

EDOARDO GROTTOLI

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ResearchGate: https://www.researchgate.net/profile/Edoardo_Grottoli

Coastal geomorphologist interested in all aspects of physical geography. So far my research dealt with storm impact on sandy and coarse-grained beaches and on sediment transport within coastal settings. Recently, I also focused on river geomorphology (bedload transport) and sediment interactions between river and coast.

EDUCATION

2012 - 2015 - DOCTOR OF PHILOSOPHY IN EARTH SCIENCES AT UNIVERSITY OF FERRARA.

Main topics : Morphodynamics of mixed sand and gravel beaches. Storm impact on beach geomorphology (i.e. landform variation, volume changes, beach rotation). Sediment transport measurements by means of RFID tracers. Measurement of wave parameters, sampling and analyses of surface sediments.

Thesis title : Sediment transport and morphodynamics of mixed beaches: case studies of two Mediterranean sites.

Supervisor: Professor Paolo Ciavola

Abroad experience: (2013 – 3 months) visiting PhD student at NRDP Center (Center for Natural Resources Development and Protection) of New Jersey Institute of Technology (Newark, NJ, USA).

Supervisor: Professor Nancy L. Jackson

2011 - MASTER'S DEGREE IN EARTH SCIENCES AT UNIVERSITY OF BOLOGNA

Thesis title: Morphodynamic classification of beaches stretching between the Bevano River mouth and the beach of Lido di Classe (Ravenna, Italy). *Thesis realized within the European project MICORE (www.micore.eu)

2008 - BACHELOR OF SCIENCE IN EARTH SCIENCES AT UNIVERSITY OF BOLOGNA

Thesis title: Geomorphic and geotechnical analysis of landslides in Bruscoli area (Firenzuola, FI).

2004 - HIGH SCHOOL DIPLOMA, AT SCIENTIFIC INSTITUTE "G. TORELLI" (FANO, ITALY).

WORK EXPERIENCE

2015 TO PRESENT - POSTDOC POSITION AT UNIVERSITÀ DI FERRARA, DEPARTMENT OF PHYSICS AND EARTH SCIENCES

Topics: Morphodynamic study of beaches located in the Northern Adriatic coast. Topographic surveys by means of DGPS and UAVs (Unmanned Aerial Vehicles). Bathymetric surveys (single beam echosounder) of nearshore and river beds. Bed-load transport studies of two local Apennine rivers. Setting of a video-monitoring station to study the shoreline variation and the dune erosion of Punta Marina beach (Ravenna, Italy). Data analyses and interpretation. Writing of scientific papers. Writing reports for private companies and research centers.

2018 - TO PRESENT - RESEARCH COLLABORATION WITH FONDAZIONE FLAMINIA (RESEARCH CENTER) AND ENI (ITALIAN OIL COMPANY).

Topics: SANDway project. Measuring and analyzing the sand supply provided by three local rivers to Emilia-Romagna coast (Northern Adriatic). *Tasks*: Field data gathering (bed load transport measurements and topo-bathymetric surveys). Writing reports.

2015 - 2018 - RESEARCH COLLABORATION WITH ENI (ITALIAN OIL COMPANY; ENI CONTRACT: 2500017034)

Topics: Dune and beach characterisation between Punta Marina and Lido di Dante sites (Ravenna) by means of topographic and UAV surveys. *Tasks*: Topographic surveys, sediment sampling and analyses, UAV surveys and data analyses. Writing reports.

2015 (1 MONTH) - RESEARCH COLLABORATION WITH CONSORZIO FUTURO IN RICERCA (RESEARCH CONSORTIUM)

Task: Website design of the European project "Risc-KIT" (<http://www.unife.it/progetto/risk-kit>).

2014 (2 MONTHS) - TEACHING EXPERIENCE AS TUTOR AT UNIVERSITÀ OF FERRARA, DEPARTMENT OF CIVIL ENGINEERING

Topics: Lectures and laboratory sessions given on macroscopic identification of rocks for the course "Elements of Geology and Geomorphology" held by professors Paolo Ciavola and Riccardo Caputo.

