



Tropical Cyclone Isaias (AL092020)

Wind and Storm Surge

Final Event Briefing

The Bahamas

12 August 2020

1 SUMMARY

Tropical Cyclone Isaias was the ninth tropical cyclone in the 2020 Atlantic Hurricane Season. On 28 July it developed as Potential Tropical Cyclone Nine over the central Atlantic, to the east of the Leeward Islands. On 29 July, it was upgraded to a tropical cyclone while it was over the Caribbean Sea, to the south of Puerto Rico. On 30 July, it strengthened to a category 1 hurricane while it was to the north of the Dominican Republic. On 31 July its centre passed over Inagua Island, in The Bahamas South East¹, and the following day moved over the waters between Cuba and the Bahamas islands. On 1 August, Hurricane Isaias made landfall over Andros Island, in The Bahamas North West.

Final runs of the CCRIF loss model for wind and storm surge produced government losses for The Bahamas South East, The Bahamas Central and The Bahamas North West². For all three Tropical Cyclone policies, the government losses were below the attachment point. Therefore, no payouts under the underlying policies for The Bahamas South East, The Bahamas Central and The Bahamas North West are due.

However, the Aggregated Deductible Cover (ADC) for the tropical cyclone policies for The Bahamas South East, The Bahamas Central and The Bahamas North West were activated because a disaster alert declaration for The Bahamas from ReliefWeb related to Tropical Cyclone Isaias was issued and the modelled losses were above 10 per cent of the minimum payment of the policy and less than 50 per cent of the attachment point for each Tropical Cyclone policy. Therefore, a payment under the ADC is due for The Bahamas South East, The Bahamas Central and The Bahamas North West. Final calculations show that payouts are due to each country policy as follows:

Tropical Cyclone Policy	ADC Payment
The Bahamas South East	US\$27,499
The Bahamas Central	US\$8,603
The Bahamas North West	US\$270,900
Total	US\$307,002

This event briefing is designed to review the modelled losses due to wind and storm surge calculated by CCRIF's models for affected CCRIF member countries, to be analyzed with respect to members' Tropical Cyclone policies. A separate report on rainfall impacts on affected CCRIF member countries will be issued if applicable.

¹ The Bahamas Department of Meteorology defines geographic zones within The Bahamas for giving hurricane and severe weather alerts: North West, Central and South East.

² The Government of Bahamas has three Tropical Cyclone policies: one for The Bahamas South East, one for The Bahamas Central and one for The Bahamas North West

2 INTRODUCTION

On 28 July at 1550UTC, the US National Hurricane Center (NHC) reported that a low pressure system located over the tropical central Atlantic developed as a potential tropical storm. Since the disturbance presented an elongated circulation and a poorly defined centre, it was not defined as a tropical storm at this stage, and was named Potential Tropical Storm Nine. The estimated centre of circulation was located at 13.8N, 53.7W, to the east-southeast of the Leeward Islands. The minimum central pressure was 1007 mb and the maximum sustained winds were estimated at 40 mph (65 km/h). Tropical-storm-force winds extended outward for only 230 miles (370 km) from the centre, primarily over the northeast quadrant. The system was moving towards the west along the south periphery of the Bermuda-Azores high pressure system located over the Atlantic Ocean. Its forward velocity was estimated at 23 mph (37 km/h) and it was directed towards the Leeward Islands.

The following day, the intensification of the tropical storm was hindered by the presence of dry air. Therefore, on 29 July, the force of the tropical storm and its size were generally unchanged. On 29 July at 0900UTC, the centre of the tropical storm was located at 15.3N 61.3W, and it was at a distance of approximately 5 mi (10 km) to the south of Dominica, spreading tropical storm-force winds over the island. The system was moving with unchanged forward velocity (23 mph, 37 km/h) towards the west-northwest heading for the Caribbean Sea.

Six hours later, on 30 July at 0300UTC, the NHC evidenced a more defined centre and upgraded the disturbance to Tropical Storm Isaias while its centre was located at approximately 15.8N, 67.0W, to the south of Puerto Rico. On the same day, Isaias passed over the Dominican Republic.

