I.A.H.R. SYMPOSIUM
on
RIVER, COASTAL AND ESTUARINE MORPHODYNAMICS
September, 6th - 10th 1999
Genova, Italy

Programme

Venue: Palazzo Ducale
Piazza Matteotti, 9
Genova

MONDAY SEPTEMBER 6th

Venue: Palazzo Ducale – Salone Maggior Consiglio

♦ Morning ♦

8.00am – 8.45am Registration
8.45am – 9.10am Inaugural Session

SESSION 1 Mechanics of sediment transport

9.15am -10.00am **Keynote lecture : Sediment entrainment and transport in complex flows**
Nelson J. (U.S.G.S. - U.S.A.)

10.00am - 10.20am Discrete-particle model for bedload transport: implications for the concept of local equilibrium bed slope in oscillatory flows
Calantoni J. & Drake T.G

10.20am - 10.40am Turbulent modulation of shear flow by particles
Mori A., Shimizu H. & Itakura T.

10.40am – 11.00am Coupling between the incipient motion of spherical roughness elements and turbulent flow
Papanicolaou A.N., Diplas P., Bala M. & Dancey C.L.

11.00am – 11.20am. Entrainment rate predictions for a sand bed subject to steady and unsteady flows
Admiraal D.M. & Garcìa M.H.

11.20am – 11.35am Coffee Break

SESSION 2 Grain sorting processes

11.35am – 11.55am Non-uniform sediment in rivers: vertical sediment exchange between bed layers
Blom A. & Ribberink J.S.

11.55am – 12.15am Concentration profile of suspended sediment in rectangular open channel flow
Fujisaki K., Tanaka K. & Shiono K.

12.15am – 12.35am Observing the structure of turbulent flows over mixed grain sized sediment beds using particle image velocimetry
Gallagher M.W. & McEwan I.K.

12.35am – 12.55am Discrete particle modelling of entrainment from a mixed grain size sediment bed
McEwan I., Heald J. & Goring D.

1.00pm – 2.30pm Lunch

♦ Afternoon ♦

SESSION 3 Sediment transport in rivers

2.30pm – 3.15pm **Keynote lecture : Near-bed momentum fluxes, turbulent bursting, and Bagnold's hypothesis for sediment suspension**
Garcia M. (University of Illinois - U.S.A.)

3.15pm – 3.35pm Mathematical modelling of bedload transport over non-erodible layers
Struiksma N. (paper presented by K. Sloff)

3.35pm – 4.55pm Observations and predictions of suspended material load
Tateya K. & Yamaguchi H.

4.55pm – 4.15pm Flume experiments on the response of sediment flux to upstream supply
Wheeler M. & Willetts B.

4.15pm – 4.30pm Coffee Break

SESSION 4 Hydrodynamics and morphodynamics of compound channels

4.30pm – 4.50pm Three-dimensional overbank flow effects on sedimentation and erosion in the River Waal
Havinga F.J.

4.50pm – 5.10pm LES simulation of low and suspended sediment transport in two-stage channels
Ikeda S. & Sano T.

5.10pm – 5.30pm The response of an armoured bed to the infiltration of fine sand in a compound channel
Macauley A.N. & Pender G.

5.30pm – 5.50pm Experiments with meandering mobile bed channels having overbank flow
Loveless J.H., Sellin R.H.J., Bryant T., Wormleaton P., Catmur S. & Hey R.D.

5.50pm – 6.10pm Behaviour of alluvial channels with overbank flow
Hadeira M.A. & Valentine E.M.

♦ Evening ♦

6.30pm ***Welcome Cocktail***
Venue: Palazzo Ducale – Loggiato

TUESDAY SEPTEMBER 7th

Venue: Palazzo Ducale – Sala Minor Consiglio

♦ Morning ♦

SESSION 5 Coastal bedforms I

8.45am – 9.30am	**Keynote lecture : The use of numerical models in coastal hydrodynamics and morphology** ***Deigaard R. (I.S.V.A. Technical University of Denmark – Denmark)***
9.30am – 9.50am	Dynamic analysis of a sandy bottom evolution under sea waves using image acquisition techniques ***Foti E., Salmeri G. & Baglio S.***
9.50am – 10.10am	A Lagrangian approach to describe sediment dynamics over a rippled bed: preliminary results ***Blondeaux P., Scandura P. & Vittori G.***
10.10am – 10.25am	Coffee Break

