

CEDIM Forensic Disaster Analysis Group (FDA)

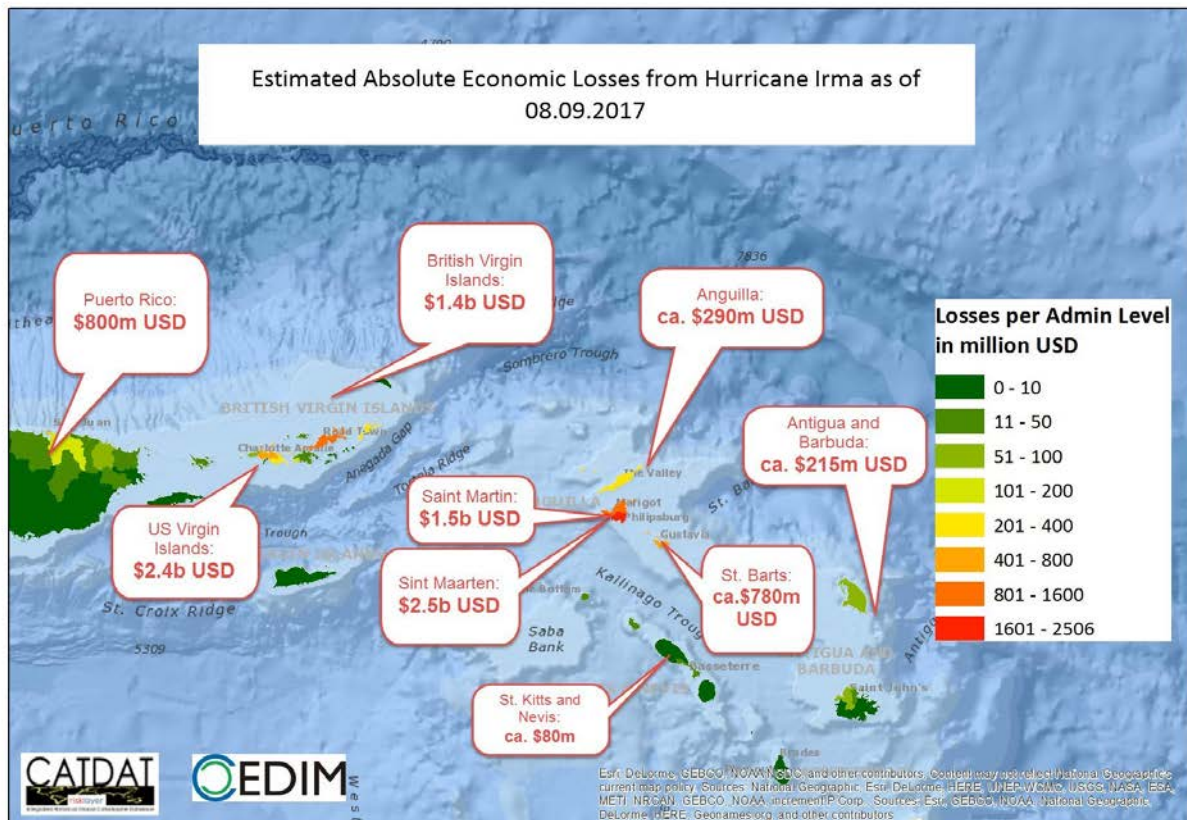
Hurricane Irma

08.09.2017 – Report No. 1, Focus on Caribbean up until 8th September 2017

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Summary

- \$10 billion + represents the worst storm of all time across the Caribbean surpassing inflation-adjusted David
- Major damage in dependencies of the US, UK, French and Dutch dependencies.
- longest Cat 5 storm of all time across the Atlantic
- Jose is on the way and expected to track through Anguilla and Barbuda causing additional damage.
- Losses are upwards of 100% of GDP in Sint-Maarten and Saint Martin; St. Barts; British Virgin Islands and also ver high in Virgin Islands (US and UK).
- Tourism is key to many of these locations with around 50-60% of GDP derived through it.



1 Loss Modelling for the Hurricane

Wind speeds were derived from station data (where stations did not go offline or become damaged), as well as the best track data from various platforms. CATDAT was used to fill the GDP, capital stock and building typology data for each of the island states, based on statistical agency data from each nation. The loss modelling was undertaken after a review of damage data and past events within the CATDAT database as per past FDA loss assessments.

