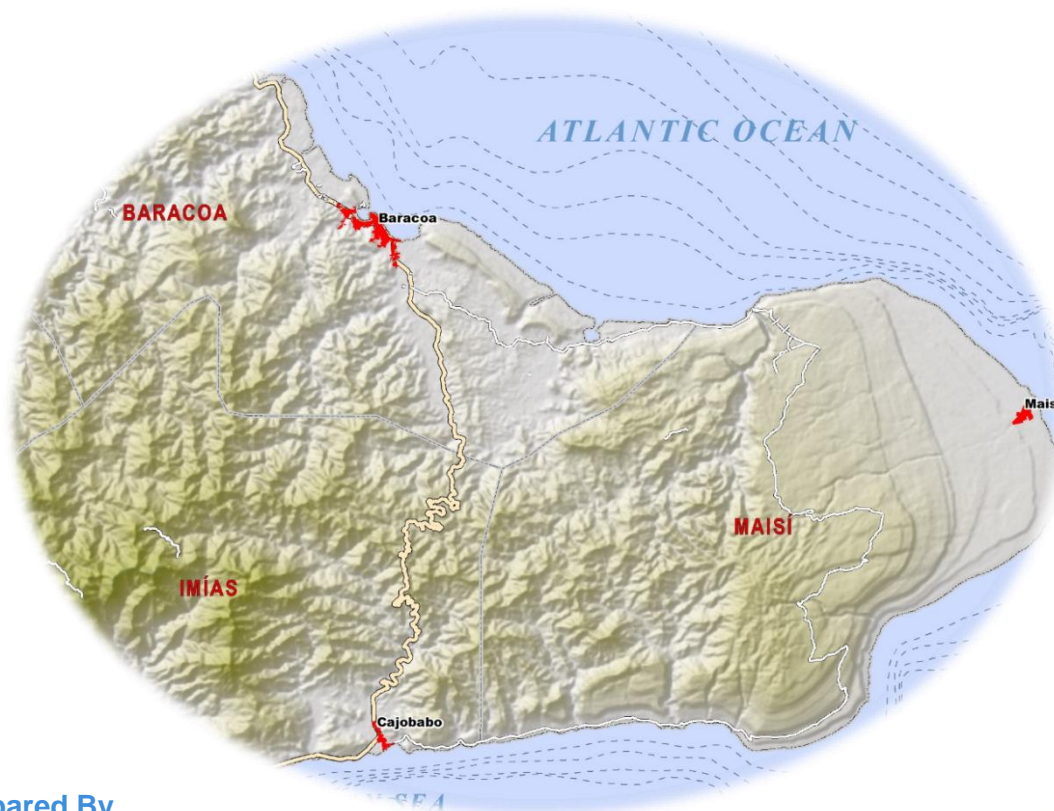


Hurricane Matthew Preliminary Satellite Based Damage Assessment Report: Guantanamo Province, Cuba

