

## Presentation of scientific merits- Fernando Jaramillo

1.	List of scientific works .....	2
1.1	Doctoral thesis .....	2
1.2	Articles in international scientific journals .....	2
1.3	Contributions to conferences .....	3
1.4	Invited Lectures.....	5
1.5	Popular science publications .....	5
1.6	Interviews.....	5
1.7	Other scientific publications/reports.....	6
2.	List of acquired external funding .....	6
2.1	Main Applicant.....	6
2.2	Co-Applicant.....	7
3.	Other scientific merits/achievements.....	7
3.1	Professional Memberships (selected periods).....	7
3.2	Scientific Assignments and Commissions of Trust.....	7

## 1. List of scientific works

Total of 22 peer-reviewed publications, 8 as first author, h-index: 12; i10-index 14; citations: 529 (google citations)

### 1.1 Doctoral thesis

**Jaramillo, F.**, Changes in the Freshwater System (2015). Distinguishing Climate and Landscape Drivers, Ph.D. Thesis in Physical Geography, Stockholm University, Stockholm, p. 18.

Comprised three published articles and a manuscript:

- I. **Jaramillo, F.** and Destouni, G.: Developing water change spectra and distinguishing change drivers worldwide, *Geophys. Res. Lett.*, 41(23), 8377–8386, doi:10.1002/2014GL061848, 2014.
- II. **Jaramillo, F.**, Prieto, C., Lyon, S. W. and Destouni, G.: Multimethod assessment of evapotranspiration shifts due to non-irrigated agricultural development in Sweden, *Journal of Hydrology*, 484, 55–62, doi:10.1016/j.jhydrol.2013.01.010, 2013.
- III. Destouni, G., **Jaramillo, F.** and Prieto, C.: Hydroclimatic shifts driven by human water use for food and energy production, *Nature Clim. Change*, 3(3), 213–217, doi:10.1038/nclimate1719, 2013.
- IV. **Jaramillo, F.** & Destouni, G., 2014, Hydroclimatic changes worldwide: distinguishing freshwater signals of flow regulation and irrigation effects. Submitted to *Journal of Climate* (manuscript).

### 1.2 Articles in international scientific journals

#### **Published**

22. **Jaramillo, F.**, L. Licero, I. Åhlen, S. Manzoni, J.A. Rodríguez-Rodríguez, A. Guittard, A. Hylin, J. Bolaños, J. Jawitz, S. Wdowinski, O. Martínez, L.F. Espinosa. Effects of hydroclimatic change and rehabilitation activities on salinity and mangrove recovery in the Ciénaga Grande de Santa Marta, Colombia. *Wetlands Journal*. In Press, 2018. doi : 10.1007/s13157-018-1024-7.
21. Mills, G., Sharps, K., Simpson, D., Pleijel, H., Broberg, M., Uddling, J., **Jaramillo, F.**, Davies, W., Dentener, F., Berg, M., Agrawal, M., Agrawal, S., Ainsworth, E. , Büker, P., Emberson, L., Feng, Z., Harmens, H., Hayes, F., Kobayashi, K., Paoletti, E., van Dingenen, R. Ozone pollution will compromise efforts to increase global wheat production. *Global Change Biology*. In Press, 2018. <http://10.0.4.87/gcb.14157>.
20. **Jaramillo, F.**, Brown, I., Castellazzi, P., Espinosa, L. F., Guittard, A., Hong, S.-H., Rivera-Monroy, V. H. and Wdowinski, S.: Assessment of hydrologic connectivity in an ungauged wetland with InSAR observations, *Environ. Res. Lett.*, 13(2), 2018.
19. **Jaramillo, F.**, Cory, N., Arheimer, B., Laudon, H., van der Velde, Y., Hasper, T. B., Teutschbein, C. and Uddling, J.: Dominant effect of increasing forest biomass on evapotranspiration: interpretations of movement in Budyko space, *Hydrol. Earth Syst. Sci.*, 22(1), 567–580, 2018.
18. Campbell, B., Beare, D., Bennett, E., Hall-Spencer, J., Ingram, J., **Jaramillo, F.**, Ortiz, R., Ramankutty, N., Sayer, J. and Shindell, D.: Agriculture production as a major driver of the Earth system exceeding planetary boundaries, *Ecology and Society*, 22(4), 2017.
17. Thorslund, J., Jarsjo, J., **Jaramillo, F.**, Jawitz, J. W., Manzoni, S., Basu, N. B., Chalov, S. R., Cohen, M. J., Creed, I. F., Goldenberg, R., Hylin, A., Kalantari, Z., Koussis, A. D., Lyon, S. W., Mazi, K., Mard, J., Persson, K., Pietro, J., Prieto, C., Quin, A., Van Meter, K. and Destouni, G.: Wetlands as large-scale nature-based solutions: Status and challenges for research, engineering and management, *Ecological Engineering*, 108, 489–497, 2017.
16. Wemple, B. C., Browning, T., Ziegler, A. D., Celi, J., Chun, K. P. (Sun), **Jaramillo, F.**, Leite, N. K., Ramchunder, S. J., Negishi, J. N., Palomeque, X. and Sawyer, D.: Ecohydrological disturbances