The loss modelling indicates that although Barbuda had the highest relative loss, the absolute losses were dominated by Saint Martin/Sint Maarten and Virgin Islands (GB and US).

The losses include residential, non-residential, infrastructure, equipment and goods.

A summary of the estimated losses is shown below:-

Country/Nation	Median Loss Ratio	Lower Loss (\$m USD)	Median Loss (\$m USD)	Upper Loss (\$m USD)
Anguilla	17.4%	190	290	410
Antigua and Barbuda	2.5%	120	215	305
Saba and Sint Eustatius	17.1%	20	50	65
British Virgin Islands	30.8%	850	1400	2300
Saint Kitts and Nevis	1.6%	45	75	115
Saint-Barts	35.3%	480	780	1250
Saint-Martin	39.9%	950	1550	2500
Sint Maarten	36.4%	1500	2500	4000
Virgin Islands, U.S.	9.6%	1100	2450	3300
Puerto Rico	<1%	610	790	1000
Montserrat	<1%	0	0.1	0.2
Turks and Caicos Islands (expected)	15.6%	215	320	450

In total, around \$10 billion with a significant range in damage across countries totaling around \$600 billion in assets is seen. A range of \$6.7-15.8 billion exists.

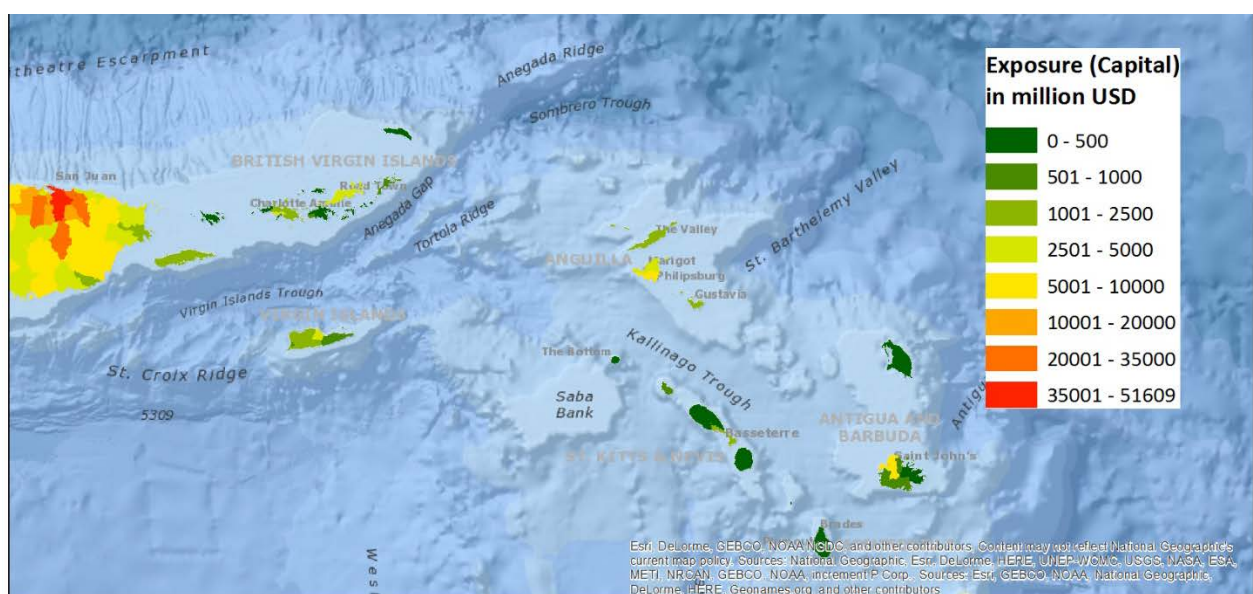


Figure: Example of capital stock per census unit for the loss analysis (CATDAT/CEDIM)

