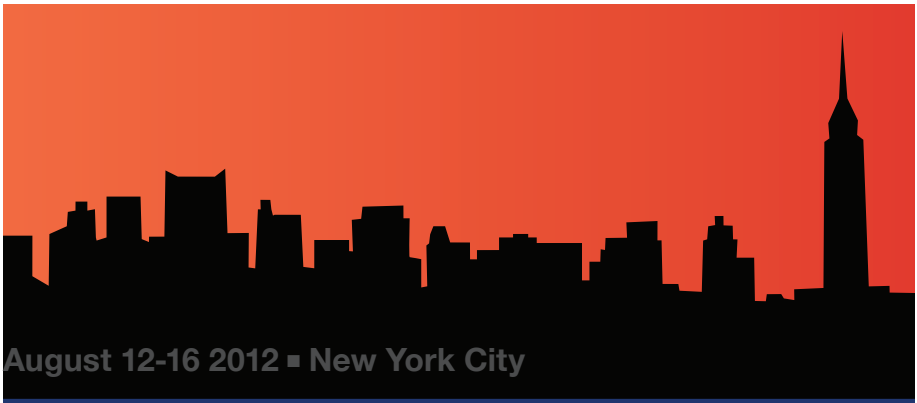

August 12-16 2012 ▪ New York City

# The Physics of Estuaries and Coastal Seas Symposium

# History of PECS

During the 1950s and '60s, coastal engineers and coastal oceanographers focused on different problems with regard to estuaries. Coastal engineering problems related mostly to stability of tidal inlets, land reclamation and the closure of estuaries and bays for storm surge protection. Solving these problems required knowledge of tides and tidal currents. In contrast, coastal oceanographers tended to concentrate on tidal mean properties including salinity, stratification, gravitational circulation. While coastal engineers derived their tools from hydraulics, coastal oceanographers relied on geophysical fluid dynamics.

In the seventies the coastal engineers started to face different types of problems relating mostly to water quality. Because water quality is largely determine by tidal mean motions, the coastal engineers began to seek help from coastal oceanographers. As a result of this the coastal oceanographers detected an interest in their work that had been absent in the community of blue water oceanographers.

The logical place for the two disciplines to meet and exchange ideas seemed to be the biennial International Conference on Coastal Engineering (ICCE). Unfortunately, the forum of the ICCE became increasingly focused on the nearshore, relegating estuarine problems to the status of stepchild. It was at the ICCE of 1976 that a small group of coastal engineers and coastal oceanographers realised that their interests would be better served by a specialty conference focusing on the physics of estuaries. The idea was to have this conference at the same venue and either directly preceding or following the ICCE. This idea ultimately was abandoned because it was difficult to find host institutions in some of the places where the ICCE was held.

With the intent of focusing on estuaries, the first conference was organised in September 1978 in Hamburg. The second conference did not take place until 1984 in Miami. Since 1984 conferences have been held every two years. With the inclusion of physics of coastal seas in 1990, the conference series became known as PECS. A complete list of the conferences, chairpersons and host institutions is given below.

PECS has an advisory board consisting of the chairpersons of the previous meetings. The board ensures that future conferences adhere to the above mentioned objectives. The board also selects the venue of future conferences. Organising a conference and publishing conference papers is the sole responsibility of the local organising committee.

