

2.2 HURRICANES

Jamaica is vulnerable to tropical storms and hurricanes during the Atlantic hurricane season, which runs from June through November each year. During this period, warm sea surface temperatures promote the development of lower atmospheric circulations which form into tropical storms and hurricanes. A total of sixty-one recorded systems have come within 100 kilometres of Jamaica since 1851.

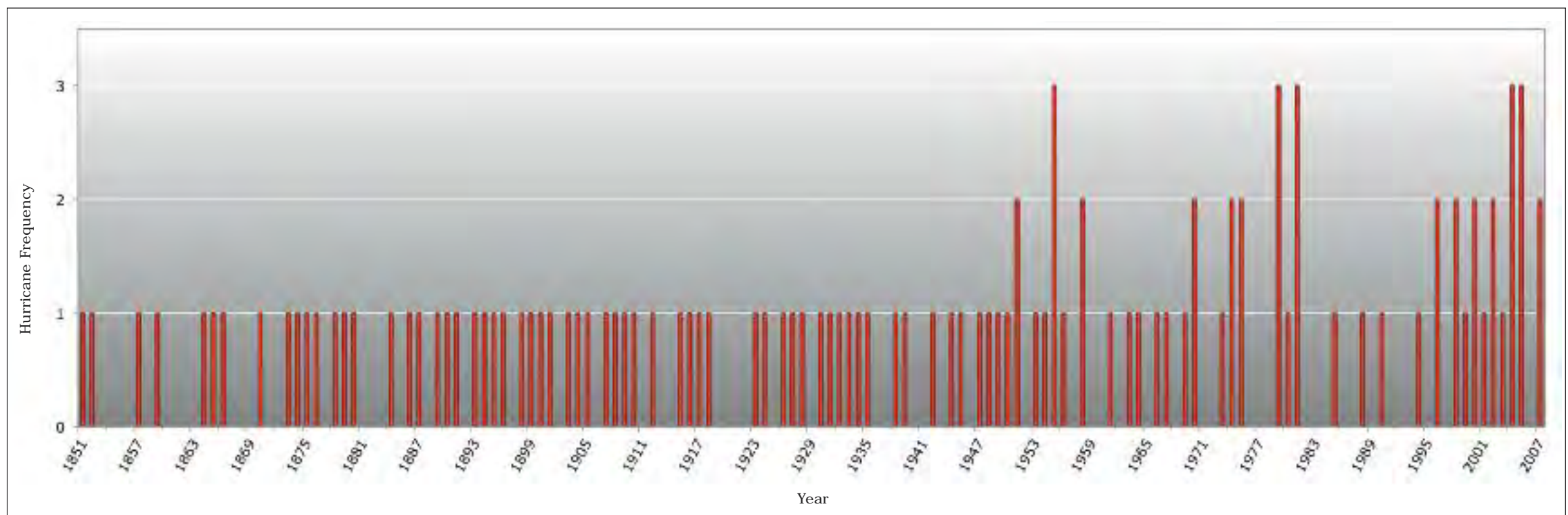
Tropical storms have sustained wind speeds of up to 120 kilometres per hour (74 miles per hour), while the strongest hurricanes have wind speeds in excess of 185 kilometres per hour (155 miles per hour). Secondary effects of tropical storms and hurricanes include floods and landslides.

At a local scale, topography plays an important role in focusing wind effects. Inland plains provide little topographic resistance to winds, although surface friction may mitigate against top speeds. Upland areas, both limestone and non-limestone, may be more

exposed, depending on the storm's approach, although the leeward slopes would be less exposed. Depending on their alignments, river valleys may channel and accelerate wind speeds.

Most of Jamaica's buildings are situated on the gently sloping plains, particularly along the Liguanea Plain in Kingston, and the Caymanas Plain in St Catherine. Buildings situated in enclosed valleys may be more sheltered from high winds during a hurricane event, while buildings on exposed slopes are at higher risk. Construction type now becomes an important factor in determining each building's vulnerability to damage during an event.

