Joseph T. Jurisa

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Education

2012	PhD, Oceanography Rutgers, The State University of New Jersey
2006	B.S., Marine Science - Physical Oceanography concentration, minor in Mathematics University of South Carolina

Employment

2019-present	Assistant Professor University of Maryland Center for Environmental Science Horn Point Laboratory
2015-2019	Senior Research Associate – Post doc Portland State University Maseeh College of Engineering and Computer Science Dept. of Civil & Environmental Engineering
2012-2015	Post-doctoral scholar Oregon State University College of Earth, Ocean, and Atmospheric Sciences Advisor: Dr. Jonathan Nash
2006-2012	Graduate research assistant Rutgers, The State University of New Jersey Institute of Marine and Coastal Sciences Advisor: Dr. Robert Chant
2004-2006	Undergraduate research assistant University of South Carolina Department of Geological Sciences and Marine Science Program Advisor: Dr. Richard Styles

Publications

Jurisa JT and JD Nash (in prep). The relevance of frontal mixing to the evolution of an energetic tidal river plume. To be submitted to *Journal of Geophysical Research*

Moghimi S, Ç Akan, **JT Jurisa**, and HT Öskan-Haller (2019). Mechanistic analysis of the wave-current interaction in the plume region of a partially mixed tidal inlet. *Ocean Modelling*, 134, 110-126.

Jurisa JT, JD Nash, JN Moum, and LF Kilcher (2016). Controls on turbulent mixing in a strongly stratified and sheared tidal plume. *Journal of Physical Oceanography*, 46(8), 2373-2388, doi: 10.1175/JPO-D-15-0156.1.

Styles R, Borgianini S, Brodie R, and **JT Jurisa** (2014). Application of a particle transport model in the vicinity of a river tidal boundary. *Journal of Coastal Sciences*, 1(2), 1-10

Jurisa JT and RJ Chant (2013). Impact of offshore winds on a buoyant river plume system. *Journal of Physical Oceanography*, 43, 2571-2587.

Jurisa JT and RJ Chant (2012). The coupled Hudson River estuarine-plume response to variable wind and river forcings. *Ocean Dynamics*, 62, 771-784.

Chant RJ, J Wilkin, W Zhang, B-J Choi, E Hunter, R Castelao, S Glenn, **JT Jurisa**, O Schofield, R Houghton, J Kohut, T Frazer, M Moline (2008). Dispersal of the Hudson River Plume in the New York Bight: Synthesis of Observational and Numerical Studies During LaTTE. *Oceanography,* 21(4), 148-161.

Funding

Have large-scale river plumes and coastal circulation patterns been fundamentally altered by historic estuary outlet modifications?, National Science Foundation, Feb. 1, 2017 – Jan. 31, 2020, $299,550. PI: JT Jurisa.

Under Sea Remote Sensing DRI: Resolving the Three Dimensional Structure of Estuarine Fronts, Office of Naval Research, Jan. 1, 2017 – Dec. 31, 2019, $113,361 (JT Jurisa – subcontract through WHOI). PI: WR Geyer (WHOI).

Selected Professional Meetings and Presentations

Jurisa, JT, WR Geyer, A Lavery, DK Ralston, and D Honegger, 2018. The importance of horizontal shear on the frontal dynamics in the Connecticut River tidal plume. Ocean Sciences Meeting. Portland, OR, February 12-16 2018. Oral Presentation.

Jurisa, JT, SA Talke, and DA Jay, 2017. Storm surges and circulation in the New York. Raritan Bay System: Climatic and Synoptic scale perspective. Coastal and Estuarine Research Federation Meeting. Providence, RI, November 5-9 2017. Oral Presentation.

Jurisa, JT and JD Nash, 2016. Mixing in the Columbia River tidal plume: When, where, why, & how much? Eastern Pacific Ocean Conference. Mt. Hood, OR, September 21-24, 2016. Oral Presentation.

Jurisa, JT and JD Nash, 2016. The relevance of frontal mixing to the evolution of an energetic tidal river plume. Ocean Sciences Meeting, New Orleans, LA, February 21-26, 2016. Oral Presentation.

Jurisa, JT and JD Nash, 2015. Controls on turbulent mixing in a strongly stratified and sheared tidal plume. Coastal and Estuarine Research Federation Meeting. Portland, OR, November 9-12, 2015. Oral Presentation.

Jurisa, JT and JD Nash, 2014. Frontal Growth and internal wave formation in the Columbia River plume. Eastern Pacific Ocean Conference. Mt. Hood, OR, September 17-20, 2014. Poster Presentation.

Jurisa, JT and JD Nash, 2014. Mixing in a highly energetic tidal river plume front. Ocean Sciences Meeting. Honolulu, HI, February 23-28, 2014. Oral Presentation.

Jurisa, JT, 2014. Does frontal mixing in a tidal river plume matter? CEOAS Physics of Oceans and Atmospheres Seminar Series.

Jurisa, JT, 2013. Does frontal mixing matter? 2013 Workshop on River Plume Mixing. Mt. Hood, OR, October 2-4, 2013. Oral Presentation.

Jurisa, JT and RJ Chant, 2012. Impact of offshore winds on a buoyant river plume system. Physical Oceanography Dissertation Symposium (PODS), Kauai, HI . Oral Presentation

Jurisa, JT and RJ Chant, 2012. Impact of offshore winds on a buoyant river plume system. CEOAS Physics of Oceans and Atmospheres Seminar Series.