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Overview

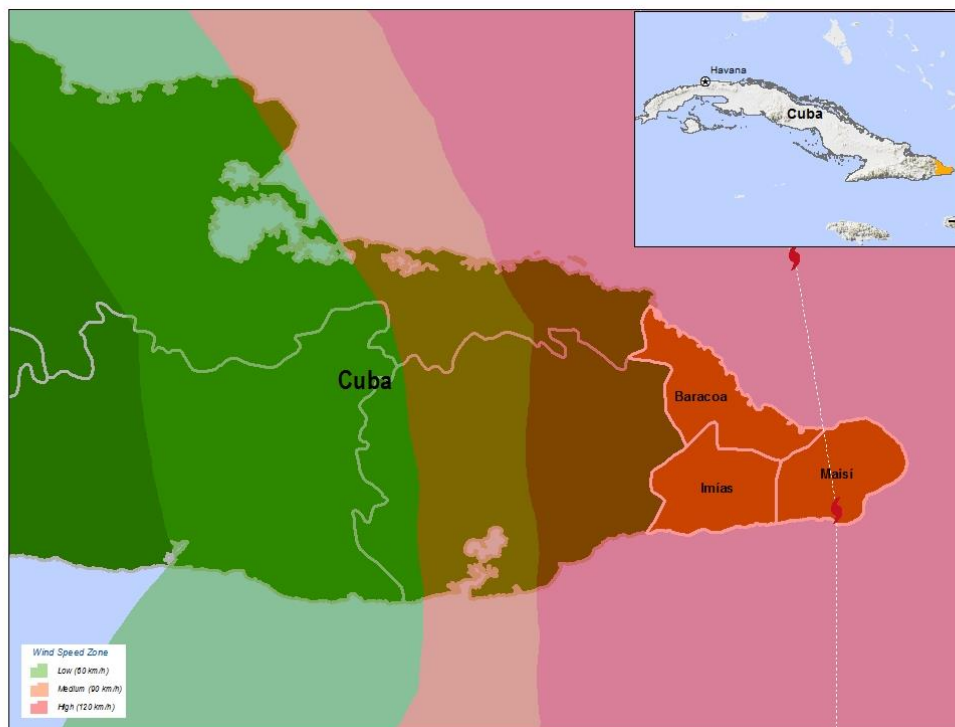
The first Category 5 Atlantic Hurricane since 2007, Hurricane Matthew, caused widespread destruction along its wake in several countries including Lesser Antilles, Jamaica, Haiti, Cuba, the Bahamas and the United States. Formed near the Windward Islands on the 28th September 2016, the hurricane continued over the Caribbean resulting in catastrophic damages including loss of human lives and an estimated overall damage of over 5 Billion USD.

On the 5th of October 2016, Matthew made landfall near Jauco, Maisi municipality, Cuba as a category 4 hurricane. Heavy rain and winds reaching 220 km/h severely damaged buildings but thanks to the Cuban Civil Defence's rigorous evacuation plan there were no reported deaths. Around 600,000 people living in homes considered as "unsafe housing" moved in with family members, neighbours, or community spaces like schools or cinemas ([Publico](#)). Coastline towns, like Baracoa, especially suffered due to giant waves ([Reuters](#)) and flooding. After Hurricane Matthew passed, Maisi, Imias, and Baracoa towns experienced no electricity for several days. Furthermore around 112,000 people in Guantanamo Province remained without running water ([Miami Herald](#)).

UNOSAT's Satellite Support Analysis

[UNITAR-UNOSAT](#) on behalf of UN OCHA activated the [International Charter on Space and Major Disasters](#) on 05 October 2016 to support planning and coordination of emergency response operations with satellite analysis covering areas affected by Hurricane Matthew. Project Manager (PM) nominated for this Charter Call is the European Space Agency while UNOSAT is supporting the Charter Call by providing (satellite-derived) value-added analysis & mapping products.

Priority Areas of Interest (AOIs) for satellite imagery acquisition submitted by UNOSAT have been requested by UN OCHA and WFP based on operational requirements to assist most affected communities in Cuba. All completed, current and planned analysis areas covered by UNOSAT can be viewed through [GDACS' Satellite Mapping and Coordination System \(SMCS\)](#).