SESSION 6 Coastal bedforms II

10.25am – 10.45am	Sand waves formation: preliminary comparison between theoretical prediction and field data ***Blondeaux P., Brocchini M., Drago M., Iovenitti L. & Vittori G.***
10.45am – 11.05am	Nearshore oblique bars. Modelling versus observations at the Truc Vert Beach ***Falqués A., Ribas F., Larroudé P. & Montoto A.***
11.05am – 11.25am	Prediction of sand waves and sand banks in the North Sea ***Van den Brink G.M. & Hulscher S.J.M.H.***
11.25am – 11.45am	Artificial neural network model of sand bar location for a Macro-Tidal Beach, Perranporth, U.K. ***Kingston K.S. & Davidson M.A.***
11.45am – 1.00pm	Poster Session
1.00pm – 2.30pm	Lunch

♦ Afternoon ♦

SESSION 7 River bedforms I

2.30pm – 3.15pm **Keynote lecture : Recent development in river morphodynamics: a mechanical perspective**
Tubino M. (University of Trento – Italy)

3.15pm – 3.35pm Experimental observations of ripple growth in non-uniform sediment
Niño Y. & Aracena D.

3.35pm – 3.55pm Numerical simulation of turbulence over two-dimensional dunes
Shimizu Y., Schmeeckle M.W., Hoshi K. & Tateya K.

3.55pm – 4.15pm Turbulent structures and suspended sediment over two-dimensional dunes
Schmeeckle M.W., Shimizu Y., Hoshi K., Baba H. & Ikezaki S.

4.15pm – 4.30pm Coffee Break

SESSION 8 River bedforms II

4.30pm – 4.50pm Experimental reproduction and analyses of medium-scale bedforms in mountain rivers
Fujita T., Tatuzawa H. & Hasegawa K.

4.50pm – 5.10pm On the possibility of genetic algorithms and the Ginzburg-Landau equation to model alternate bars: a sensitivity analysis
Knaapen M.A.F., Hulscher S.J.M.H. & de Vriend H.J.

5.10pm – 5.30pm Sand wave transformation due to change of water discharge in graded and uniform sediment beds
Miwa H., Daido A. & Kato I.

5.30pm – 5.50pm Development of subaqueous dunes in the Rhine and Waal, the Netherlands. A Preliminary note
Wilbers A.W.E. & ten Brinke W.B.M.

5.50pm – 6.10pm Field observations on the transport of nutrients and suspended solids during floods
Watanabe Y., Hoshi K. & Hashimoto N.

♦ Evening ♦

8.00pm **Football match DIAM v. Rest of the World**
Venue: University Sports Center at Valletta Cambiaso

WEDNESDAY SEPTEMBER 8th

Venue: Palazzo Ducale – Sala Minor Consiglio

♦ Morning ♦

SESSION 9 Slope instability

8.45am – 9.30am **Keynote lecture : Landslides and landscapes**
Dietrich W. (University of California at Berkeley - U.S.A.)

9.30am – 9.50am A distributed slope stability model to study shallow landslides initiation in catchment characterized by low permeable soil
Menduni G., Rosso R. & Rulli M.C.

9.50am – 10.10am Flow slide deposits in the Eocene Vlierzele Sands, Belgium
Van den Berg J.H. & Van Gelder A.

10.10am – 10.30am The hydrogeological disaster of the May 1998 in Campania Region (Italy)
Cascini L. (paper not included in the proceedings)

10.30am – 10.45am Coffee Break

SESSION 10 Turbidity currents and debris flows

10.45am – 11.30am ***Keynote lecture : Processes of occurrence, flow and deposition of a viscous type debris flow***
Takahashi T. (D.P.R.I. of Kyoto – Japan)

11.30am – 11.50am Drag-modified flow of turbulent gravity currents
Hogg A.J., Hatcher L. & Woods A.W.

11.50am – 12.10am A semi-analytical solution for the dam-break problem over a movable bed
Fraccarollo L. & Armanini A.

12.10am – 12.30am Shear flow of a liquid-grain mixture: the quasi-static component of the stress. Part 1: experiments
Lamberti A. & Schippa L.
Shear flow of a liquid-grain mixture: the quasi-static component of the stress. Part 2: analysis of experimental results
Lamberti A., Schippa L. & Montefusco L.

12.30am – 1.00pm **Poster Session**

1.00pm – 2.30pm Lunch

♦ Afternoon ♦

3.00pm – 5.00pm ***Visit of Genoa Harbour***
Venue: Stazione Marittima

♦ Evening ♦

7.30pm – 9.00pm ***Invitation to Dinner***
Serenata Concert by B. Gambetta and C. Aonzo
Venue: Sala Minor Consiglio

9.00pm ***Social Dinner***
Venue: Palazzo Ducale – Salone Maggior Consiglio

THURSDAY SEPTEMBER 9th

Venue: Palazzo Ducale – Sala Minor Consiglio

♦ Morning ♦

SESSION 11 Coastal hydrodynamics

8.45am – 9.30am **Keynote lecture : Pattern formation in the nearshore**
Holman R.A. (University of Oregon - U.S.A.)