## List of Past Conferences

- 1978 Hamburg, Germany - organised by Jürgen Sündermann, University of Hamburg, Institute for Oceanography.
- Proceedings: Mathematical Modeling of Estuarine Physics, Eds.: J. Sündermann and K. P. Holz, Lecture Notes on Coastal and Estuarine Studies, Springer-Verlag.
- 1984 Miami, Florida, USA - organised by Jacobus van de Kreeke, University of Miami, Rosenstiel School of Marine and Atmospheric Science.
- Proceedings: Physics of Shallow Estuaries and Bays, Ed.: J. van de Kreeke, Lecture Notes on Coastal and Estuarine Studies, Springer-Verlag.
- 1986 Qingdao, China - organised by Huatong Wang, Ocean University of Qingdao.
- Proceedings: Physics of Shallow Seas, Eds: Huatong Wang, Jinyong Wang and Hua Day, China Ocean Press.
- 1988 Monterey, California, USA - organised by Ralph Cheng, U.S. Geological Survey.
- Proceedings: Residual Currents and Long-term Transport, Ed.: R.T.Cheng, Coastal and Estuarine Studies, Springer-Verlag.
- 1990 Gregynog, Wales, UK - organised by David Prandle, Proudman Oceanographic Laboratory, Bidston Observatory.
- Proceedings: Dynamics and Exchanges in Estuaries and the Coastal Zone, Ed.: D. Prandle, Coastal and Estuarine Studies, American Geophysical Union.
- 1992 Margaret River, Australia - organised by Charitha Pattiaratchi, University of Western Australia.
- Proceedings: Mixing in Estuaries and Coastal Seas, Ed.: Ch. Pattiaratchi, Coastal and Estuarine Studies, American Geophysical Union.
- 1994 Woods Hole, Massachusetts, USA - organised by David Aubrey, Woods Hole Oceanographic Institution.
- Proceedings: Buoyancy Effects on Coastal an Estuarine Dynamics, Eds.: D.G. Aubrey and C.T. Friedrichs, Coastal and Estuarine Studies, American Geophysical Union. Sediment Transport and Buoyancy in Estuaries, Ed.: D.G. Aubrey, Journal of Coastal Research, Special Issue No. 25, 1997.
- 1996 The Hague, The Netherlands - organised by Job Dronkers, National Institute for Coastal and Marine Management.
- Proceedings: Physics of Estuaries and Coastal Seas, Eds.: J. Dronkers and M.B.A.M. Scheffers, A.A. Balkema Publishers.
- 1998 Matsuyama, Japan - organised by Tetsuo Yanagi, Ehime University.
- Proceedings: Interactions between Estuaries, Coastal Seas and Shelf Seas, Ed.: T. Yanagi, Terra Scientific Publishing Company, Tokyo.
- 2000 Norfolk, Virginia, USA - organised by Carl Friedrichs, College of William and Mary, Virginia Institute of Marine Science and Arnoldo Valle-Levinson, Old Dominion University, Center for Coastal Physical Oceanography.
- Proceedings: Special issues of Continental Shelf Research - 2002, 22(11-13) and 22(18-19), Eds.: C.T. Friedrichs and A. Valle-Levinson.
- 2002 Hamburg, Germany - jointly organised by Hans Burchard, Institute for Oceanography of the University of Hamburg, and Iris Grabemann and Jens Kappenberg, GKSS Research Centre, Geesthacht, Germany.
- Proceedings: Special issue of Ocean Dynamics - 2003, 53(3), Eds.: H. Burchard, I. Grabemann and J. Kappenberg.
- 2004 Mérida, Yucatán, México - organised by Paulo Salles, Institute of Engineering, National Autonomous University of Mexico.
- Proceedings: Special issues of Ocean Dynamics - 2005, 55(5-6) and 2006, 56(3-4), Eds.: P. Salles and A.J. Souza.
- 2006 Astoria, Oregon, USA - organised by David Jay, Civil and Environmental Engineering Department, Portland State University, Oregon.
- Proceedings: Special issue of Continental Shelf Research - 2009, 29(1), Eds: P. MacCready and D.A. Jay.
- 2008 Liverpool, England, UK - organised by Alejandro Souza, Proudman Oceanographic Laboratory, Liverpool.
- Proceedings: Special issue of Ocean Dynamics.
- 2010 Colombo, Sri Lanka - organised by Charitha Pattiaratchi, The University of Western Australia.

