

Severe Weather Advisory for the Caribbean and Florida - Hurricane Irma

Issued on Sunday, 10th September 2017 at 09:00 local time.

Headline

Irma has strengthened once again in the last 3 hours and is currently a major Category 4 Hurricane, with mean wind speeds of 115kt (130mph) as it moves northwest at 6mph towards Florida today (Sunday).

Latest imagery now shows that the “eye” of Irma is gradually moving north from the north toward Florida. Irma is expected to intensify a little further as it crosses the lower Florida Keys as a Category 4 Hurricane in the next several hours. Prior to landfall but the outer bands of Irma are already affecting the south of Florida with locally heavy rain and there is the potential for some severe thunderstorms and perhaps tornadoes.

Impact reports so far

Extremely dangerous Hurricane Irma is one of the strongest hurricanes ever recorded in the Atlantic, and has resulted in widespread severe damage to a number of islands in the Caribbean since Wednesday.

Irma passed over Barbuda, Anguilla, Saint-Martin and the British Virgin Islands on Wednesday and Thursday, leading to severe damage to a high percentage of buildings, and resulted in a number of fatalities. Power, telecommunication and transport infrastructure on these islands were also severely impacted. There is now mandatory evacuation from Barbuda ahead of Hurricane Jose and as a direct response to Hurricane Irma.

Irma resulted in electricity supplies being cut off to almost a million people in Puerto Rico.

The storm crossed the Turks and Caicos Islands early Friday. The Turks and Caicos Islands government has declared a national shutdown amid reports of major devastation.

Some impacts are to be expected across the some of the outlying islands of the southern Bahamas but, unsurprisingly, there are no impact reports from these areas as yet.

Some significant impacts were reported across Cuba as Irma moved along the north coast on Saturday from the destructive hurricane force winds, torrential rain, significant storm surge and rough seas. This was the first Category 5 hurricane that made landfall across the county in 80 years.

Over 6 million people of Florida have been asked or told to evacuate ahead of Hurricane Irma by the Governor of Florida. Some are calling this “the largest mass evacuation in US history”. Hundreds of shelters were opened for people who stayed, with hotels filling up as far away as Atlanta, which is almost 500 miles north.

Discussion

The latest estimate of the winds was based on reconnaissance aircraft flying across the Hurricane. Irma was located 40 miles N of Varadero, Cuba and 70 miles SSE of Key West, Florida at 10/0600UTC, moving northwest at 6 mph.

Aircraft reconnaissance data shows that Hurricane Irma is restrengthening as it moves through the Straits of Florida, although shear may hamper this somewhat. There remains some uncertainty in the very near term, and as such we should not focus on the exact track of the centre. It should also be remembered that hurricane force winds extend some 70 miles out from the centre of the storm, with tropical storm strength winds extending 205 miles out.

This forecast may be amended at any time

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The latest forecast is for the centre of Irma to cross the lower Florida Keys as a Category 4 Hurricane in the next several hours, moving near or along the west coast of Florida through the rest of Sunday and into Monday. The weakening storm should then move inland over the Florida panhandle and southwestern Georgia later Monday to become a Tropical Storm. On Tuesday and Wednesday Irma is expected to decay to become a Tropical Depression across Alabama and then Tennessee.

Latest information of track of Irma can be found here <http://www.nhc.noaa.gov/#Irma> . The National Hurricane Centre is the official agency for issuing forecasts and warnings for tropical storms and hurricanes in the North Atlantic basin. Decision making should be based on these official forecasts.

Impacts

Impacts will be typical of a major hurricane and include destructive winds, dangerous waves, storm surge, torrential rains and an enhanced risk of landslides. A combination of these hazards will lead to a risk of fatalities and significant impacts to local infrastructure and transport links. Total and extremely long-lived power outages and water losses are to be expected.

Winds: Winds within 70 miles of the centre of the hurricane will be strong enough to cause complete roof failure on many residences and industrial buildings, and some complete building failures with small buildings blown over or away. Trees could be uprooted or snapped and some may be debarked, isolating most communities impacted. Very strong and gusty winds are associated with any severe thunderstorms and tornadoes ahead of Irma making landfall.

Storm Surge & Flooding: Flooding, through a combination of torrential rainfall, storm surge and heavy surf is likely. The south-western coastline of Florida is expected to see the highest storm surge of 3-5 metres. Therefore, severe storm surge damage is likely. Miami is expected to see a storm surge of 0.5 to 1 metre.