On 31 July at 0340UTC, the tropical cyclone further intensified to a category 1 hurricane, due to the more favorable environmental conditions over these waters. Its centre was sited at approximately 20.3N, 72.1W, over the waters between Haiti and the Turks and Caicos Islands. The minimum central pressure was 995 mb and the maximum sustained winds were estimated at 80 mph (130 km/h). Hurricane-force winds extended outward up to 30 miles (45 km) from the centre and tropical-storm-force winds extended outward up to 240 miles (390 km), primarily over the northeast quadrant. The hurricane was moving towards the northwest with a forward velocity of 18 mph (30 km/h) and it was directed towards the southeastern Bahamas islands.

On 31 July at 0900UTC, the centre of Hurricane Isaias was located at approximately 20.9N 73.3W, about 15 mi (25 km) southeast of Great Inagua Island, Bahamas South East (Figure 1) and a few minutes later, it made landfall over the island (Figure 2a), spreading hurricane-force winds across the island. The minimum central pressure decreased to 990 mb, while the estimated maximum sustained winds were unchanged (80 mph, 130 km/h).

During the following hours, TC Isaias continued moving towards the northwest with a slightly reduced forward velocity of 15 mph (24 km/h), passing over the waters between Cuba and the Bahamas islands (Bahamas South East and Bahamas Central). Hurricane-force winds extended outward up to 35 miles (55 km) from the centre and tropical-storm-force winds extended

outward up to 175 miles (280 km). Tropical-storm-force winds invested Bahamas South East and Bahamas Central.

On 1 August at 1200UTC, the centre of Hurricane Isaias was sited at approximately 20.9N 73.3W, about 20 mi (30 km) east of Andros Island, Bahamas North West (Figure 2b) and about one hour later, it made landfall on the island, spreading hurricane-force winds across the island. At this time, the maximum sustained winds increased to 85 mph, 140 km/h and the minimum central pressure further lowered to 987 mb. Tropical-storm-force winds invested the other islands of Bahamas North West.

On 3 August, Tropical Cyclone Isaias was travelling over the Strait of Florida heading for the Florida coast with a reduced forward velocity (9 mph, 15 km/h) and lower intensity (downgraded to a tropical storm).

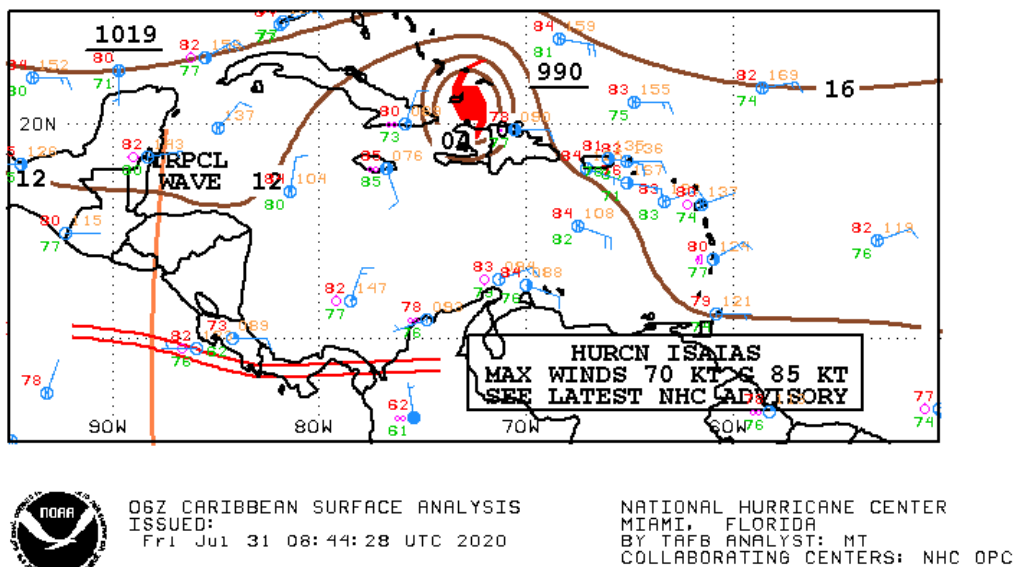
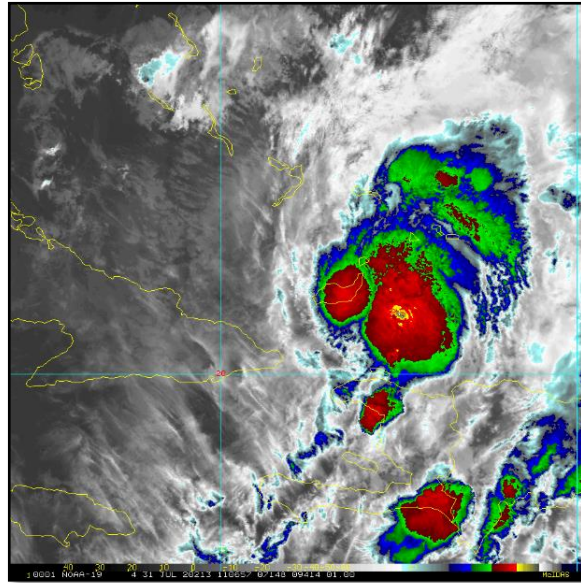
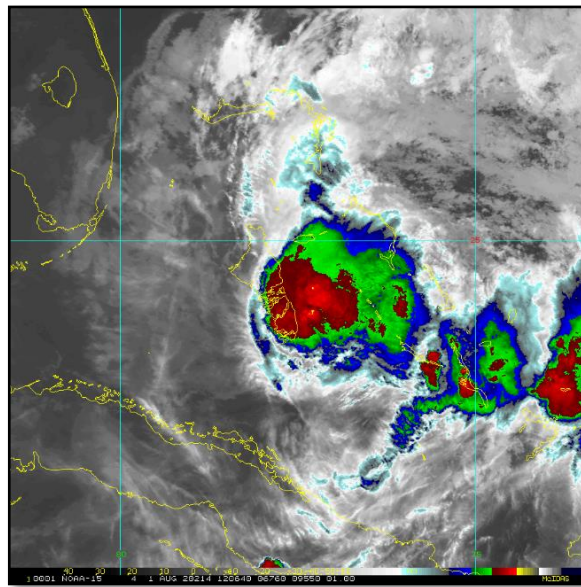