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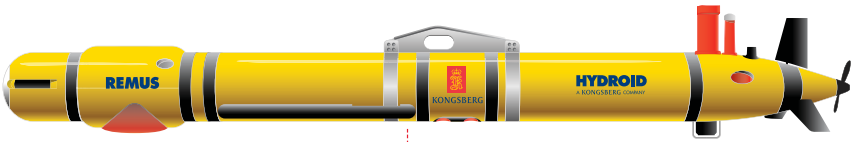


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# Scientific Program & Schedule

**Sunday, August 12, 2012**

5-9 PM: Registration
6-8 PM: Icebreaker cocktails and hors d'oeuvres

**Monday, August 13**

7:30-8:30 AM: Breakfast
8:30 AM-5:30 PM: Talks and Poster Sessions

**Monday evening**

Sponsor's Reception (including Jazz music)

**Tuesday, August 14**

7:30-8:30 AM: Breakfast
8:30 AM-5:30 PM: Talks and Poster Sessions

**Wednesday, August 15**

7:30-8:30 AM: Breakfast
8:30 AM-5:30 PM: Talks and Poster Sessions

**Wednesday evening**

Cruise on New York Harbor and Hudson River aboard the S/V *Clipper City*

**Thursday, August 16**

7:30-8:30 AM: Breakfast
8:30 AM-5:30 PM: Talks and Poster Sessions

**Thursday evening**

PECS Banquet at the Battery Gardens Restaurant
overlooking New York Harbor

# Monday, August 13th Presentations

### 7:30-8:30 AM: Breakfast

| Time | Name | Title |
|---|---|---|
| 8:30 | Henk Schuttelaars | Import of Sediment Resulting from Internal Mixing Asymmetry |
| 8:45 | Denise Wehr | Simulation of Cohesive Sediment Transport and Fluid Mud Dynamics in the Ems Estuary |
| 9:00 | David Todd | Analysis and Modeling of Turbulence-Controlled Flocculation in a Macro-Tidal Estuary |
| 9:15 | Lissa MacVeen | Sediment Dynamics in the Shallowest Regions of an Estuary |
| 9:30 | John Largier | Salt-Trap Estuaries: Morphology, Hydrodynamics and Water Properties |
| 9:45 | AM Posters *(See Below)* | |
| 11:15 | Mike Whitney | Sill Effects on Physical Dynamics in Long Island Sound |
| 11:30 | Peng Cheng | The Role of Lateral Advection in Residual Dynamics of Tidal Estuaries |
| 11:45 | Federic Cyr | Tidally-Induced Boundary Mixing in a Large Scale Estuary |
| 12:00 | Peter Holterman | The Baltic Sea Tracer Release Experiment: Mixing Processes and Mixing Rates |
| 12:15 | Ton Hoitlink | Observations of Turbulence in Geophysical Surface Flows using ADCP's |

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|---|---|---|
| 12:30 | Lunch | |
| 13:45 | Hans Burchard | Residual Flow Profile Decomposition of Estuarine Circulation |
| 14:00 | Rusty Holleman | Transient Dispersive Processes in Channel-Shoal Estuaries |
| 14:15 | Carlos Schettini | Circulation and Hydrography of Semi-Arid Brazilian Low-Inflow Estuaries |
| 14:30 | Yasha Hetzel | Varying Exchange Flow for Two Entrance Channels in a Subtropical Inverse Estuary |
| 14:45 | Julie Pietrzak | Roles of Wind Driven and Tidal Straining Induced Upwelling in the Rhine Region of Freshwater Influence |
| 15:00 | PM Posters *(See Below)* | |
| 16:30 | Joanna Staneva | Response of the German Bight Hydro and Sediment Dynamics to Wave, Tidal and Atmospheric Forcing |
| 16:45 | Yun Li | Modeling Study of the Mechanisms of Wind-Induced Lateral Circulation in a Straight, Stratified Channel |
| 17:00 | Anirban Guha | Estuary Classification Revisited |
| 17:15 | Sally Warner | Quantification of Tidally Induced Form Drag Over Rough Topography within an Estuary |