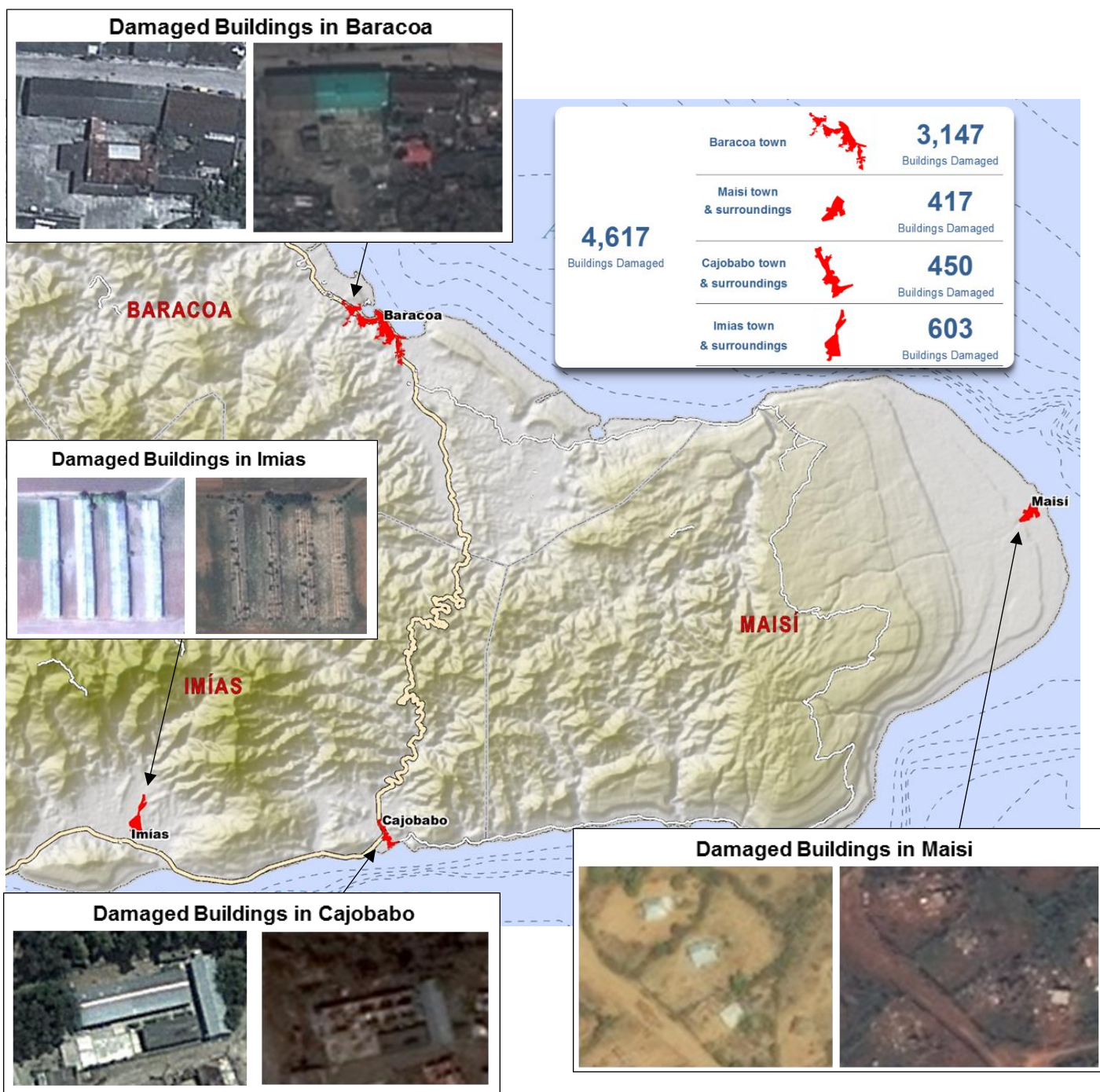


Overview Map shows municipalities of interest with Hurricane Matthew's path and wind speed

All the maps and products from UNOSAT are available at: <https://www.unitar.org/unosat/maps/116>

Building/Structure Damage Assessment

The preliminary damage assessment of the towns was conducted through visual interpretations by UNITAR-UNOSAT utilizing before and after high resolution satellite imagery. The post-disaster satellite images were acquired from Pleiades on 7/10/2016, 10/10/2016 and 11/10/2016. A total of **4,617** buildings were identified to have suffered prominent visual damages within the analysed areas. Analyses were conducted inside town boundaries and its nearby surroundings. The levels of damage visible in the satellite images were mostly “moderate” to “severe” and scattered “completely destroyed” buildings inside the towns analysed. Satellite derived analysis show Baracoa and Maisi towns as having extensive damage caused by the hurricane and floods derived from heavy rain. Even though the number of total damaged buildings in Maisi is lower compared to others, the severity of the damage was equally, and in some cases more, intense.



Disclaimer: The depiction and use of town boundaries, acquired from Wikimapia, are not warranted to be error-free nor do they imply official endorsement or acceptance by the United Nations.

The depiction and use of boundaries, geographic names and related data shown here are not warranted to be error-free nor do they imply official endorsement or acceptance by the United Nations. UNOSAT is a program of the United Nations Institute for Training and Research (UNITAR), providing satellite imagery and related geographic information, research and analysis to UN humanitarian & development agencies & their implementing partners. This work by UNITAR-UNOSAT is licensed under a CC BY-NC 3.0.

The analysis has not been verified in the field yet; please send your comments and feedback to unosat@unitar.org.

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