2012 (2 MONTHS) - TEACHING EXPERIENCE AS TUTOR AT UNIVERSITÀ OF FERRARA, DEPARTMENT OF CIVIL ENGINEERING

Topics: Lectures and laboratory sessions given on macroscopic identification of rocks for the course "Elements of Geology and Geomorphology" held by professor Paolo Ciavola.

2011 (4 MONTHS) - RESEARCH COLLABORATION WITH CONSORZIO FUTURO IN RICERCA (RESEARCH CONSORTIUM)

Tasks: Writing a scientific paper. Surveys of beach topography by means of DGPS. Interpretation of aerial photos and LIDAR data by means of ArcGIS software.

2010 (1 MONTH) - TRAINING AT CONSORZIO FUTURO IN RICERCA (RESEARCH CONSORTIUM), FERRARA

Topographic surveys with DGPS, aerial photo and LIDAR data interpretation with ArcGIS software, sediment analyses (grain size, pycnometry, calcimetry).

2008 (2 MONTHS) - TRAINING AT RECLAMATION CONSORTIUM OF RENO RIVER, BOLOGNA

Interpretation of aerial photos with CAD and ArcGIS, evaluation of river bed dynamics and slope stability in the Apennine area of Bologna.

SKILLS

Languages: Italian (mother tongue), English (optimum knowledge).

Softwares: O.S. Windows, ArcGIS 10.x, Microsoft Office Suite, Photoshop, Corel Draw, Agisoft Photoscan, Surfer, Trimble Business Center.

Technical skills: Field based geomorphologist - Topographic surveys by means of RTK-GNSS - Bathymetric surveys with single beam echosounder - Photogrammetric surveys with UAV (Unmanned Aerial Vehicles) - Image processing by means of Structure from Motion method to produce DSMs and Orthophotos - Sediment tracing by means of RFID (Radio Frequency IDentification) technique - Use of Pressure transducers for wave and tide measurements - Sediment analyses (grain-size, density, CaCO₃ content, shape) - Basic knowledge about setting up video-monitoring stations - Planning of field measurement campaigns - Used to work in an international research group - Team worker - Little teaching experience - Congress and summer school organization.

Creative skills: Graphic designer of logos, flyers, posters and certificates (self-taught); Drawing (self-taught); Cooking (self-taught).

Other competences: basic webmaster (Plone and Indico graphic interfaces).

COURSES

22-26 August 2016: "Autonomous Systems Bootcamp", Lewes, Delaware (USA)

9-11 December 2014: "Geospatial Analysis of Environmental Data", Ferrara (Italy)

13 April 2012: "Acoustic Seabed Classification Workshop", Cecina (Italy)

HONORS AND AWARDS

2012 - Winner of the national award "Leonardo Polonara" instituted by the Association of Geologists of Marche Region as the best thesis in geology, geomorphology and coastal planning in the Adriatic Sea (1st Edition).
<http://www.geologimarche.it/?p=791>

PUBLICATIONS

PAPERS IN PREPARATION:

1. **Grottoli, E.**, Ciavola, P. (XXXX). The role of geomorphic variability on the vulnerability assessment for potential oil spill events of mixed sand and gravel beaches: the cases of two Adriatic sites. *Geosciences* XX, XX-XX.

PAPERS IN REVIEW:

1. **Grottoli, E.**, Ciavola, P., Duo, E., Ninfo, A (XXXX). UAV application for monitoring the annual geomorphic evolution of a coastal dune in Punta Marina (Italy). *ISPRS Annals* XX, XX-XX.

PUBLISHED JOURNAL PAPERS:

1. **Grottoli, E.**, Bertoni, D., Pozzebon, A., Ciavola, P., (2019). Influence of particle shape on pebble transport in a mixed sand and gravel beach during low energy conditions: implications for nourishment projects. *Ocean and Coastal Management* 169, 171-181.

1. Duo, E., Trembanis, A., Dohner, S., **Grottoli, E.**, Ciavola, P. (2018). Integrating regional protocols for post-event assessments with local GPS and UAV-based quick response surveys: a pilot case from the Emilia-Romagna (Italy) coast. *Natural Hazards and Earth System Sciences* 18, 2969-2989.