9.30am – 9.50am Rip currents in the absence of bathymetric forcing
Murray A.B. & Reydellet G.

9.50am – 10.10am A wave pump model for rip currents
Nielsen P., Hughes M.G. & Brander R.W.

10.10am – 10.30am Observations of the near-bottom velocity field under bimodal waves
Sanchez – Arcilla A. & Jimenez J.A.

10.30am – 10.50am Mass transport induced by waves on a sloping bottom
Blondeaux P., Brocchini M. & Vittori G.
Modelling cross-shore mass transport under sea waves
Blondeaux P., Stanton T., Thornton E & Vittori G.

10.50am – 11.05am Coffee Break

SESSION 12 Sediment transport and coastal morphodynamics

11.05am – 11.25am Sediment concentration due to wave action
Absi R.

11.25am – 11.45am Velocity profiles and sand concentrations in sheet-flow under waves and currents
Dohmen-Janssen C.M.

11.45am – 12.05am Analysis of long-term changes in nearshore morphology
Li B. & Reeve D.E.

12.05am – 13.00pm **Poster Session**

1.00pm – 2.30pm Lunch

♦ Afternoon ♦

SESSION 13 River morphodynamics

2.30pm – 2.50pm Numerical modelling of the upstream induced non-equilibrium sediment transport
Ferreira R.M.L. & Cardoso A.H.

2.50pm – 3.10pm Effect of spatial grain size variations on two-dimensional river bed morphology
Mosselman E., Sieben A., Sloff K. & Wolters A.

3.10pm – 3.30pm Self-formed low water channel in straight channel
Egashira S. & Takebayashi H.

3.30pm – 3.50pm Morphological dynamics around vegetated area in sand rivers
Tsujimoto T.

3.50pm – 4.05pm Coffee Break

SESSION 14 River meandering

4.05pm – 4.50pm **Keynote lecture : Meandering channels in the submarine environment**
Parker G. (University of Minnesota - U.S.A.)

4.50pm – 4.10pm Outer-bank cell of secondary circulation and boundary shear stress in open-channel bends
Blanckaert K. & Graf W.H.

5.10pm – 5.30pm Secondary turbulent flow in an infinite bend
Christensen B., Gislason K. & Fredsøe J.

5.30pm – 5.50pm Numerical analysis of cutoff development
Jagers H.R.A.

5.50pm – 6.10pm Curvature driven distortion of free bars in river bends
Solari L., Zolezzi G. & Seminara G.

♦ Evening ♦

6.30pm – 8.00pm ***Meeting of the Italian Research Group on "River and Coastal Morphodynamics"***
Venue: Palazzo Ducale – Sala Conferenza dell'Accademia Ligure di Scienze e Lettere

FRIDAY SEPTEMBER 10th

Venue: Palazzo Ducale – (Sala Minor Consiglio)

♦ Morning ♦

SESSION 15 River braiding

8.45am – 9.05am	Width of braided gravel bed rivers: implications for management in Austria and New Zealand ***Habersack H.M. & Smart G.M.***
9.05am – 9.25am	Simulation of morphological characteristics of a braided river ***Enggrob H.G. & Tjerry S.***
9.25am – 9.45am	Sediment transport in river junction ***Meyer Z. & Roszak A.***
9.45am – 10.05am	Transition from migrating alternate bars to steady central bars in channels with variable width ***Repetto R. & Tubino M.***
10.05am – 10.20am	Coffee Break

SESSION 16 Estuarine morphodynamics

10.20am – 11.05am	**Keynote lecture : Long-term morphological prediction** ***De Vriend H.J. (Delft University of Technology – The Netherlands)***
11.05am – 11.25am	Multiple morphodynamic equilibria in a one-dimensional tidal embayment ***Schuttelaars H.M. & de Swart H.E.***
11.25am – 11.45am	Tidal meanders ***Solari L. & Seminara G.***
11.45am – 12.05am	The effect of non-linear and deposition processes on the morphodynamics of tidal embayments ***Van Leeuwen S.M. & de Swart H.E.***
12.05am – 12.25am	Secondary currents in estuarine morphodynamic modelling, a case-study of the Western Scheldt ***Verbeek H., Wang Z.B. & Thoolen P.M.C.***
12.25am – 1.00pm	**Poster Session**
1.00pm – 2.30pm	Lunch

♦ Afternoon ♦

SESSION 17 Hydrodynamics of enclosed basins

2.30pm – 3.15pm **Keynote lecture : River and tidal network**
Rinaldo A. (University of Padova - Italy)

3.15pm – 3.35pm 3D numerical calculation of stratified flow in closed water system
Akahori R., Shimizu Y., Hoshi K. & Tateya K.

3.35pm – 3.55pm Prediction of resonance of Gamchun Bay, Korea
Kim H.

