LSGI Research Seminar

Towards large-scale assessments of coastal risks in view of climate change

Date: 25 Mar 2022 (Fri)

Time: 17:00 - 18:00

Venue: Online @ zoom

Language: English

Dr. Michalis Vousdoukas

European Commission's Joint Research Centre

Economics of Climate Change, Energy & Transport Unit C.6

Bio:

Dr Michalis I. Vousdoukas is a coastal oceanographer, currently employed at the European Commission's Joint Research Centre (JRC). He makes part of a group carrying out multidisciplinary work, developing tools and methodologies allowing to assess climate change impacts along the European and global coastlines. These efforts cover the whole spectrum from hazard, to impact and adaptation; including large-scale ocean modelling, exposure datasets and risk assessment. He graduated at the Chemical Engineering Department of Aristotle University of Thessaloniki, Greece (2002). After being awarded his PhD on coastal morphodynamics (2006) he has worked at the NATO Underwater Research Center (Italy), IFREMER (France), University of Algarve (Portugal), University of Hannover (Germany), and since 2015 he is appointed Associate Professor at the Department of Marine Sciences of the University of the Aegean (currently non-paid leave). Prior to his current activities in the JRC, he has been involved in several European and national research projects, dealing with monitoring and modelling of nearshore morphodynamic processes. He is author of more than 70 scientific journal papers, 2 book chapters and several international policy and technical reports. He regularly acts as invited expert for the United Nations Conference on Trade and Development (UNCTAD) in activities supporting climate change adaptation and sustainability. He also acted as Contributing Author to the IPCC Working Group I Sixth Assessment Report: Chapter 12 (Climate change information for regional impact and for risk assessment), and as lead author to the 1st MedECC Assessment Report (MAR1).

Abstract:

Climate change is projected to result in an intensification of natural hazards along the global coastline. Rising seas and changing weather patterns are expected to overall increase the frequency and intensity of extreme events, challenging existing coastal protection infrastructure and driving more flooding and coastal erosion. After a short introduction of the presenter, the presentation will discuss the different processes and challenges that need to be considered in order to assess and better prepare for the anticipated challenges. The material discussed relates to the development and applications of LISCOAST (Large-scale Integrated Sea-level and COastal ASsessment Tool), the European Commission's in-house framework to deal with coastal flood risk and adaptation. LISCOAST combines a range of multidisciplinary models and data in order to cover the whole risk spectrum from hazard, exposure and vulnerability to climate change impacts, mitigation and adaptation along European and global coastlines. The modular framework has been developed to assess weather-related impacts in coastal areas in present and future climates. LISCOAST combines state-of-the-art large-scale modelling tools with physical and socioeconomic data to quantify hazard, exposure and vulnerability and compute consequent risks in coastal areas. LISCOAST starts from the drivers of coastal hazards (surges, waves, tides, sea level rise) through extreme value analysis accounting for multivariate statistical dependence, delineates areas exposed to these hazards, analyses past trends and projects risks into the future. The integrated framework considers a range of impact indicators, such as erosion, direct economic losses, people exposed, critical infrastructure affected, and loss of ecosystem services, taking into account uncertainty in key risk drivers. Global and European applications of LISCOAST highlight that rising seas will result in higher coastal risks by at least an order of magnitude, but there are strong economic incentives for adaptation at areas with human development. Reducing greenhouse gas emissions also appears to reduce the projected impacts by up to 50%.

All are welcome. To register, please click here for the details.

For enquiries, please contact Ms Anna Choi at 3400 8158 or anna.choi@polyu.edu.hk

85th THE HONG KONG POLYTECHNIC UNIVERSITY 香港理工大學

LSGI DEPARTMENT OF LAND SURVEYING AND GEO-INFORMATICS 土地測量及地理資訊學系