*Continued on next page*

## Monday Morning Posters

| | |
|---|---|
| Dongming Yang | Connectivity within Great South Bay and Its Relation to Tidal and Wind-Driven Currents |
| Grant McCardell | M6 Overtides in a Frictional Estuary |
| Debora Bellafiore | The Po River Plume Modeling: State of the Art and New Modeling Tools for Hydrodynamic Studies in Deltas |
| Fernanda Achete | Assessing Suspended Sediment Dynamics in San Francisco Bay Coupling Landsat Satellite Imagery, in situ Data and Numerical Mode |
| Jack McSweeney | Sediment Transport Processes in the Delaware's Estuarine Turbidity Maximum |
| Jim Hench | Observations of Small-Scale Spatial Variability in Currents and Turbulence on Coral Reefs |
| Matias Duran-Matute | Numerical Modeling of Density Induced SPN Transport into the Western Wadden Sea Across Tidal Watersheds |

## Monday Afternoon Posters

| | |
|---|---|
| Pieter Roos | Influence of Time- and Depth-Dependent Eddy Viscosity on the Dynamics of Tidal Sand Waves |
| Mike Muglia | North Carolina Gulf Stream Frontal Interaction with Surface Currents on the Continental Shelf North of Cape Hatteras |
| Maria Aristizabal | Salt Fluxes in Delaware Bay Estuary from an Eulerian and Salinity Classes Perspective |

| | |
|---|---|
| Megan Williams | Large Wave Induced Mixing in a Shallow Bar-Built Estuary |
| Marius Becker | The Impact of Morphology on Tide-Driven Fluid Mud Dynamics in an Estuarine Turbidity Zone |
| Eliane Truccolo | Estuary-Shelf Interaction and Its Influence on the Hydrodynamics of a Highly Stratified Estuary: Itajai-Acu River Estuary, Brazil |
| Rooni Mathew | Transport Processes and Regimes for Suspended Sediments in the Lower Passaic River |

## Monday evening

Sponsor's Reception (including Jazz music)

# Tuesday, August 15th Presentations

**7:30-8:30 AM: Breakfast**

| Time | Name | Title |
|---|---|---|
| 8:30 | Shih-Nan Chen | Across-Stream Momentum Budget of Positively and Negatively Buoyant River Outflows |
| 8:45 | Julia Moriarty | Gravity-Driven Transport on a Relatively Flat Active Margin with Complicated Bathymetry: The Waipaoa River Continental Shelf |
| 9:00 | Carola van der Hout | A Closer Look into the Transport of Suspended Matter in the Rhine ROFI |
| 9:15 | Carl Friedrichs | Damping of Turbulence by Suspended Sediment: Ramifications of Under-Saturated, Critically-Saturated and Over-Saturated Condition |
| 9:30 | Suzanna Jackson | Interactions Between Turbulence and Suspended Particulate Matter Characteristics in the River Estuary Transition Zone of a Macrotidal Estuary |
| 9:45 | AM Posters *(see below)* | |
| 11:15 | Robert Wilson | Interaction of Wind and Tidal Straining in Western Long Island Sound |
| 11:30 | Dave Ullman | Influence of Lateral Circulation and Intratidal Variability in Currents, Hydrography and Vertical Mixing on the Generation of Residual Currents in a Wide Estuary |