- associated with roads: Current knowledge, research needs, and management concerns with reference to the tropics, *Ecohydrology*, 2017, In Press. <https://doi-org.ezp.sub.su.se/10.1002/eco.1881>.
15. Lyon, S. W., Jantze, E. J., Dahlke, H. E., **Jaramillo, F.** and Winterdahl, M.: Why Monitor Carbon in High-Alpine Streams? *Geografiska Annaler: Series A, Physical Geography*, 98(3), 237–245, 2016.
  14. Hasper, T. B., Wallin, G., Lamba, S., Hall, M., **Jaramillo, F.**, Laudon, H., Linder, S., Medhurst, J. L., Rantfors, M., Sigurdsson, B. D. and Uddling, J.: Water use by Swedish boreal forests in a changing climate, *Funct Ecol*, 30(5), 690–699, 2016.
  13. **Jaramillo, F.**, Baccard, M., Narinesingh, P., Gaskin, S. and Cooper, V.: Assessing the Role of a Limestone Quarry as Sediment Source in a Developing Tropical Catchment, *Land Degrad. Develop.* 27(4), 1064–1074, 2016.
  12. **Jaramillo, F.** and Destouni, G.: Local flow regulation and irrigation raise global human water consumption and footprint, *Science*, 350(6265), 1248–1251, 2015.
  11. **Jaramillo, F.** and Destouni, G.: Comment on “Planetary boundaries: Guiding human development on a changing planet.” *Science*, 348(6240), 1217–1217, 2015.
  10. Karlsson, J. M., **Jaramillo, F.** and Destouni, G.: Hydro-climatic and lake change patterns in Arctic permafrost and non-permafrost areas, *Journal of Hydrology*, 2015.
  9. Bring, A., Asokan, S. M., **Jaramillo, F.**, Jarsjö, J., Levi, L., Pietroń, J., Prieto, C., Rogberg, P. and Destouni, G.: Implications of freshwater flux data from the CMIP5 multimodel output across a set of Northern Hemisphere drainage basins, *Earth's Future*, 2015.
  8. Levi, L., **Jaramillo, F.**, Andričević, R. and Destouni, G.: Hydroclimatic changes and drivers in the Sava River Catchment and comparison with Swedish catchments, *AMBIO*, 44(7), 624–634, 2015.
  7. Elmhagen, B., Destouni, G., Angerbjörn, A., Borgström, S., Boyd, E., Cousins, S. A. O., Dalén, L., Ehrlén, J., Ermold, M., Hambäck, P. A., Hedlund, J., Hylander, K., **Jaramillo, F.**, Lagerholm, V. K., Lyon, S. W., Moor, H., Nykvist, B., Pasanen-Mortensen, M., Plue, J., Prieto, C., van der Velde, Y. and Lindborg, R.: Interacting effects of change in climate, human population, land use, and water use on biodiversity and ecosystem services, *Ecology and Society*, 20(1), 2015.
  6. Andersson, E., Nykvist, B., Malinga, R., **Jaramillo, F.** and Lindborg, R.: A social–ecological analysis of ecosystem services in two different farming systems, *AMBIO*, 44(1), 102–112, 2015.
  5. Quin, A., **Jaramillo, F.** and Destouni, G.: Dissecting the ecosystem service of large-scale pollutant retention: The role of wetlands and other landscape features, *AMBIO*, 44(1), 127–137, 2015.
  4. **Jaramillo, F.** and Destouni, G.: Developing water change spectra and distinguishing change drivers worldwide, *Geophys. Res. Lett.*, 41(23), 8377–8386, 2014.
  3. Van der Velde, Y., Vercauteren, N., Jaramillo, F., Dekker, S. C., Destouni, G. and Lyon, S. W.: Exploring hydroclimatic change disparity via the Budyko framework, *Hydrol. Process.* 28(13), 4110–4118, 2014.
  2. **Jaramillo, F.**, Prieto, C., Lyon, S. W. and Destouni, G.: Multimethod assessment of evapotranspiration shifts due to non-irrigated agricultural development in Sweden, *Journal of Hydrology*, 484, 55–62, 2013.
  1. Destouni, G., **Jaramillo, F.** and Prieto, C.: Hydroclimatic shifts driven by human water use for food and energy production, *Nature Clim. Change*, 3(3), 213–217, 2013.