Rainfall: Irma is a large storm with its associated torrential rain extending a long way from the storm centre leading to flash flooding and mudslides. Locally severe thunderstorms are already affecting Florida, with 200-400mm of rain expected on Sunday and Monday across Florida. Georgia, Alabama and Tennessee then at risk of some heavy rain fall (100-200mm) as the then weakening storm moves across the region early next week.

Context

The most recent category 5 hurricanes to affect the North Atlantic basin and make landfall are Andrew (1992), Dean (2007) and Felix (2007). In this region of the Caribbean the last comparable storm was Hurricane Georges in 1998 which caused widespread major impacts across the region - https://en.wikipedia.org/wiki/Hurricane_Georges. However, Irma remains a stronger hurricane than Georges. and is also the longest duration tropical cyclone attaining speeds of 160 knots anywhere across the globe (previous record holder was Typhoon Haiyan in 2013). It is also one of the longest lasting category 5 Atlantic hurricane in recorded history.

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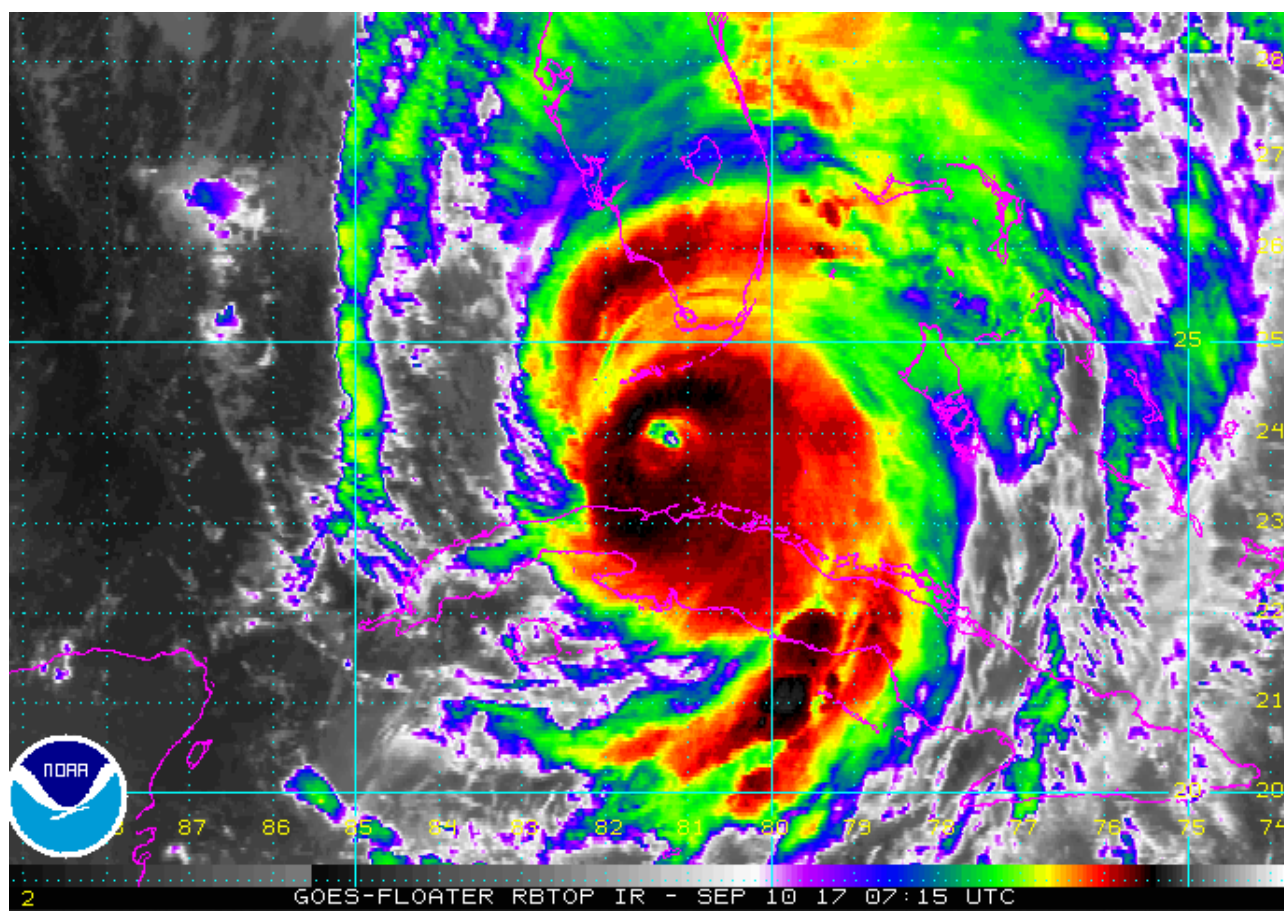


Figure 1: 10/0715 UTC IR satellite image. The shows Hurricane Irma now moving towards Florida.