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|---|---|---|
| 11:45 | Audric Collignon | Turbulence Dynamics and Vertical Mixing at the Shoal-Channel Interface in a Partially-Stratified Estuary |
| 12:00 | Kim Arnott | Temporal Variability of Dissipation from Channel to Channel Wall in a Coastal Plain Estuary |
| 12:15 | Malcolm Scully | Parameterizations of Turbulence in Estuarine Models: How Well Do We Really Understand Mixing? |
| 12:30 | Lunch | |
| 13:45 | John Simpson | "The Ekman Drain": A Conduit to the Deep Ocean for Shelf Material |
| 14:00 | Harvey Seim | Shelf and Slope Circulation Inshore of the Charleston Bump |
| 14:15 | Clinton Winant | Tidal Circulation on the Yucatan Shelf |
| 14:30 | Ismael Marion-Tapia | Astronomic, Atmospheric and Oceanographic Controls of Sea Level and Coastal Currents on a Wide and Shallow Continental Shelf |
| 14:45 | Charitha Pattiaratchi | Interactions between Dense Shelf Water Cascades and Wind Driven Upwelling in South-West Australia |
| 15:00 | PM Posters *(see below)* | |
| 16:30 | Gemma Franklin | Effect of Reef Roughness on Wave Set-Up and Surf Zone Currents |
| 16:45 | Cecilia Enriquez | Mechanisms Driving the Circulation in a Fringing Reef Lagoon: A Numerical Study |

*Continued on next page*

| | | |
|---|---|---|
| 17:00 | Sarah Giddings | Enhancement of Reverse Estuarine Circulation Events and Coastal Connectivity Due to Plume Intrusions from an Alongshore Estuary |
| 17:15 | Nick Nidzieko | Tidal Control of Biogeochemical Cycling in a Mesotidal Estuary |

**Tuesday Morning Posters**

| | |
|---|---|
| William Stark | Glider-Based Observations of the Physical Forcing of Wintertime Blooms on the Outer Shelf and Slope in Long Bay, SC, USA |
| Erik Olvera-Prado | Hydrodynamics of the Papaloapan Basin Lagoons from Measurements and Numerical Modeling |
| Arnoldo Valle-Levinson | Residual Circulation in Fjords: Is It 2-Layered or 3-Layered? |
| Andy Manning | Observations of Floc Size and Settling Velocity Along a Longitudinal Estuarine Transect |
| Jianfeng Wang | The Influence of Discharge, Wind and Tides on Near Field Plume Dynamics |
| Wenxia Zhang | The Impact of Stratification on Bottom Boundary Layer Thickness within a Shelf |
| Erik Ensing | Three-dimensional tidal flows in estuaries with converging width and slippery bottom: a simple model |

## Tuesday Afternoon Posters

| | |
|---|---|
| Joe Jurisa | Mixing and Structure of a Buoyant Plume Subjected to Offshore Winds |
| Dennis Oberrecht | An Engineering Scientific Approach of Net Sediment Transport Behavior in the Ems Estuary, Germany |
| Nickitas Georgas | Validation of a Wetting and Drying Algorithm in a Shallow Tidal Creek and Marsh System |
| Jurre de Vries | Spatial and Temporal Variability of Tidal Characteristics in the Marsdiep |
| Johanna Rosman | Assessing the Performance of Standard Bottom Drag Parameterizations on Coral Reefs |
| Rocky Geyer | Estuarine Fronts and the Spring-Neap Transition |
| Georgia Kakoulaki | Drifting with the wind in the Merrimack River Plume |

# Wednesday, August 16th Presentations

**7:30-8:30 AM: Breakfast**

| Time | Name | Title |
|---|---|---|
| 8:30 | Alex Souza | Modeling Sediment Transport in a Macrotidal, Funnel-Shaped, Bi-Channel Estuary |
| 8:45 | Gail Kineke | Lutocline Formation and Breakdown in a Muddy Estuary |
| 9:00 | Bram Prooijen | A One-Dimensional Model for Sediment Dynamics in Short Tidal Basins |
| 9:15 | Zheng Wang | Interaction Between Suspended Sediment Transport and Tidal Amplification in an Estuary |
| 9:30 | Han Winterwerp | Regime Shifts in Muddy Estuaries: Tidal Response to River Deepening and Embanking |
| 9:45 | AM Posters (see below) | |
| 11:15 | Jim O'Donnel | The Spatial Structure of Extreme Sea-Level Statistics in Long Island Sound |
| 11:30 | Phillip Orton | Detailed Modeling of Recent Severe Storm Tides in the NY/NJ Harbor Estuary |
| 11:45 | Barend Van Maanen | The Effects of Fetch-Limited Wind Waves and Sea-Level Rise on the Vvolution of Tidal Embayments |
| 12:00 | Gerald Herrling | Morphological Response of Shoreface-Connected Ridges to High-Energy Hydrodynamic Conditions |