Figure 1 Surface analysis over the Caribbean area on 31 July at 0600UTC. Hurricane Isaias is visible over the waters between Haiti and the Turks and Caicos Islands, approaching Great Inagua Island, The Bahamas South East. Source: US National Hurricane Center³

³ National Oceanic and Atmospheric Administration - FTP, National Hurricane Center, review date: 31 July 2020, available at: https://www.nhc.noaa.gov/tafb/CAR_06Z.gif



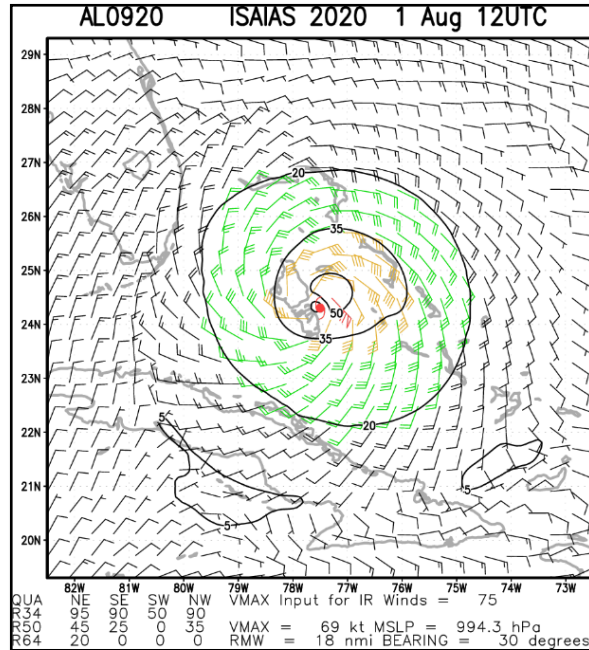
a) 31 July at 1102UTC



b) 1 August at 1206UTC

Figure 2 Satellite imagery at different times as indicated by the captions from thermal infrared channel enhanced with colour. Blue/green colours represent high altitude clouds (top cloud temperature between -50°C and -70°C), while the red/yellow colours represent very high altitude clouds (top cloud lower than -70°C). High altitude clouds indicate strong convection associated with intense precipitation. The centre of Hurricane Isaias corresponds to the area of stronger convection (yellow colour). Source: NOAA, National Environmental Satellite, Data and Information Service⁴.

