UNIVERSITA' DEGLI STUDI DI PADOVA
DIPARTIMENTO DI GEOSCIENZE
Via Gradenigo 6
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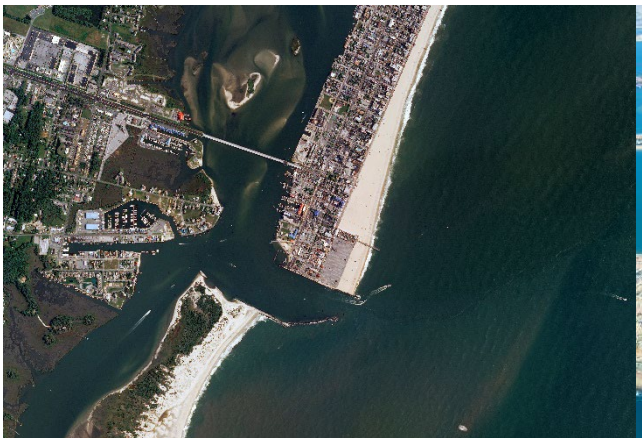
Humans as agents of coastal geomorphic change

Wednesday, March 26th – 4:30 pm Arduino Room

Speaker: **Dr. Eli D. Lazarus**
University of Southampton, Southampton, UK

Published in Progress in Physical Geography three decades ago, "*Beaches and dunes of human-altered coasts*" by Karl Nordstrom (Nordstrom, 1994), has proven remarkably prescient. The scale, dominance, and rapid sprawl of human impacts on physical coastal environments had some traction in the 1990s as a worrisome societal problem, but academic circles tended to badge – and dismiss – the topic as parochial. What distinguishes Nordstrom's contribution, even now, is his clear conception of human-altered coasts as dynamic environments unto themselves, where expressions of physical phenomena warranted fundamental geomorphic research. To have any hope of understanding patterns and trajectories of physical change along human-altered coasts – let alone planning for and managing them – coastal research must address that dynamical divergence, turning "the geomorphic significance of human agency" into "an integral component of landscape evolution" rather than "an aberration". This seminar uses Nordstrom's foundational work to explore the role of humans as agents of coastal geomorphic change.

Proponent: **Alvise Finotello**



This seminar is supported by the "Shaping a World-Class University" initiative of the University of Padua, under the project "Geomorphic Feedbacks and Emergent Risk on Human-Altered Coasts" (Macro-Area of Intervention: Internationalization of the Curriculum, Project Category: Short-Term Visiting Professors).

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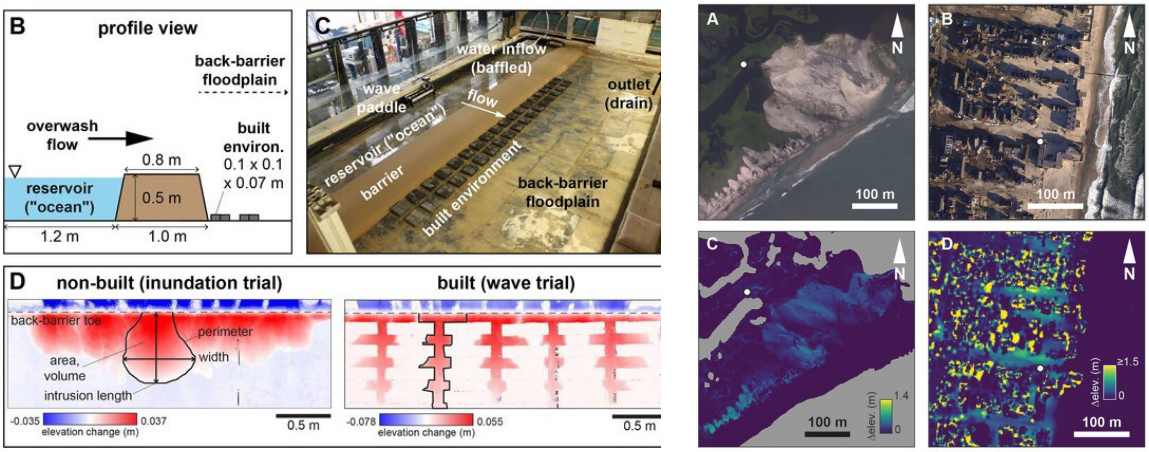
Weird dynamics of flood deposits in built environments