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|---|---|---|
| 12:15 | Eva Kwoll | Quantification of Tide-Driven Variations of Suspended Sediment Properties and Transport Patterns Over Large Bedforms in a Tidal Inlet Channel |
| 12:30 | Lunch | |
| 13:45 | Wim Ridderinkhof | Effect of Ocean-Backbarrier Basin Exchange on the Characteristics of Ebb-Tidal Deltas |
| 14:00 | Aldo Sottolichio | 3D Modeling of the Turbidity Maximum in the Macrotidal Gironde Estuary: Validation and Sensitivity to Seasonal Forcings |
| 14:15 | Maarten van der Vegt | Water and Sediment Division at a Stratified Tidal Junction |
| 15:00 | PM Posters (see below) | |
| 16:30 | Abdel Nnafie | Nonlinear Response of Shoreface-Connected Sandridges to Offshore Sand Extraction for a Realistic Inner Shelf Slope |
| 16:45 | Ronald Brouwer | Influence of Basin Geometry on Equilibrium and Stability of Double Inlet Systems |
| 17:00 | Tjerk Zitman | Importance of Eddy Viscosity Parametrisation in Modeling Lateral Sediment Accumulation in Tidal Channels |

*Continued on next page*

## Wednesday Morning Posters

| | |
|---|---|
| David Ralston | Simpson Number Transitions in the Hudson River Estuary |
| Sabrina Parra | Tide and Wave-Induced Variations in Turbulent Kinetic Energy at a Buoyant Jet Discharge |
| WenLong Chen | Modeling the Competition Between Wind-Driven and Density-Driven Circulation in the Ems Estuary |
| Adolfo Contreras | Circulation of the Terminos Lagoon, Mexico: Observations and Modeling |
| Rob Schindler | Effects of Evolving Estuarine Floc Population on Acoustic and Optically-Derived Estimates of SPM Concentration Over a Tidal Cycle |
| Rafael Ramirez-Mendoza | Predicting Suspended Particulate Matter in Shelf Seas with an Application to the Irish Sea |
| Maggie McKeon | Salt-Wedge Dynamics and Effects on Contaminated Sediment Transport in the Duwamish River Estuary, Seattle, WA |

**Wednesday Afternoon Posters**

| | |
|---|---|
| Mohit Kumar | Influence of Viscosity Formulation on Tidal Flow in Estuaries |
| Lauren Ross | Lagrangian Observations with Analysis of Seasonal Variation Over a Region Influenced by the Mobile Bay Outflow Plume in the Gulf of Mexico |
| Florence Toublanc | Ebb/Flood Dominance Inversion Over a Neap/Spring Tidal Cycle in the Charente Estuary (France), and its Effect on Sediment Dynamics |
| Wayne Wagner | Tidal Propagation in a Branching Channel Estuary |
| Soheila Taebi | Circulation of a Hypersaline Estuary in Response to a Rise in Mean Sea Level |