3.55pm – 4.15pm A quasi 3-D model of wind driven circulation in enclosed basin
Colombini M. & Stocchino A.

4.15pm – 4.30pm Coffee Break

SESSION 18 Lagoon morphodynamics

4.30pm – 4.50pm Interaction between marshes, channels and shoals in tidal lagoons
Di Silvio G.

4.50pm – 5.10pm Cyclic morphological development of the Ameland Inlet, The Netherlands
Israel C.G. & Dunsbergen D.W.

5.10pm – 5.30pm Stabilizing effect of biota on cohesive sediments
Prochnow J.V., Spork V., Jahnke J. & Schweim C.

5.50pm **Closure of the Symposium**

Posters

(In alphabetical order)

Using RMA-2V to simulate flood dynamics along the upper Mary River in south-east Queensland, Australia
Amghar M. & Yu B.

Reynolds stress measurements from wave field data
Blondeaux P., Stanton T., Thornton E. & Vittori G.

Change of sediment transport after dam construction
Bouno S., Tahara T. & Shimizu Y.

Modelling boundary conditions in suspended transport. Simulation
Bovolin V., Taglialatela L. (paper not included in the proceedings)

Nearshore sand transport modelling: application to Trucvert beach
Camenen B. & Larroudé P.

Fractional bed load transport rates during rising and falling flood stages
Cokgor S. & Diplas P.

Wind-driven flow in shallow water
Colombini M. e Stocchino A.

Mathematical modelling of wave propagation near southeastern Mediterranean coasts
Essa S.S.

3-D calculation of flow in the neighborhood of the dam for the Three-Gorge-Project (TGP) reservoir in Yangtze River
Fang H.W. & Rodi W.

Mature and immature debris-flows by solid load deduced from the study of acting stresses
Franzi L. & Bianco G.

Two mathematical models simulating a real-world debris flow
Ghilardi P., Natale L. & Savi F.

Dynamic bed stabilization of navigable rivers
Golz E.

Analysis of the texture of gravel-beds using 2-D structure functions
Goring D.G., Nikora V.I. & McEwan I.K.

Entropy velocity distribution in a river
Greco M.

Preliminary experimental observations of upstream overdeepening
Guala M., Zolezzi G., Branca A. & Seminara G.

Circular scour around rubble-mound foundation on Sukmo-Choomoon tidal flat, Korea
Kim H.

Application of a three dimensional sediment transport model to large bed forms
Li M., Ali K.H.M., O'Connor B.A. & Burrows R.

Some morphological aspects of the Orinoco River
Lopez J.L., Pérez-Hernandez D. & Saavedra I.

Experimental study of the wave boundary layer over rippled beds
Marin F.

Choice of grain size representation for morphological modeling
McArdell B.W. & Faeh R.

Extraction of channel networks from Vector Elevation Data with a new method of catchment partitioning
Menduni G., Riboni V. & Rulli M.C.

Morphodynamics and Morphometry of nontidal protruding river deltas
Mikhailova M.

On the predictability of stable thalweg slopes
Pica M. & Preti F.

Waves, volcanoes and rivers: coastal erosion in northwestern Columbia
Posada Garcia L., Hoyos Patino F., Restrepo-Estrada A. & Palacio-Zapata H.

A comparison between scaling properties of real and experimental braided rivers
Rosatti G.

Major agent for bridge pier scouring: downflow or horseshoe vortex?
Sarker A.M.A.

Physical and 2-D numerical models of free-surface flow over weir, using standard and RNG k-ε models with power and SMART schemes
Sarker A.M.A. & Rhodes D.G.

The influence of Coriolis force and external overtides on equilibrium morphodynamics in an idealized 3D channel model
Schramkowski G.P. & de Swart H.E.

Transport of sediment into a channel branch in a river bend
Shafai-Bajestan M.

A beach profile evolution model incorporating turbulence closure
Smit F. & Mocke G.P

Guidelines for error assessment in models of long term coastal morphology
Southgate H.N.

Spatial and temporal variability of dune properties and bed load transport during a flood at a sand bed reach of the Dutch Rhine river system
ten Brinke W.B.M. & Wilbers A.W.E.

Experimental study in a meandering channel: 1. Analysis of bed topography
Termini D.

Experimental study in a meandering channel: 2. Analysis of "initial" flow pattern
Termini D.

Long-term changes in estuary morphology using the entropy method
Townend I. (paper presented by P. Norton)

Formulation of a four equations mathematical model of free surface flow in bends
Valiani A.

The performance of the stilling basin with diverging side walls
Vasani R.P.

Simulation of long-term morphological development in the Western Scheldt
Wang Z.B., Langerak A. & Fokkink R.J.

The use of two-dimensional morphological models in the Netherlands
Wolters A.