Geoscience and Remote Sensing Symposium (IGARSS)*. Milan, Italy, pp. 4649–4651. DOI: 10.1109/IGARSS.2015.7326865. URL: <https://dx.doi.org/10.1109/IGARSS.2015.7326865>.

Santamaría-Artigas, A., C. Mattar, J. P. Wigneron, L. Olivera-Guerra, and C. Durán-Alarcón (2015). “Calibration and evaluation of an optical-passive microwave approach to estimate soil moisture over several land cover types”. In:

International Geoscience and Remote Sensing Symposium (IGARSS). Milan, pp. 1992–1995. DOI: 10.1109/IGARSS.2015.7326188. URL: <https://dx.doi.org/10.1109/IGARSS.2015.7326188>.

Mattar, C., **A. Santamaría-Artigas**, C. Durán-Alarcón, L. Olivera-Guerra, and R. Fuster (2014). “LAB-net the First Chilean soil moisture network for Remote Sensing Applications”. In: *4th International Symposium on Recent Advances in Quantitative Remote Sensing*. Torrent, Spain.

Mattar, C., **A. Santamaría-Artigas**, J. P. Wigneron, and P. De Rosnay (2014). “A statistical calibration for a combined Optical-Passive microwave method using remote sensing and reanalysis data”. In: *4th International Symposium on Recent Advances in Quantitative Remote Sensing*. Torrent, Spain.

Olivera-Guerra, L., C. Mattar, **A. Santamaría-Artigas**, C. Durán-Alarcón, and R. Fuster (2014). “A first evaluation of an operational method (SSEBop) to estimate Actual Evapotranspiration by using MODIS data over the semi-arid region of Chile”. In: *4th International Symposium on Recent Advances in Quantitative Remote Sensing*. 22 - 26 September. Torrent, Spain.

Durán-Alarcón, C., L. Olivera-Guerra, **A. Santamaría-Artigas**, and C. Mattar (2013). “Seasonal analysis of the surface temperature and NDVI of the arctic tundra using MODIS data from the last decade”. In: *2nd Latin American Remote Sensing Week*. Santiago, Chile.

Mattar, C., J. Hernández, **A. Santamaría-Artigas**, C. Durán-Alarcón, L. Olivera-Guerra, M. Inzunza, D. Tapia, and E. Escobar-Lavín (2013). “A First In-Flight Absolute Calibration of the Chilean Earth Observation Satellite”. In: *2nd Latin American Remote Sensing Week*. Santiago, Chile.

Projects

Land Surface Reflectance Validation Research and Algorithm Refinement.

PHD. STUDENT

- Funded by NASA (NNX14AR70A)

United States

2015 - 2017

Determination of snow runoff and sublimation in the upper basin of Copiapo Valley.

RESEARCH ASSISTANT

- Funded by CONICYT (Regional FONDEF D13R20005)

Copiapo, Chile

2014 - 2015

ATACAL: CalVal field campaign at Atacama Desert.

RESEARCH ASSISTANT

- Funded by CONICYT, University of Chile, and the National Institute for Space Research of Brazil.

Antofagasta, Chile

2014

Surface Temperature Anomalies Monitoring over the Amazon Forest.

RESEARCH ASSISTANT

- Funded by Valencia University (UV-INV-PRECOMP13-115366).

Tambo Pata, Peru

2014

Hydric demand dynamic model for water resources management at watershade scale.

RESEARCH ASSISTANT

- Funded by CONICYT (FONDEF IDEA CA13I10102)

Copiapo, Chile

2013 - 2014

Estimating the surface soil moisture at regional scale by using a synergic optical-passive microwave approach and remote sensing data.

RESEARCH ASSISTANT

- Funded by CONICYT (Initiation FONDECYT 10133359)

Chile

2013 - 2014

Implementation of Multi-Scale Agricultural Indicators Exploiting Sentinels (IMAGINES)

RESEARCH ASSISTANT

- Funded by the European Union (SPA.2012.1.1-05)

Chile

2012 - 2016

Application of an optical-passive microwave synergic method to estimate surface soil moisture

RESEARCH ASSISTANT

- Funded by University of Chile (U-INICIA 4/0612)

Chile

2012 - 2014

Academic Activities

2014	Academic Assistant , Remote Sensing and Image Processing	IAAP (Peru)
2014	Academic Assistant , Platforms, Sensors, and Calibration Course	University of Chile
2013	Academic Assistant , Hydrology	University of Chile
2012	Academic Assistant , Hydrology	University of Chile
2012	Academic Assistant , Remote Sensing	University of Chile
2012	Academic Assistant , Remote Sensing Applications	University of Chile
2012	Academic Assistant , Quantitative Remote Sensing	University of Chile
2012	Academic Assistant , Advanced Geographical Information Systems	University of Chile
2012	Academic Assistant , Solar Energy	University of Chile
2012	Academic Assistant , Wind Energy	University of Chile
2011	Academic Assistant , Cartography and Geographical Information Systems	University of Chile

Skills

Programming	Python, IDL, MATLAB, R, CRBasic, Arduino, Latex.
Software	QGis, ArcMap, ENVI.
Equipment	Configuration and Installation of High-end and Low-cost Meteorological Equipment.
Languages	Spanish, English.