## Wednesday evening

Cruise on New York Harbor and Hudson River aboard the S/V *Clipper City*

# Thursday, August 17th Presentations

**7:30-8:30 AM: Breakfast**

| Time | Name | Title |
|---|---|---|
| 8:30 | Stephen Talke | Using Historical, 19th Century Tide Data to Understand Secular Variation in Estuarine Tidal Properties |
| 8:45 | Mick van der Wegen | Morphodynamic Modeling of Decadal Channel Evolution in San Pablo Bay, California: Why Does the Channel Narrow? |
| 9:00 | Bruce Jaffe | Mudflat Evolution at Decadal and Seasonal Time Scales |
| 9:15 | Sophie Ward | Impacts of Past and Future Sea-Level Rise on Shelf Sea Sediment Dynamics |
| 9:30 | Kelsey Fall | Controls on Particle Settling Velocity and Bed Erodibility in the Presence of Muddy Flocs and Pellets as Inferred by ADVs, York River Estuary, Virginia, USA |
| 9:45 | AM Posters *(see below)* | |
| 11:30 | Jessica Lacy | Wave-Height Evolution in the Shallows of San Francisco Bay |
| 11:45 | Neils Alebregtse | Non-linear Dynamics of Water and Sediment in Tidal Channel Networks |
| 12:00 | Eduardo Siegle | Changing Estuarine Processes through the Gradual Opening of a New Inlet |
| 12:15 | Jim Lerczak | Cross-shore Surface Transport by Shoaling Nonlinear Internal Waves |
| 12:30 | Lunch | |

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|---|---|---|
| 13:45 | Rob Hetland | The Mississippi/Atchafalaya River Plume System |
| 14:00 | Yeping Yuan | Spreading and Mixing in Laboratory Plume Experiments |
| 14:15 | Kelly Cole | River Plume Source-Front Connectivity |
| 14:30 | Jenny Brown | River, Wave and External Control of the Tidally-Dominated Long-Term Residual in an Estuarine Channel |
| 15:00 | PM Posters *(see below)* | |
| 16:30 | Mark Stacey | Horizontal Motions in Estuaries: The Range of Scales and the Implications for Horizontal Mixing |
| 16:45 | Johannes Becherer | Evidence of Tidal Straining in Well-Mixed Channel Flow from Micro-Structure |
| 17:00 | Ming Li | Vorticity Dynamics of Secondary Circulations in Idealized and Realistic Estuaries |

## Thursday Morning Posters

| | |
|---|---|
| Alfonso de Almeida Paulo Salles | Dynamics of Sand Dunes in the Northern Yucatan Peninsula Coast |
| Robert Chant | Ekman Rectification in a Coastal Plain Estuary |
| Diane Fribance | Interaction of Near- and Super-Inertial Waves with East Flower Garden Bank |

*Continued on next page*

| | |
|---|---|
| Catherine Edwards | Sea Breeze/Land Breeze (SBLB) Forced Currents in the Big Bend Region of the Gulf of Mexico |
| Janine Nauw | Long-Term Ferry-Based Observations of the Total Suspended Matter Flux through the Texel Inlet |
| Anna Zorndt | An Integrated Approach for Investigating the Impacts of Climate Change on the Weser Estuary |
| Kristen Thyng | Turbulence Comparisons Between Data and a ROMS Simulation in the Puget Sound Estuary |
| Fernando Marván | Use of Lagrangian Tracers and Numerical Modeling to Determine Residence Times and Inflow Distribution at San Quintin Lagoon |

**Thursday Afternoon Posters**

| | |
|---|---|
| Neil Ganju | A Tale of Two Marshes: Sediment Flux Mechanisms Near Blackwater National Wildlife Refuge |
| Carl Friedrichs | Relationships Between Erodibility and Fine-Grained Seabed Properties on Tidal to Seasonal Time-Scales, York River Estuary, Virginia, USA |
| Florence Verspecht | Sea Breeze Forcing of Near-Inertial Waves Near the Critical Latitude for Resonance |
| K. Chu | Data Assimilation for Morphodynamic Modeling |
| Huib de Swart | Salinity and Flow Distributions in Estuarine Networks |

| | |
|---|---|
| Youngmi Shin | The Characteristics of Near Surface Current Variability in Western LIS Using CODAR and ADCP Measurements |

## Thursday evening

PECS Banquet at the Battery Gardens Restaurant
overlooking New York Harbor

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