

COASTAL INUNDATION MAPPING

Course Outline

Course Introduction

- Introduce students to the course layout and schedule.

Module 1: Introduction to Coastal Inundation

- Define the course goals and objectives
- Define inundation and discuss why we should care
- What is the difference between mapping and modeling?
- Define the different types of coastal inundation
- How coastal inundation mapping relate to Risk and Vulnerability Analyses (RVAs).

Module 2: Coastal Inundation Products

- Overview of models that produce inundation products
- Overview of the types of inundation products (risk-based, event-based and scenario-based), and examples of each

Module 3: Elevation Data for Coastal Inundation Mapping

- What are the inputs for creating inundation products
- Overview of topographic and bathymetric elevation data: techniques for producing elevation data, and common data formats
- Spatial Reference Concepts for Elevation Data: overview of spatial accuracy standards and guidelines, horizontal resolution and vertical accuracy, and scale of analysis
- Elevation Datasets: where to find the data
- Water Level Data: how is it used for inundation modeling and mapping, data sources and examples of how the data is used.

Module 4: Integrating Elevation Data

- Why integrate topographic and bathymetric data
- How do the input data affect the output of the integrated dataset
- What needs to be considered when integrating elevation data
- Mapping Fundamentals: ellipsoids, horizontal datums and vertical datums
- Datum Transformations: horizontal transformations and vertical transformations

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Module 5: Inundation Mapping

- Mapping water surfaces: Stillwater elevations and wave effects
- Method for creating water surfaces in ArcGIS
- Interpolation Methods

Module 6: Risk and Vulnerability Assessment

- Definitions of risk and vulnerability
- Benefits of conducting a risk and vulnerability assessment
- Applications of an assessment
- Steps for conducting a risk and vulnerability assessment