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Jeison Sosa-Moreno

E-mail: j.sosa@bristol.ac.uk
sosa.jeison@gmail.com
Tel.: +44 7957468007

https://sites.google.com/site/sosajeison
https://www.researchgate.net/profile/Jeison_Sosa

Research interests: Global meteorology, hydrological modeling, hydrodynamic modeling, flooding, remote sensing, ocean wave modeling and coastal engineering.

Education

September 2016-present
PhD. Physical Geography
University of Bristol. Bristol – UK
Thesis: Flood hazard projections in Europe
Advisors: Dr. Paul D. Bates, Dr. Jeffrey C. Neal

June 2016
Msc. Environmental Fluid Mechanics
Université Joseph Fourier - Grenoble I. Grenoble-France
Thesis: Interaction between activities performed inside the river catchments and the effects in the shoreline evolution.
Supervisor: Dr. Alessio Giardino
Reviewers: Dr. Jesus Portilla, Dr. Chantal Staquet.

October 2014
Bsc. Mechanical Engineer
Universidad San Francisco de Quito. Quito-Ecuador
Thesis: Wave modelling in the Ecuadorian Pacific using WAVEWATCH III and SWAN.
Supervisor: Dr. Jesus Portilla.
Reviewers: Dr. Luigi Cavaleri, Dr. Roberto Padilla-Hernandez.
Url: http://bit.ly/1vyPgJg

Peer-Reviewed Journal Articles

2013 Portilla, J., **Sosa, J.**, Cavaleri, L. (2013). Wave energy resources: Wave climate and exploitation. J. Renewable Energy, 57, 594-605. http://dx.doi.org/10.1016/j.renene.2013.02.032

Oral presentations

2014 **Sosa, J.**, Portilla, J., Cavaleri, L. (2014). Wave modelling in the coastal area, study case Bajo Alto Beach in Ecuador. Oral presentation at Universidad San Francisco de Quito. Quito, Ecuador.

2012 Portilla J., **Sosa, J.**, Cavaleri, L. (2012). Wave energy resources in the Equatorial Pacific Zone. Oral presentation at 3rd GlobWave User Meeting. Lisbon, Portugal.

2012 Portilla, J., **Sosa, J.** (2012). Wave modelling in the Equatorial Pacific Zone. Oral presentation at the Joint-ICTP-TWAS workshop on Climate Change. Guayaquil, Ecuador.

2011 **Sosa, J.**, Portilla, J. (2011). Wave Energy Resources in the Equatorial Pacific Zone. Oral Presentation at 3rd Annual New England Marine Renewable Energy Center (MREC) Technical Conference. Boston, USA. http://bit.ly/sosamrec

2011 **Sosa, J.**, Portilla, J. (2011). Wave Energy Resources in the Equatorial Pacific Zone. Oral Presentation at Massachusetts Institute of Technology (MIT), Wind Energy Club. Boston, USA.

2011 Portilla J., **Sosa, J.** (2011). Characterization of the wave conditions in the Equatorial Pacific Zone. Oral Presentation at 2nd GlobWave User Meeting. Cork, Ireland

2011 Portilla J., Tapia, G., **Sosa, J.** (2011). Assessing the use of altimeter and SAR spectra data for the characterization of the wave conditions in the Equatorial Pacific Zone. Oral Presentation at WISE 2011 (Waves in Shallow Water Environments) meeting. Qingdao, China.

Research Experience

2017 **University of Birstol**
PhD Fellow. Advisors: Paul Bates, Jeffrey Neal. Bristol, UK. September 2017 - present
Projects:
- Developing a hydrography for a bias corrected SRTM at worldwide coverage
- Probabilistic river discharge approach for driving flood hazard/risk models

2016 **Deltares**
Intern. Supervisor: Alessio Giardino. Delft, The Netherlands. February 2016 – August 2016
Projects:
- Physical and numerical modelling of different nourishment designs. Recalibration of the reference concentration of van Rijn (2007b) for fine sediments and its implementation in Delft3D source code.
- Hydrological modelling under a World Bank Project to investigate the sediment supply from rivers into the coast in West Africa.