Friday, March 28th – 2:30 pm Arduino Room

Speaker: **Dr. Eli D. Lazarus**
University of Southampton, Southampton, UK

Extreme geohazard events can change landscape morphology by redistributing huge volumes of sediment. Event-driven sediment deposition is typically studied in non-built (natural) settings – despite the ubiquity of occurrence and high economic cost of these geohazard impacts in built environments. Moreover, sedimentary consequences of extreme events in built settings tend to go unrecorded because they are rapidly cleared, at significant expense, from streets and roads to facilitate emergency response. Reducing disaster costs requires an ability to predict disaster impacts, which itself requires comprehensive measurement and study of the physical consequences of geohazard events. In this seminar I discuss systematic similarities and differences between flood-deposit morphology in built and non-built environments. Findings suggest that spatial characteristics of the built environment exerts a fundamental control on the form of large sedimentary deposits. Accounting for the influence of built fabric on the morphodynamics of flow-driven geohazards is a tractable step toward improved forecasts of hazard impacts and disaster risk reduction.

Proponent: **Alvise Finotello**



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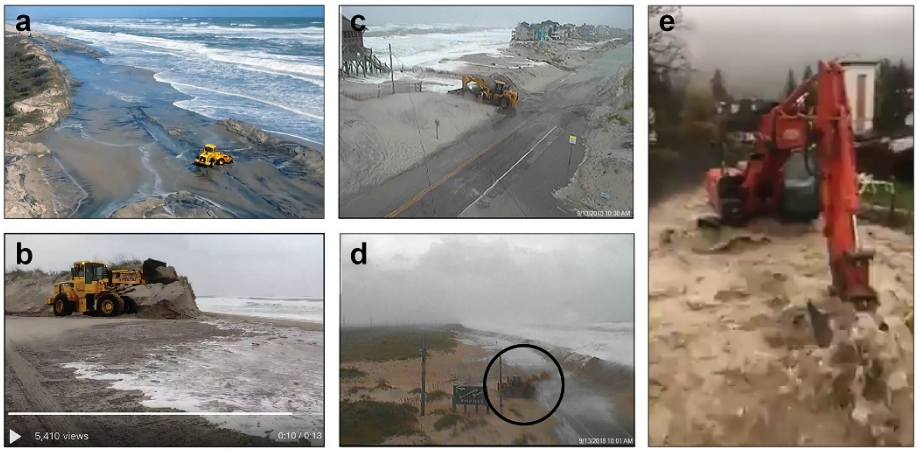
Is There a Bulldozer in Your Model?

Tuesday, April 1st – 4:30 pm Arduino Room

Speaker: **Dr. Eli D. Lazarus**
University of Southampton, Southampton, UK

Humans make deliberate, real-time interventions into geomorphic processes, especially during major storm events. Existing morphodynamic models are not built to account for active, responsive human interventions. Evolving model platforms may need to explicitly address active human interventions as morphodynamic processes unto themselves. In this seminar, I present DOZER, a new exploratory numerical model of mechanised intervention in storm-driven coastal morphodynamics. In typological terms, DOZER is a participatory agent-based model of a complex adaptive system, in which the mechanisms for adaptive agent behaviour are handled by a human user rather than through evolutionary computation. In plainer terms, DOZER is a single-player video game: the player guides a bulldozer to plow sand as it washes onto a road. I use ensemble model results from my own game play to show how DOZER functions as a model, and as a tool for insight into a complex adaptive system that is challenging to observe directly. Drawing on game-design scholarship, I also speculate on how this kind of approach to researching complex adaptive systems lends itself to fresh lines of inquiry.

Proponent: **Alvise Finotello**



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