### 1.3 Contributions to conferences

20. Piemontese, L., Fetzer, I., Wang-Erlandsson, L., Keys, P., **Jaramillo, F.** and Gordon, L.: “A conceptual framework on water-land-climate interactions for food production resilience. Resilience 2017, Stockholm, Sweden, August 2017. Poster.
19. Piemontese, L., Fetzer, I., Rockström, J., **Jaramillo, F.**: “Impact of climate change and human development on future freshwater availability in Africa”. Joint Japanese Geoscience Union and American Geoscience Union (JpGU-AGU) conference, Chiba, Japan, May 2017, Oral presentation.

18. Mård, Johanna, Destouni, G., **Jaramillo, F.** Hydrological response to landscape change in Arctic river basins. European Geophysical Union (EGU). Vienna, Austria, April 2017. PICO presentation.
17. **Jaramillo, F.**, L. Licero, I. Åhlen, S. Manzoni, J.A. Rodríguez-Rodríguez, A. Guittard, A. Hylin, J. Bolaños, J. Jawitz, S. Wdowinski, O. Martínez, L.F. Espinosa. Climatic and human drivers of salinity fluctuations and effects on mangrove recovery. Society of Wetland Scientists 2017 Annual Meeting, Puerto Rico, June 2017, Oral Presentation.
16. **Jaramillo, F.**, Guittard A., Sang-Hoon H., Wdowinski, S. Using wetland InSAR for understanding underperformance of mangrove restoration plans in the Ciénaga Grande de Santa Marta. Society of Wetland Scientists 2017 Annual Meeting, Puerto Rico, June 2017, Oral Presentation.
15. **Jaramillo, F.**, Destouni, G. Global Change and Human Consumption of Freshwater Driven by Flow Regulation and Irrigation. American Geophysical Union (AGU). San Francisco, United States, December 2015. Poster.
14. Hylin, A., **Jaramillo, F.**, Destouni, G. Water budget estimation on a data limited wetland: The case of the Ciénaga Grande de Santa Marta, Colombia. European Geophysical Union (EGU). Vienna, Austria, April 2015. Poster.
13. **Jaramillo, F.**, Destouni, G. Hydroclimatic changes worldwide: distinguishing freshwater change signals of flow regulation and irrigation. European Geophysical Union (EGU). Vienna, Austria, April, 2015. Oral Presentation.
12. **Jaramillo, F.**, Destouni, G. Constructing water change spectra in Budyko space to recognize main drivers of change. European Geophysical Union (EGU). Vienna, Austria, April 2015. Poster.
11. **Jaramillo, F.**, Destouni, G. Hydroclimatic Changes of Water on Land and their Drivers from Local-Regional to Global Scales. European Geophysical Union (EGU). Vienna, Austria, April 2014. Oral Presentation.
10. **Jaramillo, F.**, Destouni, G. Hydroclimatic Changes in Land Water and their Drivers from Local-Regional to Global Scales. American Geophysical Union (AGU). San Francisco, United States, December 2013. Oral Presentation.