2015 **Escuela Politecnica Nacional (EPN)**
Research Assistant. Supervisor: Jesus Portilla. Quito, Ecuador. February 2015 – August 2015
Projects:
- Validation of the operational wave model (OPCOL) in the Colombian Pacific.
- Using the ESA-Globwave Altimeter database (ENVISAT, JASON1 and JASON2) to validate the OPCOL wave forecasting model.
- Methodology to compare in-situ buoys with OPCOL wave model output.
- Tuning physical parameters in WAVEWATCH (ST4, ST2, betamax) for best performance in the OPCOL wave model

2014 **Istituto di Scienze Marine (ISMAR)**
Visiting Student. Supervisor: Luigi Cavaleri. Venice, Italy. June 2014.
Project:
- On the interaction of seamounts and wind generated waves. Case study: Socotra Rock

2013 **Istituto di Scienze Marine (ISMAR)**
Visiting Student. Supervisor: Luigi Cavaleri. Venice, Italy. October 2013.
Project:
- Wave modelling and related issues about physical processes in shallow water. Case study: Bajo Alto beach erosion

2010-2014 **Universidad San Francisco de Quito (USFQ)**
Research Assistant. Supervisor: Jesus Portilla. Quito, Ecuador. September 2010 - December 2014
Projects:
- Analysis of field data with large data sets (e.g. ECMWF-Era Interim, NOAA-GFS and ESA GlobWave)
- Evaluation of wave energy resources in the Ecuadorian Pacific.
- Influence of the Antarctic ice coverage in the Ecuadorian wave conditions.
- Wave modelling in shallow waters for the Ecuadorian coast using SWAN
- Implementation of the operational wave model OPACE in the Ecuadorian Pacific.
- Validation of the operational wave model OPCOL in the Colombian Pacific.
- A new methodology to evaluate interesting places for wind turbines.
- Wave refraction effects around submerged guyots/seamounts using SWAN.
- On the disambiguation of Envisat SAR ambiguous ocean wave spectra.

Teaching Experience

2011-2014 Universidad San Francisco de Quito (USFQ). **Teaching Assistant**. Quito, Ecuador.
Courses:
- Thermodynamics
- Fluid Mechanics

Meetings

2014 WISE 2014 (Waves in Shallow Water Environments) meeting. Reading, UK. June 2014.

2016 WISE 2016 (Waves in Shallow Water Environments) meeting. Venice, Italy. May 2016.

Scholarships & Grants

2016 Marie Curie PhD Fellow at the University of Bristol. Funding from the European Union's EU Framework Programme for Research and Innovation Horizon 2020 under Grant Agreement No. 676027

2015 Full Scholarship from Ecuadorian government through SENESCYT to obtain a Master's Degree. September 2015.

2014 Grant from Istituto di Scienze Marine (ISMAR), collaboration as Research Assistant. Venice, Italy. June 2014.

2014 Travel Grant from Universidad San Francisco de Quito (USFQ), participation in the WISE Meeting 2014 (Waves in Shallow Water Environments). Reading, UK. June 2014.

2013 Travel Grant from Universidad San Francisco de Quito (USFQ), academic training at ISMAR, Venice, Italy. October 2013

2011 Travel Grant from Marine Renewable Energy Center (MREC). Boston, USA. November 2011

Computer skills

Lisflood-FP (flooding), advanced user
WaveWatchIII (ocean waves), advanced user
SWAN (ocean waves), advanced user
Delft3D (coastal eng.), advanced user
Wflow (hydrological), advanced user
C++, advanced user
FORTRAN, advanced user
Google Earth Engine, advanced user
Python, advanced user
Bash, advanced user
Matlab, advanced user
Javascript, medium user
openMP, advanced user
openMPI, basic knowledge
High Performance Computing, advanced user
LATEX, advanced user

Languages

Spanish, native language
English, advanced proficiency
Italian, advanced proficiency
Portuguese, basic proficiency