2. Novák-Szabó, T., Sipos, A.A., Shaw, S., Bertoni, D., Pozzebon, A., **Grottoli, E.**, Sarti, G., Ciavola, P., Domokos, G., Jerolmack, D.J., (2018) - Universal characteristics of particle shape evolution by bed-load chipping. *Science Advances* 4 (3), EAAO4946.

3. **Grottoli, E.**, Bertoni, D., Ciavola, P., (2017) - Short- and medium-term response to storms on three Mediterranean coarse-grained beaches. *Geomorphology* 295, 738-748.

4. Bertoni, D., Sarti, G., **Grottoli, E.**, Ciavola, P., Pozzebon, A., Domokos, G., Novák-Szabó, T., (2016). Impressive abrasion rates of marked pebbles on a coarse-clastic beach within a 13-month timespan. *Marine Geology*, 381, 175-180.

5. **Grottoli, E.**, Bertoni, D., Ciavola, P., Pozzebon, A., (2015). Short term displacements of marked pebbles in the swash zone: Focus on particle shape and size. *Marine Geology* 367, 143-158.

6. Bertoni, D., **Grottoli, E.**, Ciavola, P., Sarti, G., Benelli, G., and Pozzebon, A., (2013). On the displacement of marked pebbles on two coarse-clastic beaches during short fair-weather periods (Marina di Pisa and Portonovo, Italy). *Geo-Marine Letters* 33, 463-476.

7. Armaroli C., **Grottoli E.**, Ciavola P., Harley M.D., (2013) - Beach morphodynamics and types of foreshore erosion generated by storms along the Emilia-Romagna coastline, Italy. *Geomorphology* 199, 22-35.

8. **Grottoli, E.** and Ciavola, P., (2012) - Morfodinamica e risposta a corto e medio termine ad eventi di mareggiata delle spiagge comprese tra Foce Bevano e Lido di Classe (RA). *Studi Costieri* 20, 25-46

CONTRIBUTION ON BOOKS:

1. Ciavola P. and **Grottoli E.** (2017). Tracers and Coarse Sediment. In: Earth Sciences Series. Encyclopedia of Coastal Science, 2nd Edition, C. W. Finkl and C. Makowski (Eds.). Springer International Publishing AG.

2. **Grottoli E.**, Armaroli C., Ciavola P. (2013). Erosione della fascia dunosa compresa tra Foce Bevano e Lido di Classe. In "Foce Bevano. Stato dell'area naturale protetta e prospettive per una sua gestione integrata e sostenibile", Regione Emilia-Romagna, cap.3, pp. 46-49.

SPEAKER AT CONFERENCES OR SEMINARS:

1. **Grottoli E.** (2018) - Dinamica pluriennale delle spiagge del Conero. Remtech Expo (Coast), Ferrara, 19-21 September 2018.

1. **Grottoli E.**, Ciavola P., Duo E., Ninfo A. (2018) - UAV application for monitoring the annual geomorphic evolution of a coastal dune. AIT2018 IX conference of the Italian Society of Remote Sensing, Florence, 4-6 July 2018.

2. **Grottoli E.** (2018) - Study approach to coarse-grained beaches. Seminar for the Coastal Risk course held by prof. Paolo Ciavola, Seminar within the course of Coastal Risk, University of Ferrara, Ferrara 12 April 2018.