9. **Jaramillo, F.**, Destouni, G. Evapotranspiration rates, their changes, and change implications for water availability across different land-use areas. Living Planet Symposium, European Space Agency (ESA). Edinburgh, Scotland, September 2013. Poster.
8. Levi, L, **Jaramillo, F.**, Andričević, R., Destouni, G. Hydroclimatic change driven by land-water-use developments: the case of transboundary Sava River Catchment, South Eastern Europe European Geophysical Union (EGU). Vienna, Austria, April 2013. Poster.
7. Exploring hydroclimatic change disparity via the Budyko framework. Ype van der Velde, S Dekker, N Vercauteren, **F Jaramillo**, S Lyon, G Destouni. EGU General Assembly Conference (EGU). Vienna, Austria, April 2013. Oral Presentation.
6. **Jaramillo, F.**, Prieto, C., Lyon, S.W., Destouni, G. Twentieth century evapotranspiration shifts and opposing precipitation-runoff trends due to agricultural expansion in Sweden. The 11th International NCCR Climate Summer School "The Water Cycle in a Changing Climate: Observations, Scenarios, and Impacts". Monte Verita, Switzerland, September 2012. Poster.
5. **Jaramillo, F.**, Prieto, C., Lyon, S.W., Destouni, G. Shifts in evapotranspiration due to historical wet meadowland conversion to agriculture in Sweden. INTECOL International Wetlands Conference, Orlando, U.S.A, June 2012. Poster.
4. Destouni, G., Basu N., Cohen, M.J., Dahlke, H, **Jaramillo, F.**, Jarsjö, J., Jawitz, J.W., Juston, J., Karlsson, E.M., Koussis, A.D., Lyon, S.W., Mazi, K., Mård-Karlsson, J., Prieto, C., Rao S.C., van der Velde, Y. and Vercauteren, N. Hydro-biogeochemical and environmental-management functions

of wetland networks in landscapes. INTECOL International Wetlands Conference, Orlando, U.S.A, June 2012. Oral Presentation.

3. **Jaramillo, F.** and G. Destouni. An indicator to assess the influence of vegetation change on hydrological flow partitioning at the basin scale. 19th International Conference on Environmental Indicators, Haifa, Israel, September 2011. Oral Presentation.
2. **Jaramillo, F.** and G. Destouni. Spatial and temporal trends of hydroclimatic variables in the Norrström basin, Sweden. 8th Annual Meeting of the Asia Oceania Geosciences Society (AOGS), Taipei, Taiwan, August 2011. Oral Presentation.
1. **Jaramillo, F.,** Gaskin, S. and Cooper, V. Application of the Erosion3D model to a developing catchment. 11th International Conference on Diffuse Pollution. Belo Horizonte- Brasil, August, 2007. Oral Presentation.

