

Prediction and Modeling of Sediment Transport and Morphology Change at Beaches and Inlets

**U.S. Army Corps of Engineers
Coastal Inlets Research Program
4th Annual Technology-Transfer Workshop**

**February 10-12, 2003
Sawgrass Marriott Resort, Ponte Vedra Beach, FL**

**In cooperation with
Florida Shore and Beach Preservation Association
National Conference on Beach Preservation Technology
February 12-14, 2003**

Sunday, February 9

7:00-8:00 pm	Laptop Preparations: Load Software (All Attendees)
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Monday, February 10

8:00 a.m.	Registration, Laptop Preparations: Load Software
Part 1: Inlet Processes and Engineering Tools (Plenary Session)	
8:30 a.m.	Welcome, Introduction to the CIRP, Workshop Overview (Nick Kraus)
9:00 a.m.	Inlet Morphology for Coastal Engineering (Gary Zarillo & Kraus)
10:00 a.m.	Coffee Break
10:20 a.m.	Inlet and Regional Sediment Budgets (SBAS) (Julie Rosati)
11:20 a.m.	Inlet Reservoir Model (PC program) (Kraus)
12:00 noon	Lunch (provided by FSBPA)/Load Software
1:00 p.m.	Scour Prediction and Protection at Inlets (Steve Hughes)
2:00 p.m.	Channel Infilling Model (Kraus & Rosati)
2:40 p.m.	Coffee Break
3:00p.m.	Structures and Strategies to Manage Sediments at Inlets (Seabergh)
4:00 p.m.	Demonstration of Web-based Tools (Inlets database, Inlets Online) (Hughes, Rosati)
5:00 p.m.	Adjourn
5:00 –6:00 p.m.	Laptop Preparations: Load Software (as necessary)

Tuesday, February 11

Part 2: Numerical Modeling at and Around Inlets		
	<u>Session G: GENESIS-T</u> G-Team Leaders: Mark Gravens, Hans Hanson (limited to 15 attendees)	<u>Session H: Engineering Analysis at Tidal Inlets</u> H-Team Leaders: Lee Butler, Bill Seabergh
8:00 a.m.	Overview of session (Gravens) Introduction to CEDAS & Beach Processes Module	Overview of session (Seabergh) 1. Introduction to Inlet Hydrodynamics: Inlet functions, characteristics, variables, and flow patterns; Keulegan repletion coefficient; example problems Fresh water inflow, example problem; Tidal dispersion & mixing, example problem; wave-current interaction in channels, example problem
8:30 a.m.	GENESIS-T formulation of upgrades (Hanson/Wamsley) <ul style="list-style-type: none"> • Tombolo & bypassing • Regional trend contours • Tidal currents • Variable wave transmission 	
9:15 a.m.	NEMOS System Components & Typical Procedures (Gravens) <ul style="list-style-type: none"> • When to use GENESIS-T 	
10:00 a.m.	Coffee Break	
10:20 a.m.	GENESIS-T Demonstration (Gravens/Wamsley) <ul style="list-style-type: none"> • Offshore waves • Nearshore waves <ul style="list-style-type: none"> o grid generation o nearshore stations o input wave conditions • Structure specifications • Simulation & Visualization 	2. Hydrodynamics & Sediment Interaction at Tidal Inlets (Seabergh) Tidal prism – channel area relationships, example. Inlet stability analysis, example.
12:00 noon	Lunch (provided by FSBPA)	
1:00 p.m.	Orientation to Hands-on Application (Gravens) <ul style="list-style-type: none"> • Development of computational domains (STWAVE/GENESIS) • Available data • Design teams/detailed design goals 	3. Application of CEDAS to Inlet Environments (Butler) NMLong-WC: Model setup and applications STWAVE: <ul style="list-style-type: none"> • Grid generations • Wave conditions • Input spectra • Simulations
1:20 p.m.	Hands-On Application (Gravens/Hanson/Wamsley) <ul style="list-style-type: none"> • Offshore waves • Configuration/spatial dominion specification 	

2:40 p.m.	Coffee Break	
3:00 p.m.	Hands-On Application (Gravens/Hanson/Wamsley) <ul style="list-style-type: none"> • Structural lay-out & simulation • Alternative analysis 	DYNLET 1+D Hydrodynamics <ul style="list-style-type: none"> • Grid generation • model input requirements • Example application Empirical Simulation Technique (EST) <ul style="list-style-type: none"> • Capabilities • Storm Selection • Example application
5:30 p.m.	Adjourn	

Wednesday, February 12

Part 2, Concluded: Numerical Modeling at and Around Inlets		
	<u>Session G: GENESIS-T</u>	<u>Session S: SMS Steering Module and Sediment Transport</u> S-Team Leaders: Mary Cialone, Adele Militello
8:00 a.m.	<ul style="list-style-type: none"> • Review (Gravens) 	<ul style="list-style-type: none"> • Overview of session (Cialone)
8:15 a.m.	Hands-On Application (Gravens/Hanson/Wamsley) <ul style="list-style-type: none"> • Alternative analysis • Presentation preparation 	<ul style="list-style-type: none"> • M2D Circulation Model (Militello) <ul style="list-style-type: none"> - Capabilities - Coupling with models - Sediment transport
9:00 a.m.		<ul style="list-style-type: none"> • Demonstration – Steering Module Modeling Results (Cialone and Militello)
9:30 a.m.	Coffee Break	
9:50 a.m.	Design Team Presentations	<ul style="list-style-type: none"> • Demonstration – M2D Tutorials (Cialone and Militello)
11:30 a.m.	Summary/Questions Evaluation	
12:00 noon	Adjourn	

Workshop Instructors

Lee Butler, VeriTech

Mary Cialone, CHL

Mark Gravens, CHL

Hans Hanson, U. of Lund, Sweden

Steve Hughes, CHL

Adele Militello, Coastal Analysis, LLC

Julie Rosati, CHL

Nick Kraus, CHL

Bill Seabergh, CHL

Ty Wamsley, CHL

Gary Zarillo, Florida Institute of Technology

Workshop given by

- U.S. Army Engineer Research and Development Center, Coastal and Hydraulics Laboratory (CHL), Coastal Inlets Research Program – <http://cirp.wes.army.mil/cirp/cirp.html>
- VeriTech, Inc – <http://veritechinc.com>

In cooperation with

- Florida Shore & Beach Preservation Association – <http://www.fsbpa.com>