3. **Grottoli E.**, Ciavola P., Molinelli M., (2016) - Vulnerability assessment of two Adriatic mixed beaches for potential oil spill events - VI International Symposium Il Monitoraggio Costiero Mediterraneo: Problematiche e Tecniche di Misura, Livorno 28-29 September 2016.
4. **Grottoli E.**, Bertoni D., Ciavola P., (2015) - Coarse-grained beach response after storms in three Italian sites - Coastal Maritime Mediterranean Conference, Ferrara, 25-27 November 2015.
5. **Grottoli E.**, Bertoni D., Ciavola P., Pozzebon A., (2015) - The role of particle shape on pebble transport in a mixed sand and gravel beach (Portonovo, Italy) - Coastal Maritime Mediterranean Conference, Ferrara, 25-27 November 2015.
6. **Grottoli E.** (2015) - Sediment transport and morphodynamics of mixed beaches: case studies of two Mediterranean sites - Seminar within the course of Coastal Dynamics held by prof. Claudia Romagnoli, University of Bologna, Bologna 16 April 2015.
7. **Grottoli E.** (2013) - Approach to coarse-grained beaches: the case of Portonovo beach - Seminar within the course of Coastal Risk, University of Ferrara, Ferrara 31 March 2013.
8. **Grottoli E.** (2013) - Sediment transport on a coarse-clastic beach (Portonovo, Italy) - NRDP Center of the New Jersey Institute of Technology, Newark (NJ) 7 November 2013.

CONFERENCE PROCEEDINGS AND ABSTRACTS:

1. Cilli, S., Billi, P., Schippa, L., **Grottoli, E.**, Ciavola, P., (2018). Field data and regional modeling of sediment supply to Emilia-Romagna's river mouths. E3S Web of Conferences 40, River Flow 2018 - Ninth International Conference on Fluvial Hydraulics, 04002.
1. **Grottoli E.**, Ciavola P., Duo E., Ninfo A. (2018) - UAV application for monitoring the annual geomorphic evolution of a coastal dune. AIT2018 IX conference of the Italian Society of Remote Sensing, Florence, 4-6 July 2018, 83-84.
2. **Grottoli E.**, Ciavola P., Molinelli M., (2016) - Vulnerability assessment of two Adriatic mixed beaches for potential oil spill events - Sesto Simposio Internazionale Il Monitoraggio Costiero Mediterraneo: Problematiche e Tecniche di Misura, Livorno 28-29 September 2016.
3. **Grottoli E.**, Bertoni D., Ciavola P., Pozzebon A., (2015) - The role of particle shape on pebble transport in a mixed sand and gravel beach (Portonovo, Italy) - Coastal Maritime Mediterranean Conference, Ferrara, 25-27 November 2015, 57-62.
4. **Grottoli E.**, Bertoni D., Ciavola P., (2015) - Coarse-grained beach response after storms in three Italian sites - Coastal Maritime Mediterranean Conference, Ferrara, 25-27 November 2015, 303-308.
5. Bertoni D., **Grottoli E.**, Ciavola P., Sarti G., Pozzebon A., (2014). Storm recovery on two Italian coarse-grained beaches: a comparison between a mixed sand and gravel and a pebble beach. EGU General Assembly 2014, Wien (Austria), 12845.
6. Armaroli C., **Grottoli E.**, Harley M.D., Ciavola P., (2013). Beach morphodynamics and types of foredune erosion generated by storms along the Emilia-Romagna coastline, Italy. The 44th Binghamton Geomorphology Symposium, Newark, NJ (USA), Geomorphology 199, 22-35.
7. **Grottoli, E.**, Bertoni, D., Ciavola, P., (2013). Sediment variability in a 1-year time span on a mixed beach (Portonovo, Italy). The 44th Binghamton Geomorphology Symposium, Newark, NJ (USA).
8. Bertoni D., Ciavola P., **Grottoli E.**, Sarti G., Benelli G. and Pozzebon A. (2013). Short term pebble displacement on a mixed sand and gravel beach on the Adriatic Sea (Portonovo, Italy). Book of Extended Abstracts of Coastal Dynamics 2013, Arcachon (France), 183-192.
9. Bertoni D., Ciavola P., **Grottoli E.**, Sarti G., Benelli G., Pozzebon A. (2012). On the displacement of marked pebbles on two coarse-grained beaches during short fair-weather periods (Marina di Pisa and Portonovo, Italy). Abstract Volume of Particles in Europe Congress - PiE 2012, Barcelona (Spain), 13-17.
10. Benelli G., Pozzebon A., Bertoni D., Sarti G., Ciavola P., **Grottoli E.** (2012). An analysis of the performances of Low Frequency cylinder glass tags for the underwater tracking of pebbles on a natural beach. 2012 4th International EURASIP Workshop on RFID Technology, Torino (Italy), 72-77.