#### 1.4 Invited Lectures

7. Princeton University. “Earth in 2050: Boundaries, Obstacles and Opportunities”. November 13, 2017.
6. Scripps Institution of Oceanography, UC San Diego, United States. Hydrological Applications of geodetic techniques: new observations for water science, modelling and resource management. October 25, 2017.
5. Jet Propulsion Laboratory- NASA, Pasadena, CA, United States. Human Impacts on the Terrestrial Freshwater System: From global to local scales.
6. University of Florida, Gainesville, United States. Human Impacts on the Terrestrial Freshwater System. January 30, 2017.
3. University of Central Florida, Orlando, United States. Human Impacts on the Terrestrial Freshwater System. January 25, 2017.
2. Event: Life without water: What happens when the glass is empty? An audience with the Water Man of India, Stockholm Water Prize Winner. Kapuscinski Development Lecturers-SIWI, Stockholm University, February 3, 2016.
1. Swedish Development Agency (SIDA), Stockholm. Local flow regulation and irrigation raise global human water footprint. February 25, 2016.

#### 1.5 Popular science publications

4. Scientific American (Spanish version: Investigación y Ciencia) (2016). “La humanidad consume más agua de la que se creía”. Nr. 479.
3. Serious Science; <http://serious-science.org>, (2015). Landscape drivers explain changes in the water cycle.
2. El Tiempo (2016). “Aunque no se crea la contaminación le hacía bien al Ártico”, Colombia.
1. El Tiempo (2016). “Juan Carlos Rocha, el 'médico' colombiano de los ecosistemas del mundo”, Colombia.

#### 1.6 Interviews

8. **BBC News** (2015), United Kingdom. Human water use 'greater than thought' by Andrea Szöllössi.
7. **Smithsonian.com**, United States (2015). New study raises the global human freshwater footprint by Erin Blakemore.
6. **The Washington Post**, United States (2015). Alarming research finds humans are using up far more of Earth’s water than previously thought, by Chelsea Harvey.
5. The Christian Monitor, United States (2015). Are humans using too much water? by Eva Botkin-Kowacki.

4. Ingenjören, Sweden (2015). "Jordens vatten kan vara överutnyttjat" by Sture Henckel.
3. Eroski Consumer, Spain (2015). "El riego y las presas afectan al clima y al consumo de agua, pero no se está teniendo en cuenta" by Alex Fernández Muerza.
2. El Tiempo, Colombia (2016). 'La humanidad gasta más agua de la que se creía': Fernando Jaramillo
1. Semana Sostenible, Colombia (2015). ¿Hay o no hay agua suficiente para todos?

#### 1.7 Other scientific publications/reports

4. Stockholm Resilience Centre, Swedish Water House, Stockholm International Water Institute (SIWI). Call for an African Water Revolution: Background note for the African Multi-Actor Dialogue on Agriculture, Agro-Biodiversity and Agenda 2030, Kigali, Rwanda, 2018.
3. Destouni G., Asokan S., Augustsson A., Balfors B., Bring A., **Jaramillo F.**, Jarsjö J., Johansson E., Juston J., Levi L., Olofsson B., Prieto C., Quin A., Åström M., Cvetkovic V. Needs and means to advance science, policy and management understanding of the freshwater system—A synthesis report. Stockholm University, The Royal Institute of Technology and Linnaeus University, Sweden (2015)
2. **Jaramillo, F.**, Estimating and modelling soil loss and sediment yield in the Maracas-St. Joseph River Catchment with empirical models (RUSLE and MUSLE) and a physically based model (Erosion 3D) (2007). Thesis for Master in Civil Engineering, McGill University, Canada, p. 144.
1. **Jaramillo, F.** Bases para la investigación de la contaminación atmosférica en el Valle de Sogamoso: El caso del material particulado generado en la fabricación. Undergraduate Thesis (2001). Universidad de los Andes.