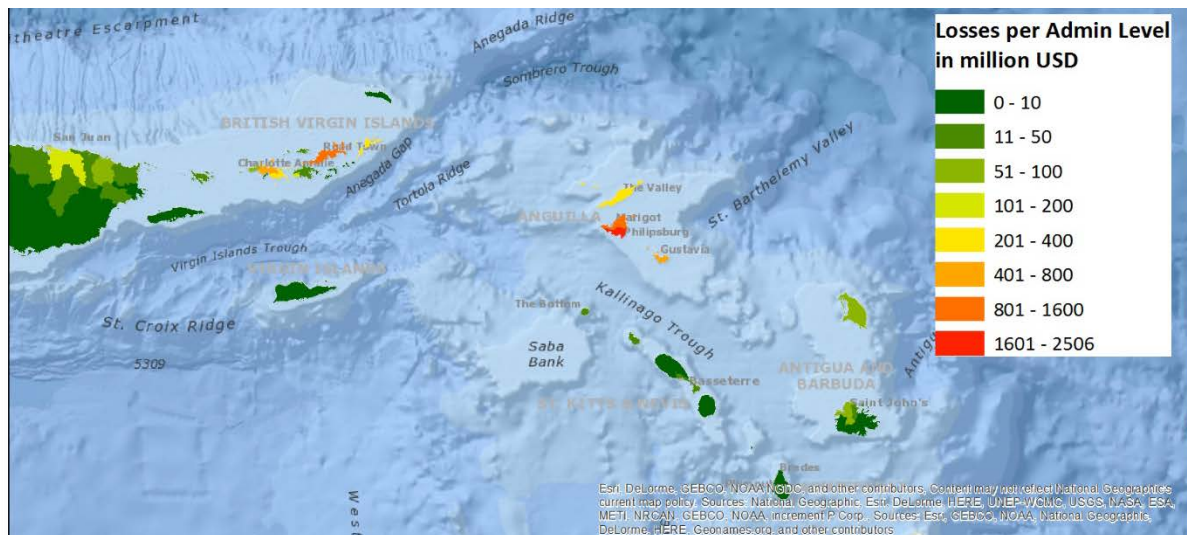


Figure: Absolute Loss per administrative division

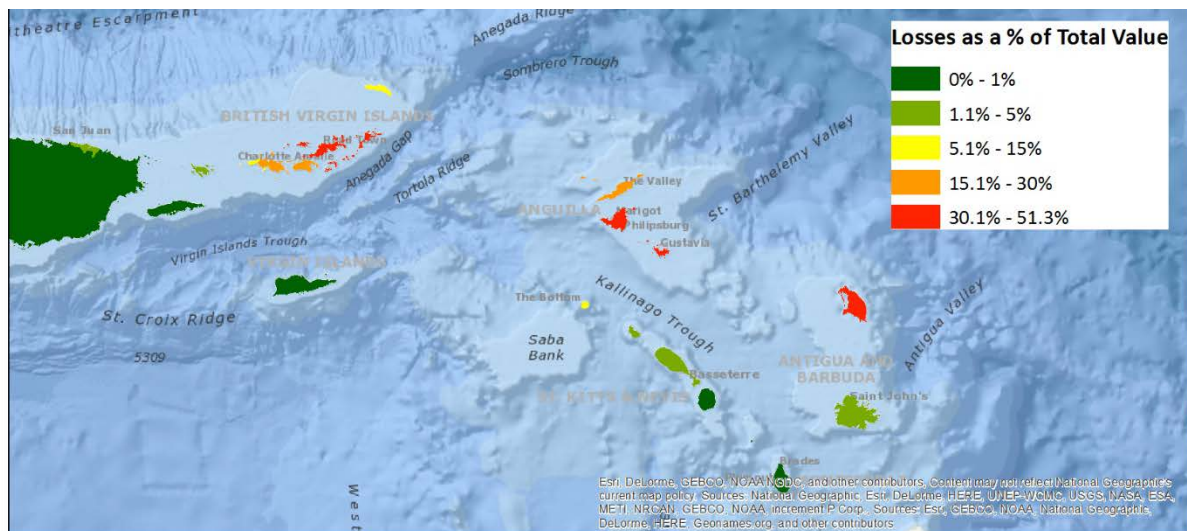


Figure: Relative Loss per administrative division

2 Further Reading

Loss Database and Modelling

https://www.kit.edu/kit/english/pi_2016_058_natural-disasters-since-1900-over-8-million-deaths-and-7-trillion-us-dollars-damage.php - CATDAT

Further detailed meteorological information to relevant hurricanes in German:

<http://www.wettergefahren-fruehwarnung.de/Artikel/20170905.html> - Irma

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