⁴ RAMSDIS Online Archive, NOAA Satellite and Information Service, review date: 31 July 2020, available at: http://rammb.cira.colostate.edu/ramsdiskonline/archive.asp?data_folder=tropical/tropical_ge_14km_wv&width=640&height=480



a) 31 July at 1102UTC

Figure 3 Multiplatform satellite based tropical cyclone surface wind analysis estimated on 1 August at 1200UTC. Contouring indicates wind intensity at 20 kn (23 mph, 37 km/h), at 35 kn (40 mph, 65 km/h) and 50 kn (56 mph, 92 km/h). Source: NOAA, National Environmental Satellite, Data and Information Service⁵.

3 CCRIF SPC MODEL OUTPUTS

Under CCRIF’s loss calculation protocol, a CCRIF System for Probabilistic Hazard Evaluation and Risk Assessment (SPHERA) report is required for any tropical cyclone affecting at least one member country with winds greater than 39 mph (62.7 km/h). Tropical Cyclone Isaias qualified as a Triggering Event by Deductible Cover (Endorsement) for The Bahamas South East, The Bahamas Central and The Bahamas North West.

The wind footprint (Figure 4, 5 and 7) and surge field (Figure 6) are two of the outputs from the CCRIF model, which show the regions affected by certain extents of Tropical Cyclone Isaias in each section of the country. In the cases of The Bahamas South East and The Bahamas North West, storm surge values computed by the model for Tropical Cyclone Isaias were too low to be represented on a hazard map.

⁵ RAMSDIS Online Archive, NOAA Satellite and Information Service, review date: 1 August 2020, available at : https://rammb-data.cira.colostate.edu/tc_realtime/storm.asp?storm_identifier=al092020

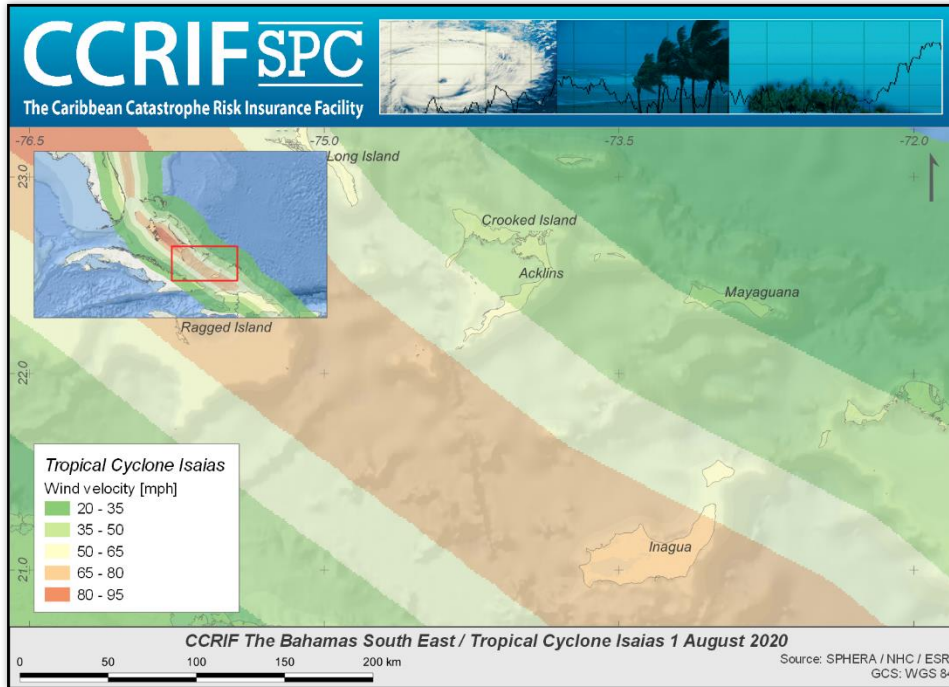


Figure 4 Map showing the wind field associated with Tropical Cyclone Isaias in The Bahamas South East.
Source: NHC & CCRIF/SPHERA