## 2. List of acquired external funding

### 2.1 Main Applicant

#### Total funds as Main applicant ~ 9,023,000 SEK (878,000 €)

- 2018 Stiftelsen för internationalisering av högre utbildning och forskning (STINT). *Hydrogeodesy to study large deltaic hydrodynamics*. Initiation Grant for the collaboration between Stockholm University and the Radar Science & Engineering Section at the NASA-Jet Propulsion Laboratory, United States (JPL) of **150,000 SEK**
- 2016 Swedish Research Council (VR), International Postdoc 2015. "*Untangling human freshwater consumption from impounded water reservoirs with hydroclimatic observations and space-based hydrology*" of **3,150,000 SEK**
- 2016 The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (FORMAS), Mobility Grant 2015. "*Adding green to blue: An integral update to freshwater consumption estimates worldwide*" of **4,765,904 SEK**.
- 2016 University of Gothenburg and Lund University, Project Biodiversity and Ecosystem Services in a Changing Climate (BECC). "*Quantifying landscape drivers of global freshwater change*" of **736,000 SEK**.
- 2015 Swedish Society of Anthropology and Geography (SSAG), Swedish Academy of Sciences (KVA) and Bolin Centre for Climate Research, SU. "*Understanding hydroclimatic characteristics and hydrologic dynamics of the Ciénaga Grande de Santa Marta wetland, Colombia*" of **102,080 SEK**.

I have also been granted the following funding as Main Applicant to attend conferences and for other seed projects during the period 2000-2015:

- Seed Money Section RA7 (Landscape processes and climate), Bert Bolin Centre for Climate Research, 2017 - 50,000 SEK
- Swedish National Space Board, Travel stipend, 2013 –12,000 SEK
- Albert och Maria Bergströms Stiftelse, Travel stipend, 2013 - 14,500 SEK
- Bert Bolin Centre for Climate Research, Travel stipend, 2012 - 10,000 SEK
- Lagrelius och Ahlmanns fonder, Travel stipend, 2012 –5,000 SEK
- Bert Bolin Centre for Climate Research, Travel stipend, 2011 - 10,000 SEK
- Helge Ax:Son Johnsons Stiftelse, Travel stipend, 2011 - 17,700 SEK
- Grant from the Organization of American States (OAS), Diploma Development, 2009, amount unknown
- COLFUTURO. Colombian grant for Master’s Studies at McGill University, Canada, 2005 - USD 25,000

## 2.2 Co-Applicant

**Total funds as Co applicant ~ 2,561,984 SEK (249,050 €)**

- 2018 Big Grants, Universidad del Rosario. “Change of hábitat in the post-conflict era: The National Park System and effects on national water resources” – **1,561,984 SEK** (Equivalent from Colombian pesos)
- 2017 Bert Bolin Centre for Climate research, Stockholm University. “Unintended consequences of improved water use efficiency in tropical agricultural systems – Scaling from plots to landscapes with data-driven hydrological and biogeochemical models” - **1,000,000 SEK.**

## 3. Other scientific merits/achievements

### 3.1 Professional Memberships (selected periods)

American Geophysical Union, European Geosciences Union, Asia-Oceania Geophysical Society, Society of Wetland Scientists, Swedish Society for Anthropology and Geography

### 3.2 Scientific Assignments and Commissions of Trust

- 2018 Guest Editor for Water MDPI Special Issue: Special Issue: “*Wetlands and Their Roles in the Ecohydrological Cycle Under Global Climate Change*”
- 2016 Reviewer for the Water Window Challenge of Zurich Insurance Group, ZZF and GRP
- 2016 Proposal evaluator for the ETH Zurich Research Commission
- 2015–To date Referee commissions for 27 different peer-reviewed journals (81 reviews):  
Nature Climate Change; Nature Communications; GRL; WRR; HESS; HSJ; Advances in Water Resources; Journal of Hydrology; AMBIO; JGR– Atmospheres; Water Resources management; Journal of Photogrammetry and Remote Sensing; Energies MDPI; Climate MDPI; Water MDPI; Forests MDPI; Hydrology MDPI; Remote Sensing MDPI; Agriculture, Ecosystems and Environment; Environments; Journal of Applied Meteorology and Climatology; Sustainability MDPI; Atmosphere MDPI; Energy and Emission Control



Technologies; Sedimentary Geology; Journal of Earth Science and Climatic  
Change, Universal Journal of Geoscience, AJEST

Reviewer Merit 258 (Publons): <https://publons.com/author/1309273/fernando#stats>