

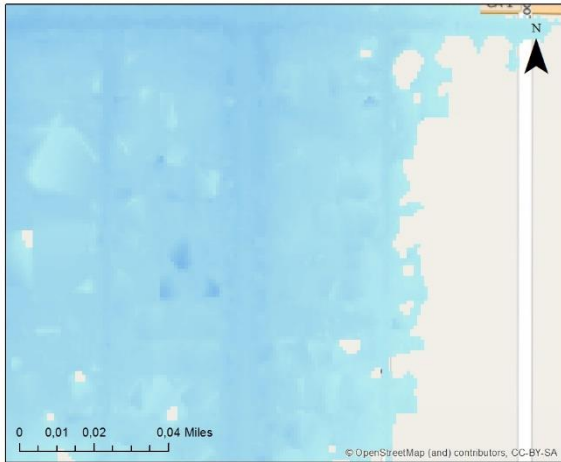
Economic Evaluation of Flood Adaptation Strategies

A case study of Los Angeles County

Presentation by Lars de Ruig



Flood risk modelling - Methodology



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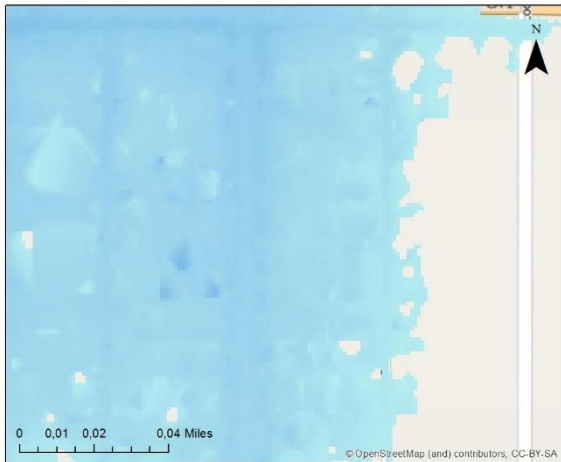
Flood risk modelling - Methodology



Landuse: Multi Family Dwelling – 5-9 Units
Surface area: ~550 m²
Max. damage: ~1660 \$/m²



Flood scenario: 1/100 – 1.4m SLR
Inundation depth: ~50 cm



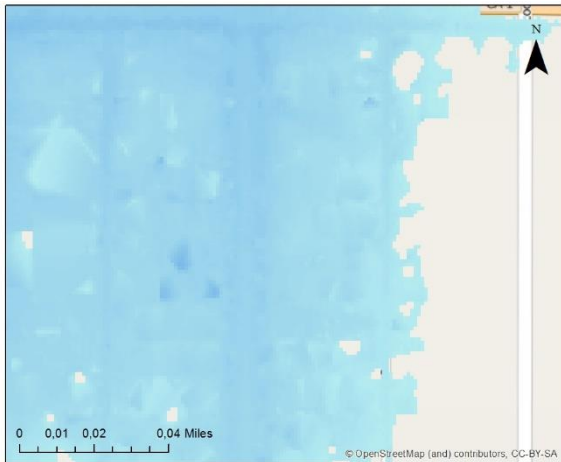
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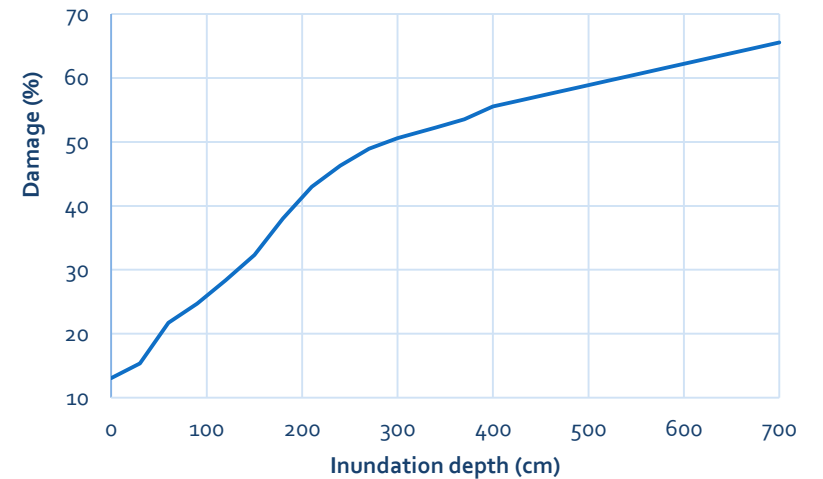
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Depth-damage curves



Estimate damage: ~\$175,000

Flood risk modelling - Results

Return period	Estimated damage No SLR (\$ billion)	Estimated damage 0.5 m SLR (\$ billion)	Estimated damage 1.4 m SLR (\$ billion)
1/25	2	3	6
1/100	4	6	9
1/500	7	8	12
Expected Annual Damage (\$ million per year)	100	155	313

Adaptation Strategy - Resilience

- Beach nourishment
 - Based on expected erosion rates with sea level rise
- Floodproofing of buildings
 - All buildings in the 1/100, 1.4 m SLR floodzone

Cost-Benefit analysis

	Resilience strategy
Total initial investment costs	500 (\$ mln)
Costs over time	8 (\$ mln/yr)

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	Resilience strategy
Total initial investment costs	500 (\$ mln)
Costs over time	8 (\$ mln/yr)
Benefit without sea level rise	29 (\$ mln/yr)
Benefit with 1.4 m sea level rise	75 (\$ mln/yr)
B/C ratio (4%)	\$1.29

What's next

- Work in progress
 - CoSMoS 3.0 Dynamic flood model by USGS
 - Extensive indirect impact assessment
 - Adaptation measures per area
- Connecting with stakeholders and policy makers
 - USC Sea Grant

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