11. Armaroli C., Ciavola P., **Grottoli E.**, Harley M.D. (2012) - Morfodinamica di spiaggia ed impatto di eventi di mareggiata sui sistemi dunali di Lido di Classe (Ravenna) - IV Convegno nazionale AIGEO, Palermo, 2-5 October 2012.
12. Bertoni D., Ciavola P., **Grottoli E.** and Sarti G. (2012). Transport of marked pebbles in short periods of time on a coarse clastic beach (Marina di Pisa, Italy). EGU General Assembly 2012, Wien (Austria), 10044.
13. **Grottoli E.** (2011) - Classificazione morfodinamica delle spiagge comprese tra Foce Bevano e Lido di Classe (RA) - Coast Expo 2011, Ferrara 28-30 September 2011.

INVITED REVIEWER FOR THE FOLLOWING JOURNALS:

1. Marine Geology (ISSN: 0025-3227).
2. Journal of Coastal Research (ISSN: 1551-5036).
3. Geologica Acta (ISSN: 1696-5728).
4. Società Toscana di Scienze Naturali.

MENTOR (CO-SUPERVISOR) OF MASTER THESES:

1. Martinelli A. (2018) - Caratterizzazione e monitoraggio a breve termine della duna artificiale della spiaggia di Porto Garibaldi (FE). University of Ferrara.
2. Delfin De La Rosa A. (2018) - Analysis of dune geomorphology by the use of an Unmanned Aerial Vehicle (UAV) and ground photography in Punta Marina, Ravenna. University of Ferrara.
3. Mazza B. (2018) - Bedload transport processes in a coastal sand-bed river: the case of Savio river. University of Ferrara.
4. Lasalandra P. (2018) - Evoluzione geomorfologica storica e in relazione ad eventi di mareggiata a breve termine della foce dei Fiumi Uniti. University of Ferrara.
5. Finetti A. (2017) - Valutazione del trasporto solido in fiumi di pianura: Il caso studio dei Fiumi Uniti. University of Ferrara.
6. Eijkelhof Y. (2017) - Geomorphological Characterization and Historical Evolution of the Savio River Mouth, Emilia Romagna, Italy", HZ University of Applied Sciences.
7. Salcioli G. (2016). Analisi del trasporto di sedimenti grossolani lungo un periodo di 12 mesi sulla spiaggia mista di Portonovo, Ancona. University of Pisa.
8. Molinelli M. (2015) - Caratterizzazione geomorfologica e valutazione di rischio di sversamento di idrocarburi nelle spiagge di Portonovo e Sirolo. University of Ferrara.
9. Molina R. G. (2012) - Studio di Fenomeni di Overwash alla Foce dei Fiumi Uniti (Ravenna). University of Ferrara.

HELPING IN THE ORGANIZATION OF INTERNATIONAL CONGRESSES:

1. "Coastal Maritime and Mediterranean Conference", (25-27 November 2015, Ferrara, Italy).
2. "TORUS Conference. Distributed Computing Architectures And Environmental Science Applications" (6-10 June 2016, Ferrara, Italy).
3. "The 44th Binghamton Geomorphology Symposium: Coastal Geomorphology and Restoration" (18-20 October 2013, Newark, NJ, USA).

ORGANIZER AND FIELD TRIP LEADER OF SUMMER SCHOOL FOR FOREIGNER STUDENTS:

1. "Water management of the Savio River" - 1st edition with students from HZ University, The Netherlands (2-9 October 2016, Bertinoro, Italy).
2. "Water management of the Savio River" - 2nd edition with students from HZ University, The Netherlands (18-23 September 2017, Bertinoro, Italy).

FURTHER INFORMATIONS

Member of British Society for Geomorphology (BSG) since September 2018

Member of Gruppo Nazionale per la Ricerca sull'Ambiente Costiero (GNRAC) since September 2018

Drive license (B type- car)

Bologna, 04/02/2019

A handwritten signature in black ink, reading "Edoardo Gattoli". The signature is written in a cursive style with a large, sweeping initial 'E'.