Felice D'Alessandro

Responsabile generale del contratto e del progetto

Education:

Tenured Assistant Professor of Water Economy, University of Milan, Italy

FdA erned the National Scientific Qualification (Abilitazione Scientifica Nazionale - ASN) for the University Associate Professor position

Tenured Assistant Professor of Hydraulics and Coastal Engineering, University of Salento, Italy

Hydraulics and Environmental Engineering, Coastal Engineering focus, University of Calabria, Italy. Mark: excellent

Ph.D. dissertation title: "The initiation of breaking process in Boussinesq-type equations wave models"
Advisor: prof. G.R. Tomasicchio

Civil Engineering (Hydraulics), University of Calabria, Italy. Cum laude (with honour) Degree dissertation title: "The Beach Dreinage System (BDS)"
Advisor: prof. P. Veltri

Cultural activities and research:

Post-doctoral Fellow
10/07 - 10/09
Department of Engineering, University of Salento, Italy Prof. G.R. Tomasicchio
The investigation carried out concerned the improvement of C-SHORE, a depth- averaged finite difference numerical model, for prediction of beach/dune profiles
evolution under wave storm attacks.

Ph.D. Candidate
01/03 - 02/06
School of Hydraulic and Environmental Engineering, University of Calabria, Italy Prof. G.R. Tomasicchio
The Breaking Celerity Index (BCI) has been proposed as a new wave breaking criterion for Boussinesq-Type Equations wave propagation models.

Visiting Research Trainee
05/17/04 - 06/29/04
Coastal and Hydraulics Laboratory (CHL), U.S. Army Engineer Research and Development Center's (ERDC), Vicksburg, Mississippi (USA)
Dr. E.R. Smith
Physical model experiments have been conducted as a part of the U.S. Army Corps of Engineers 'Dredging Operations and Environmental Research' (DOER) program to study the migration and dispersion processes of a near-shore placed dredged mound subjected to waves and currents. The experiments have been carried out at the Large-scale Sediment Transport Facility (LSTF)
Visiting Research Trainee
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Visiting Research Trainee
10/17/03 – 11/19/03
LNEC (Laboratorio Nacional de Engenharia Civil), Departamento de Hidraulica e Ambiente, Nucleo de Portos e Estruturas Maritimas, Lisbon, Portugal
Dr. F. Sancho and Dr. J. Fortes
The investigation carried out concerned the improvement of FUNWAVE-1D nu- merical model based on Boussinesq-type equations. The work resulted in the validation and verification of the model by comparison with the results from la- boratory measurements of breaking waves propagating on a barred beach.

EU's Horizon 2020 Research and Innovation Programme – Hydralab+: Transna- tional Access to the major and unique experimental hydraulic and hydrodynamic
Spar buoy for off-shore floating wind energy conversion
University of Salento (Italy), Aalborg University (Denmark), Plymouth University (UK), Technical University of Athens (Greece), Second University of Naples (Italy), University of Cantabria (Spain), Imperial College (UK), TU Delft (The Netherlands) 24
The project intends to improve the understanding of the dynamic response of SB FOWT under combined wind and wave conditions such as those in deep water. The proposed 3D model tests will be carried out at the large-scale deep water wave basin at DHI.

The UAEU Interdisciplinary Center-Based Research Grant Competition
Impact of coastal (long-shore) currents on erosion/deposition and consequent wa- ter/ sediments quality variations along the coastal area of Abu Dhabi City
United Arab Emirates University, Biology Department (UAE) and University of Salento (Italy).
The project aims to extend existing knowledge on sediment behavior under com- bined current–wave action by measuring waves, currents, sediment properties, and bed-level changes along the mud-flat-salt marsh transition of a macro-tidal and ex- posed coast at the Abu Dhabi city coastal area with a major focus of lagoon systems. In addition, it aims to evaluate the impact of sediments movement on the modifica- tion of habitats quality and its suitability to the existing biodiversity.

Co-funded by the European Union - European Regional Development Fund (ERDF) and by National Funds of Greece and Italy under the European Territorial Cooperation Programme Greece-Italy 2007-2013 3rd Call (http://www.e-guideport.eu/) Integrated accessibility and routing GUIDancE platform for safe multimodal transport in sustainable smart PORTs and regions project (GUIDEPORT)
University of Patras (Greece), Patras Port Authority S.A. (Greece), Brindisi Port Authority (Italy), University of Salento (Italy)

European Community's Seventh Framework Programme - Integrated Infrastructure
Dynamic response of floating off-shore wind turbines under wind and wave action University of Salento (Italy), National Technical University of Athens (Greece), Aa- chen University (Germany), Instituto Superior Tecnico (Portugal)
3D physical model experiments have been carried out aimed to investigate the dy- namic response of two structure technologies of floating off-shore wind turbine: ten- sion leg platform (TLP) and spar buoy (SB), under different wind and wave condi- tions. The physical model tests have been performed at the Danish Hydraulic Insti- tute (DHI), Horsholm, from 10/01/12 to 1) Drafting of the technical proposal; 2) design and set-up of the physical model tests; 3) running of the experiments; 4) data analysis; 5) dissemination (reports and publications).