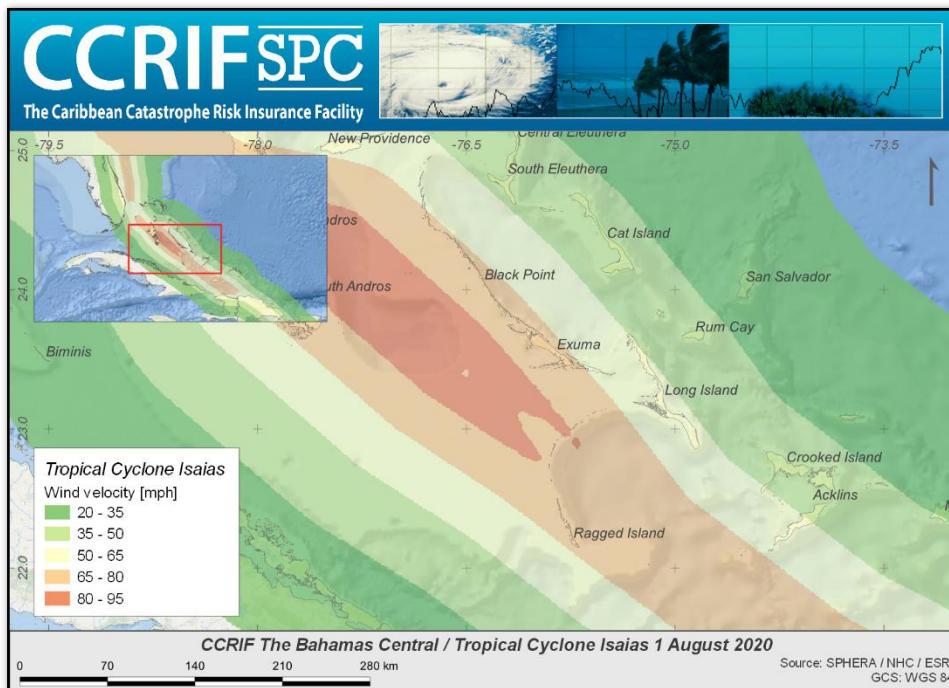


Figure 5 Map showing the wind field associated with Tropical Cyclone Isaias in The Bahamas Central.
Source: NHC & CCRIF/SPHERA

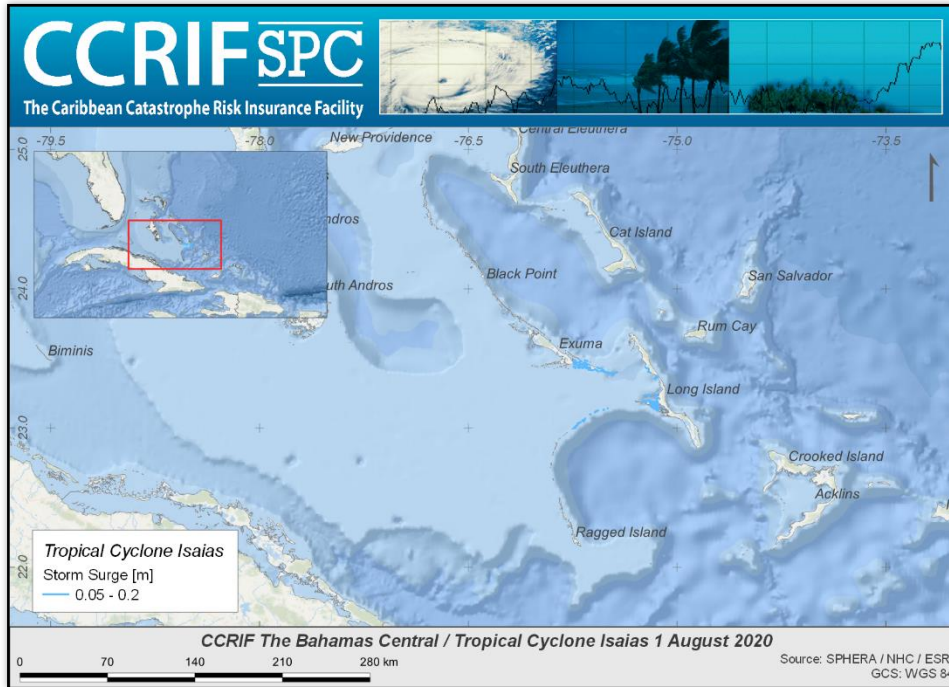


Figure 6 Map showing the storm surge associated with Tropical Cyclone Isaias in The Bahamas Central.
Source: NHC & CCRIF/SPHERA