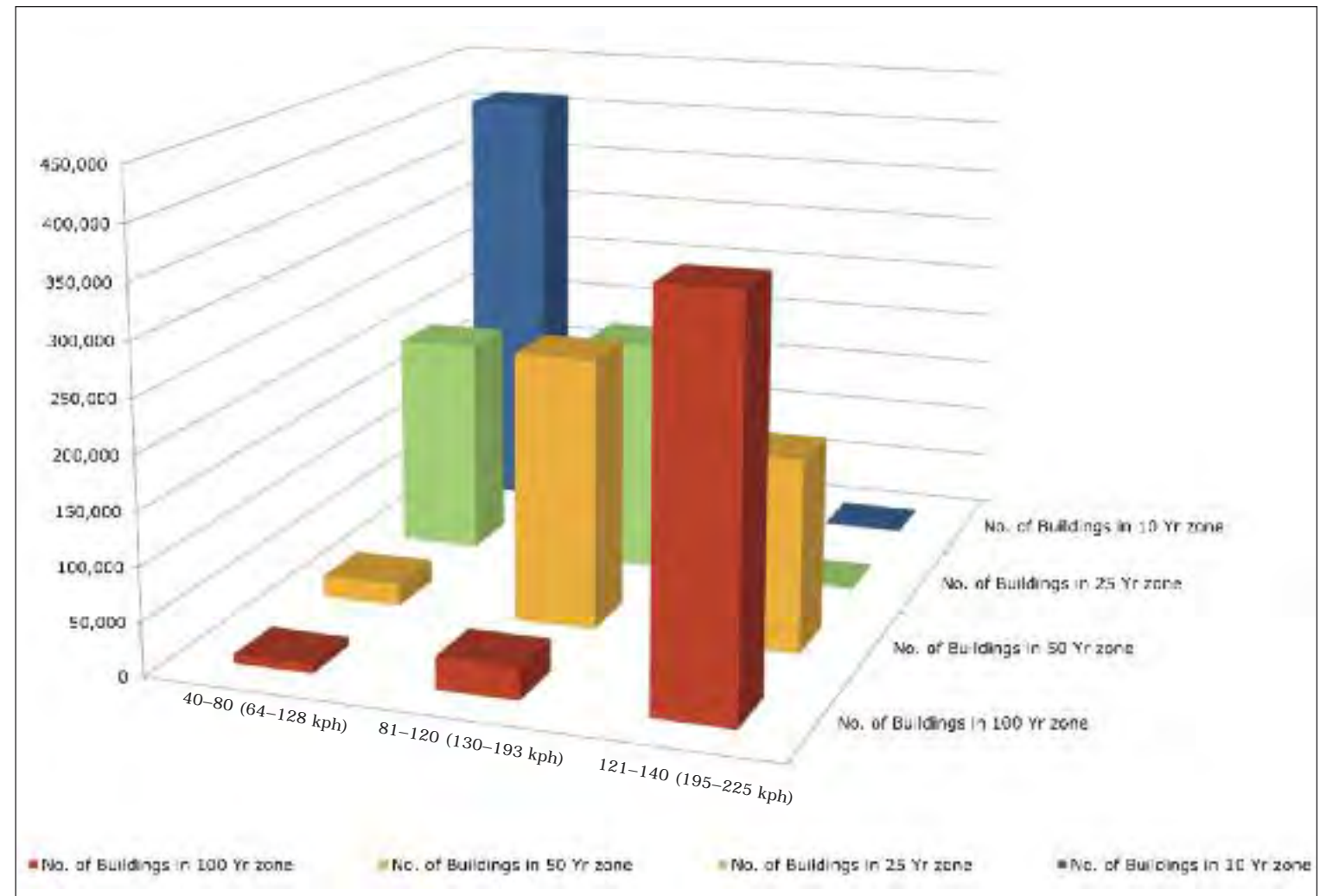
During a single event, therefore, all buildings in Jamaica will not necessarily experience uniform storm conditions, and even in places experiencing similar conditions, damage may be uneven due to different construction types.



Graph 2.2.1 Hurricane frequency graph

Table 2.2.1 Hurricane Facts and Figures

Total number of the strongest storm systems within 100 kilometres of Jamaica since 1851	61
Total number of storm systems making landfall	23
Highest number of storms in a single year	3 (2004)
Highest number of storms in a single month for the period	20 (September) 16 (August) 12 (October) 6 (November) 3 (July) 2 (June) 1 (May) 1 (December)
Strongest storm	Ivan (2004)



Graph 2.2.2 Built environment and hurricane return

Table 2.2.2 Number of Buildings Impacted by Hurricanes over a 100-Year Period in Jamaica

Wind speed (mph)	No. of buildings in 100-year-zone	No. of buildings in 50-year-zone	No. of buildings in 25-year-zone	No. of buildings in 10-year-zone
40-80 (64-128 kph)	8,004	20,673	203,517	412,614
81-120 (130-193 kph)	30,085	251,973	220,117	47,123
121-140 (195-225 kph)	371,281	178,999	0	0



Plate 2.2.2 Damage resulting from Hurricane Ivan, Portland Cottage, Clarendon (Water Resources Authority, 2004)



Plate 2.2.3 Damage resulting from Hurricane Ivan, Portland Cottage, Clarendon (Water Resources Authority, 2004)