European Community's Sixth Framework Programme - Integrated Infrastructure Iniziative Dune erosion and overwash
University of Salento (Italy), LNEC (Portugal), Lancaster University (UK), Aachen University (Germany)
Large-scale laboratory experiments focusing on the main physical processes driving dune erosion have been performed in a wave flume with a sandy dune exposed to a combination of water levels and wave conditions providing observations of differ- ent interaction regimes: collapsing, overwash and breaching. The physical model tests have been conducted at the Canal d'Investigaciò i Esperimentaciò Marìtima (CIEM) of the Laboratori d'Enginyeria Marìtima (LIM) at the Universitat Politècnica de Catalunya, Barcelona, 1) Drafting of the technical proposal; 2) design and set-up of the physical model tests; 3) running of the experiments; 4) data analysis; 5) dissemination (reports and publications).

POR Puglia FESR-FSE 2014-2020 – "Innolabs" announcement
Sperimentazione di tecnologie innovative per il consolidamento di dune costiere - INNODUNECOST
University of Salento, Centro Euro-Mediterraneo per i Cambiamenti Climatici (CMCC), private
Development and field testing of a dune erosion mitigation innovative technique for the improvement of an eco-friendly beach recreational area. The concept behind this technique is to use a mineral, transparent and environmental friendly grout, col- loidal silica based, to consolidate sand dunes and protect them from erosion.

Regione Puglia - FSC 2007-2013, "Cluster Tecnologici Regionali"
Calcestruzzo ecosostenibile per elementi smart in ambiente marino – Eco-Smart Breakwater
Centro Euro-Meditarraneo per i Cambiamenti Climatici (CMCC), University of Sa- lento, private companies. 1) Drafting of the technical proposal; 2) data analysis; 2) numerical modelling; 4) physical model tests.

Regione Puglia - FSC 2007-2013, "Cluster Tecnologici Regionali"
Rapid mapping and monitoring system of marine and coastal environment (START) Centro Euro-Meditarraneo per i Cambiamenti Climatici (CMCC), University of Sa- lento, private companies
START research project aims to provide a rapid mapping and monitoring system of marine and coastal environment in Apulia coastal areas.
The project aims to perform field and laboratory experiments on the hydraulic stability and ov topping performance of an innovative armor unit for rubble mound breakwaters under wave action. 1) Drafting of the technical proposal; 2) data analysis; 3) numerical modelling.

Programmi di Ricerca Scientifica di Rilevante Interesse Nazionale (PRIN) – D.M.
Ministero dell'Istruzione, dell'Università e della Ricerca Strumenti per la valutazione della vulnerabilità di aree costiere in relazione ai previsti cambiamenti climatici
University of Bologna, University of Genova, University of Catania, University of Salento, Technical University of Marche, CNR-ISMAR Venezia

The project aimed at contributing the development of the knowledge on the problems related to coastal protection. In particular, effective models for risk analyses in coastal regions at large time-space scale have been developed with the objective of planning the priority of coastal works and interventions at a regional scale, and also of carefully simulating coastal processes, to improve the design quality of coastal structures as well. 1) Drafting of the technical proposal; 2) data analysis; 3) numerical modelling; 4) dissemination (reports and publications).

National Agency for the Evaluation of Universities and Research Institutes (ANVUR).
FFABR "Fondo per il finanziamento delle attività base di ricerca"
Direct scaling analysis of sea-level records: a characterization and quantification of long-term spatial variability.
Following a direct scaling analysis approach, the research activity will aim to examine the spatial variation of the observed annual mean sea-level, h, at selected tide gauge stations.

S.J.S. Engineering s.r.l.
Physical model experiments to support the design activities of a new rubble mound break- water in the port of Taranto (Italy).
Physical model tests on the hydraulic stability and overtopping performance of a rubble mound breakwaters under wave action.