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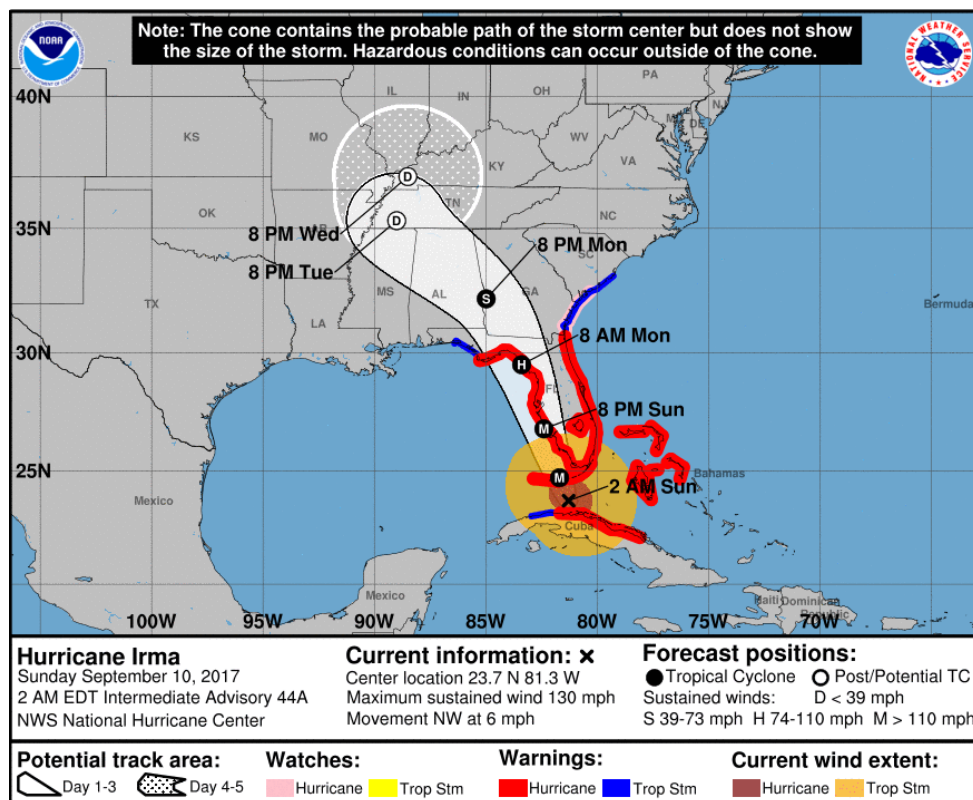


Figure 2: 10/0600 UTC official forecast track and cone of uncertainty for Hurricane Irma from the National Hurricane Centre. Times on the graphic are in AST (UTC-4).

Very similar to the previous track.

