

Sea Level Rise-Induced Transition from Rare Fluvial Extremes to Chronic and Compound Floods

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Introduction

This file contains additional details on model setup and validation. Table S1 lists manning's roughness values used for various land use types and different sections of channels (described more in section 3.1.5). Figure S1 depicts the temporal maxima of flooding using USGS gage recorded discharge data. This depiction supports the claim of previous studies on inaccurate measurement of flow during extreme flood events at upstream gages (described more in section 3.2.2). Figure S2 shows the location of High-Water Marks collected by USACE right after Isaia in the neighborhood. These are used to validate the model as discussed in section 4.1.2.

Table S1. Manning's roughness with (a) various land use types (b) channel sections

(a)		(b)	
Land use type	Manning's n	Channel section	Manning's n
No Data	0.1	Delaware river	0.015
Developed - High Intensity	0.12	Schuylkill river	0.02
Developed - Medium Intensity	0.1	Darby (left red line in Fig. 1b)	0.04
Developed - Low Intensity	0.07	Cobbs (right red line in Fig. 1b)	0.04
Developed - Open Space	0.035	Mid-section of the channel (yellow line in Fig. 1b)	0.03
Cultivated Crops	0.1	John Heinz to inlet (green line in Fig. 1b)	0.02
Pasture/Hay	0.055		
Grassland/Herbaceous	0.035		
Deciduous Forest	0.16		
Evergreen Forest	0.18		
Mixed Forest	0.18		

Scrub/Shrub	0.08
Palustrine Forested Wetland	0.15
Palustrine Scrub/Shrub Wetland	0.075
Palustrine Emergent Wetland	0.05
Estuarine Forested Wetland	0.15
Estuarine Scrub/Shrub Wetland	0.07
Estuarine Emergent Wetland	0.05
Unconsolidated Shore	0.03
Barren Land	0.03
Open Water	Table (b) to right
Palustrine Aquatic Bed	0.035

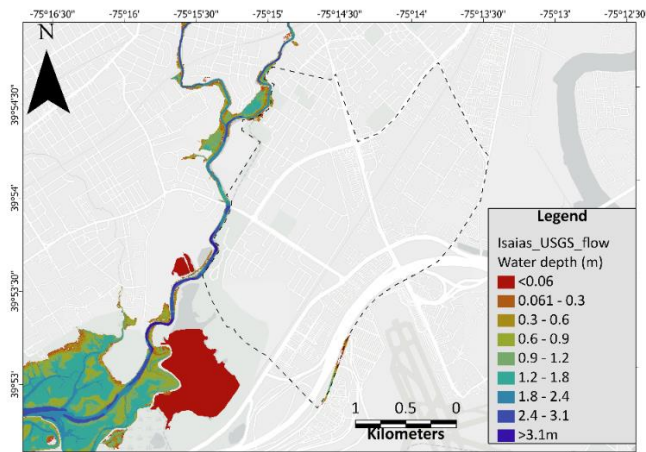


Figure S1. Temporal maxima flooding of USGS measured flow-forced model of Isaias.

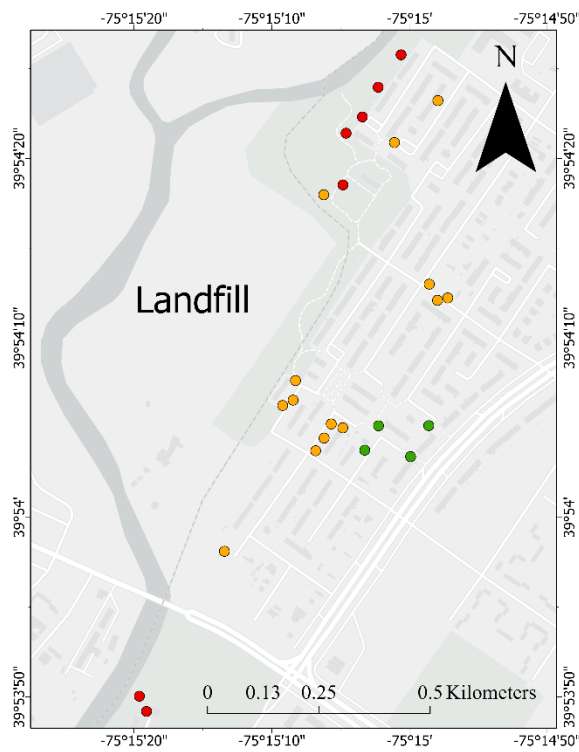


Figure S2. Location of High-Water Marks of Isaias in Eastwick neighborhood collected by USACE. Colors represent closeness of points to the stream (red denotes the closest to the stream, green denotes the furthest ones).