Carical Foundation - Postdoctoral Research Fellowship
Title of the project: Duration (months): Date of start:
Total amount (euros): Key topic and objective:
Calibration and verification of a numerical model of beach profile evolution.
The investigation carried out concerned the improvement of C-SHORE, a depth-averaged finite difference numerical model, for prediction of beach/dune profiles evolution under wave storm attacks.

Publications

Kurdistani, M.S., Tomasicchio, G.R., D'Alessandro, F., Hassanabadi, L. (2019). River bank protection from ship-induced waves and river flow. Water Science and Engineering, in press, corrected proof.

Pantusa, D., D'Alessandro, F., Riefolo, L., Principato, F., Tomasicchio, G.R. (2018). Application of a Coastal Vulnerability Index. A case study along the Apulian coastline, Italy. Water, 10(9), 1218.

Tomasicchio, G.R., Lusito, L., D'Alessandro, F., Frega, F., Francone, A., De Bartolo, S. (2018). A direct scaling analysis for the sea level rise. Submitted for consideration to Stochastic Environmental Research and Risk Assessment, 32(12), 3397-3408.

Hamza, W., Lusito, L., Ligorio, F. Tomasicchio, G.R., D'Alessandro, F. (2018). Wave climate at shallow waters along the Abu Dhabi Coast. Water, 10(8), 985.

T omasicchio, G.R., D' Alessandro, F ., Avossa, A.M., Riefolo, L., Musci, E., Ricciardelli, F ., Vicinanza, D. (2018). Experimental modelling of the dynamic behaviour of a spar buoy wind turbine. Renewable Energy, 127, 412-432.

J.14 Smith, E.R., D'Alessandro, F., Tomasicchio, G.R., Gailani, J.Z. (2017). Nearshore placement of a sand dredged mound. Coastal Engineering, 126, 1-10.

D'Alessandro, F., Tomasicchio, G.R. (2016). Wave-dune interaction and beach resilience in large-scale physical model tests. Coastal Engineering, 116, 15-25.

Tomasicchio, G.R., D'Alessandro, F., Barbaro, G., Musci, E., De Giosa, T.M. (2015). Longshore transport at shingle beaches: an independent verification of the general model. Coastal Engineering, 104, 69-75.

Salvadori, G., Durante, F., Tomasicchio, G.R., D'Alessandro, F. (2015). Practical guidelines for the multi- variate assessment of the structural risk in coastal and off-shore engineering. Coastal Engineering, 95, 77- 83.

Salvadori, G., Tomasicchio, G.R., D'Alessandro, F. (2014). Practical guidelines for multivariate analysis and design in coastal engineering. Coastal Engineering, 88, 1-14.

Tomasicchio, G.R., D' Alessandro, F ., Barbaro, G., Malara, G. (2013). General longshore transport model. Coastal Engineering, 71, 28-36.

Salvadori, G., Tomasicchio, G.R., D'Alessandro, F. (2013). Multivariate approach to design coastal and off-shore structures. Journal of Coastal Research, SI(65), Vol. 1, 386-391.

Tomasicchio, G.R., D'Alessandro, F. (2013). Wave energy transmission through and over low crested breakwaters. Journal of Coastal Research, SI(65), Vol. 1, 398-403.

Sancho, F., Abreu, T., D'Alessandro, F., Tomasicchio, G.R., Silva, P.A. (2011). Surf hydrodynamics under collapsing coastal dunes. Journal of Coastal Research, SI(64), 144-148.

D'Alessandro, F., Tomasicchio, G.R., Frega, F., Carbone, M. (2011). Design and management aspects of a coastal protection system. A case history in the South of Italy. Journal of Coastal Research, SI(64), 492-495.

Tomasicchio, G.R., D'Alessandro, F., Barbaro G. (2011). Composite modelling for large-scale experiments on wave-dune interactions. Journal of Hydraulic Research, Vol. 49, No. S1, 15-19.

Tomasicchio, G.R., Sanchez Arcilla, A., D'Alessandro, F., Ilic, S., James, M., Fortes, C.J.E.M., Sancho, F., Schüttrumpf, H. (2011). Large-scale flume experiments on dune erosion processes. Journal of Hydraulic Research, Vol. 49, No. S1, 20-30.

Tomasicchio, G.R., D'Alessandro, F., Musci, F. (2010). A multi-layer capping of a coastal area contaminated with materials dangerous to health. Chemistry and Ecology, Vol. 26(1), 155-168.

D'Alessandro, F., Tomasicchio, G.R. (2008). The BCI criterion for the initiation of breaking process in Boussinesq type equations wave models. Coastal Engineering, 55, 1174-1184.