Jurisa, JT and RJ Chant, 2012. The structure of a buoyant plume subjected to offshore winds. Physics of Estuaries and Coastal Seas Meeting, New York, NY. Poster Presentation

Jurisa, JT and RJ Chant, 2012. The mixing and structure of a buoyant plume subjected to offshore winds. Ocean Sciences Meeting, Salt Lake City, UT. Oral Presentation

Jurisa, JT and RJ Chant, 2011. Mixing in a buoyant river plume subjected to offshore winds: A salinity coordinate analysis. Coastal and Estuarine Research Federation Meeting, Daytona Beach, FL. Oral Presentation

Jurisa, JT and RJ Chant, 2010. Impact of cross-shelf winds on a buoyant plume. Physics of Estuaries and Coastal Seas Meeting, Columbo, Sri Lanka. Oral Presentation

Jurisa, JT and RJ Chant, 2010. The response of a buoyant estuarine plume to cross-shelf winds. Ocean Sciences Meeting, Portland, OR. Poster Presentation

Jurisa, JT, RJ Chant, and E Hunter, 2008. Two modes of down-shelf freshwater flows on the New Jersey shelf. Ocean Sciences Meeting, Orlando, FL. Oral Presentation

Jurisa, JT, R Styles, R Brodie and S Borgianini, 2006. Discharge, tidal propagation and currents near an upriver tidal boundary. Ocean Sciences Meeting, Honolulu, HI. Poster Presentation

Relevant Research and Field Experience

Fall 2004	Tidal ADCP and CTD survey and ADCP mooring deployment in North Inlet/Winyah Bay National Estuary Research Reserve, South Carolina.
Summer 2005	ADCP mooring deployments in Pee Dee and Waccamaw Rivers/Winyah Bay, South Carolina
Fall 2005	Tidal ADCP, CTD survey and ADCP and ADV mooring deployment in North Inlet/Winyah Bay National Estuary Research Reserve, South Carolina.
Summer 2009	Estuarine and Coastal Fluid Dynamics summer course at University of Washington's Friday Harbor Laboratory. ADCP and CTD mooring

	deployments and surveys in Upright Channel near Friday Harbor, Washington. Instructors: Drs. Rocky Geyer and Parker MacCready.
Summer 2010	ADCP and CTD mooring deployment, tidal ADCP, CTD, and dye mixing surveys in the James River, Virginia
Fall 2010	ADCP and CTD mooring deployment, Delaware Bay.
Winter 2010	R/V Sharp research cruise. Along bay axis survey of water and sediment properties, Delaware Bay.
Spring 2011	ADCP and CTD mooring deployment, Delaware Bay.
Winter 2016	Fraser River tidal plume research cruise aboard the R/V Jack Robertson. Testing and deployment of autonomous research vessel to sample the structure and mixing at the tidal plume front.
Spring 2017	Hood Canal, Puget Sound, WA research cruise on the R/V Barnes. Sampling of topographically trapped waves/internal hydraulic features.
Summer 2017	Connecticut River plume and estuary. High-resolution sampling of the structure of the tidal plume fronts with towed CTD arrays and AUVs.
Spring 2019	James River estuary. High-resolution sampling of the structure of the tidal intrusion fronts (shipboard & towed ADCP's, towed CTD arrays and microstructure profiler).

Professional Service/Synergistic Activities

- Session chair at 2018 Ocean Sciences Meeting, Portland, OR. Session title: "The Dynamics of Estuaries and Coastal Buoyancy-driven Flows."
- Coordinator of the 2013 Workshop on River Plume Mixing. October 2-4, 2013, Mt. Hood, OR.
- Coordinator of the CEOAS Physics of Oceans and Atmospheres seminar series. Fall 2012 – Summer 2013.
- Reviewer for *Journal of Physical Oceanography*, *Journal of Geophysical Research - Oceans*, *Journal of Fluid Mechanics*, *Ocean Dynamics*, *Ocean Modelling*, *Geophysical Research Letters*, National Science Foundation

Activities/Skills

- Numerical modeling of coastal and estuarine flows using the Regional Ocean Modeling System (ROMS) and Delft3D-Flexible Mesh
- Data analysis and interpretation of geophysical data with MATLAB
- Deployment and maintenance of RDI, Sontek, and Nortek acoustic current profilers
- Deployment and maintenance of SeaBird, RBR, and AML CTD's.

Professional Organizations

American Geophysical Union
Coastal and Estuarine Research Federation

Teaching

2014	Guest Lecturer – Fluid Earth (Fall)
2010-2011	Part-time Lecturer – Introduction to Oceanography
2009	Lecturer – Ocean Science Inquiry (Spring)
2007	Teaching Assistant – Physical Oceanography (Fall)

Community Outreach

- Wave tank and density driven flow demonstrations during the public open house for annual Ag Field Day/Rutgers Day (2007-2012)
- Water density and internal waves project and demonstration for the 4th and 5th grade classes at Jefferson Elementary School, Corvallis OR (December 2014).

Recent Collaborators

Jonathan Nash (OSU), David Jay (Portland State), Stefan Talke (Portland State),

Rocky Geyer (WHOI), David Ralston (WHOI), Andone Lavery (WHOI), David Honegger (OSU),

Merrick Haller (OSU), Saeed Moghimi (NOAA)