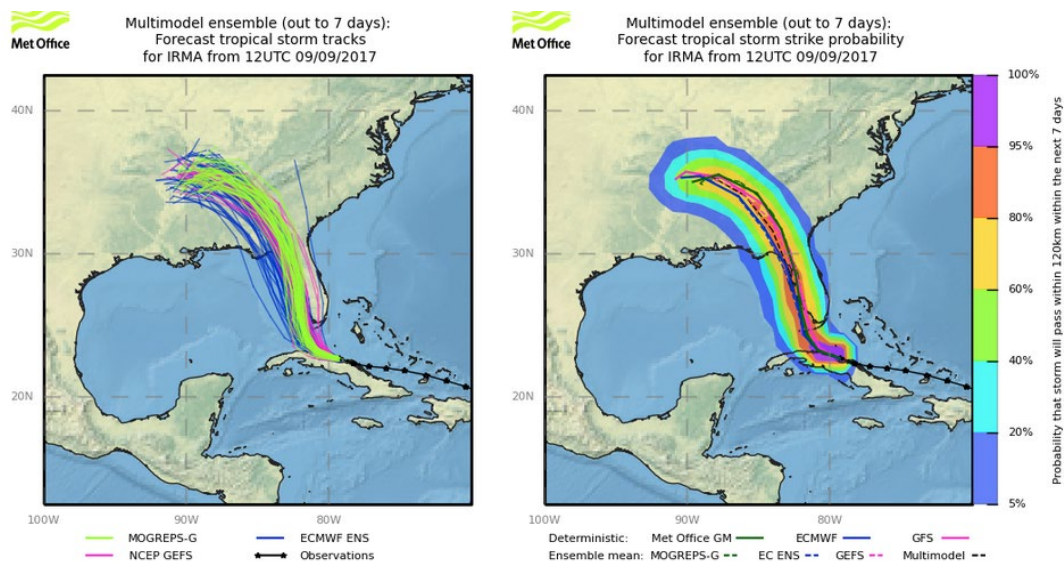


Figure 3: Latest Ensemble spread (09/12 UTC) of tracks from the Met Office, ECMWF and NCEP. This shows the range of possibilities for the track of Irma during the next 7 days. Note the continued strong signal for a track north across western Florida.

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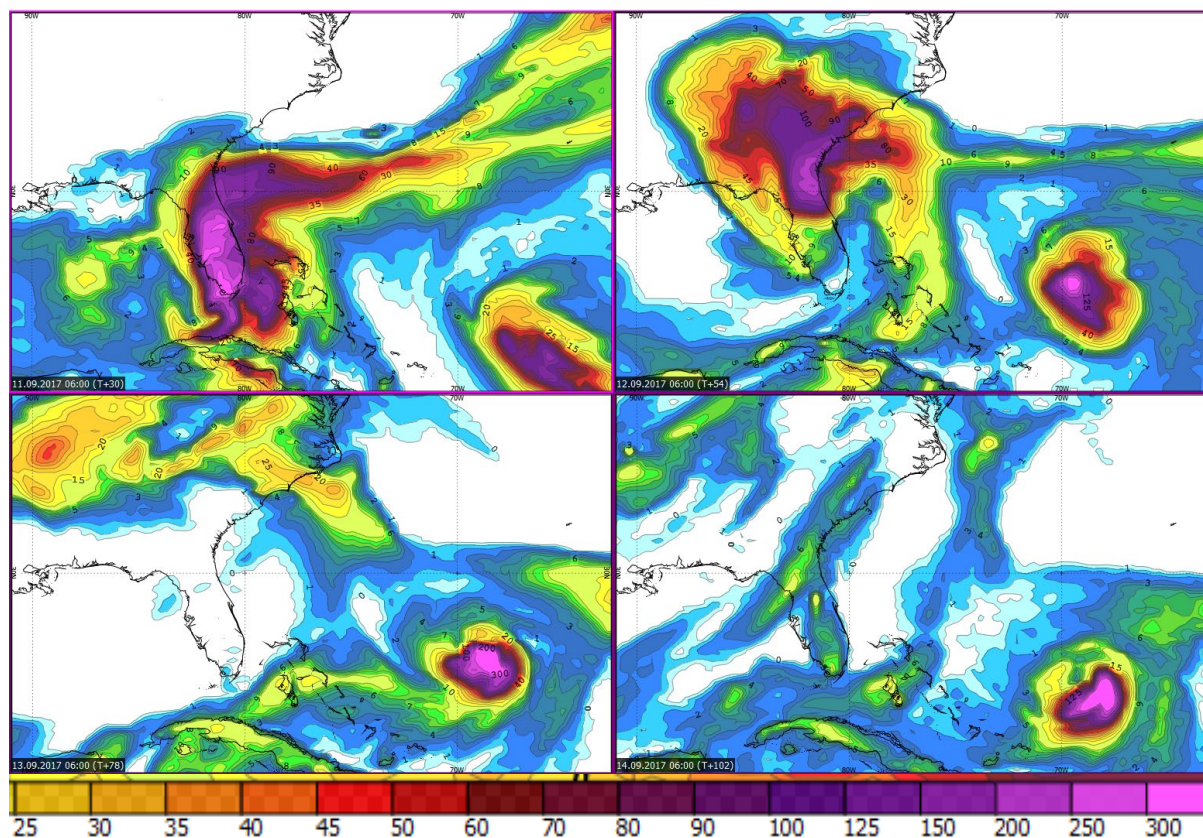


Figure 4: 09/00 UTC UKGM 24 hour rainfall totals for the next 4 days. Accumulated precipitation up to next Wednesday in millimeters; Sunday (top left) to Wednesday (bottom right).

Sources: NHC, UK Met Office, ECMWF, NCEP, and various media reports.

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