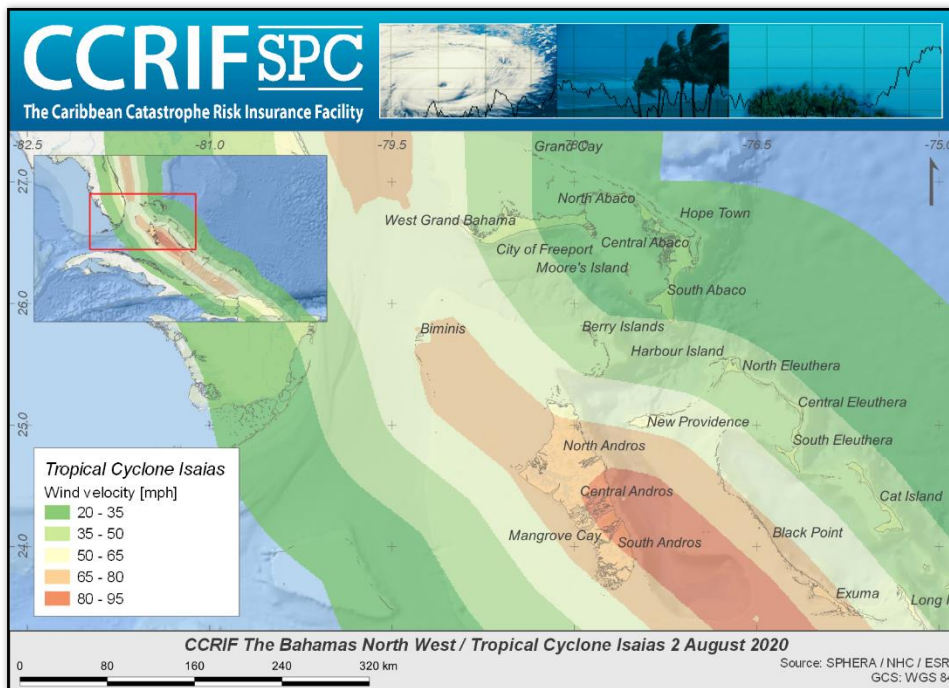


Figure 7 Map showing the wind field associated with Tropical Cyclone Isaias in The Bahamas North West.
Source: NHC & CCRIF/SPHERA

4 IMPACTS

Ten days after the passage of Tropical Cyclone Isaias and according to the assessments provided by the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) and the International Federation of Red Cross and Red Crescent Societies (IFRC), reported that the wind damage in The Bahamas was not significant following the passage of Hurricane Isaias. The majority of the impacts pertained to fallen trees, power poles and interruptions of electric power. 27 people were evacuated and remained in shelters.

Prior to the arrival of Isaias, The Bahamas' authorities took precautionary measures such as activating the National Emergency Operations Centre and Hurricane Warning went into effect. Also as precautionary measures the government offices were closed and the electric power was temporarily interrupted.

5 CCRIF LOSS MODEL

For The Bahamas South East, The Bahamas Central and The Bahamas North West, the final runs of CCRIF's loss model for wind and storm surge generated government losses, but these losses were below the attachment points of the Tropical Cyclone policies and therefore no payouts under the underlying policies are due. However, the Aggregated Deductible Cover (ADC) for the tropical cyclone policies for The Bahamas South East, The Bahamas Central and The Bahamas North West were activated because a disaster alert declaration for The Bahamas from ReliefWeb related to Tropical Cyclone Isaias was issued and the modelled losses were above 10 per cent of the minimum payment of the policy and less than 50 per cent of the attachment point for each Tropical Cyclone policy. Therefore, a payment under the ADC is due for The Bahamas South East, The Bahamas Central and The Bahamas North West. Final calculations show that payouts are due to each country policy as follows:

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For additional information, please contact CCRIF SPC at: pr@ccrif.org