

Report on the Windstorm during the Inauguration Day of the Mayaguez 2010 Central American Games on Saturday, July 17, 2010

During the early afternoon of Saturday, July 17, 2010, a thunderstorm squall line affected the grounds of the Isidoro Garcia Park Olympic Stadium in the city of Mayaguez, where the Opening Ceremony for the Mayaguez 2010 Central American Games was to be held later that afternoon.

The squall line moved across Mayaguez, producing strong gusty winds that downed a scaffold equipped with lighting equipment at the Isidoro Garcia Park, Olympic Stadium near the coast. Several persons were injured and some vehicles were damaged, as the platform fell to the ground. Downed trees and power lines were also reported in several other municipalities of western Puerto Rico. Due to these adverse weather conditions, officials were forced to delay the Games' Opening Ceremony.

Several ingredients came together for this type of weather event to occur across Puerto Rico on July 17. An upper level low pressure system and its surface reflection were located north of the local area. Deep moisture with precipitable water values up to 2.25 inches, coupled with strong thunderstorms that were generating strong gusty winds.

Initial local and national media reports attributed this event to a tornado or a waterspout that had moved inland. However, most of the evidence examined indicates that it was an outflow boundary that propagated from the east southeast to the west northwest across Puerto Rico at a fast pace. It is very common in mainland USA for this type of squall line to generate tornadoes as it propagates, however, in tropical regions all the conditions for tornado development are not necessarily present. The western and northwest waters of Puerto Rico at times experience isolated but strong waterspouts in association with near severe thunderstorms, and on occasion a few of these waterspouts have moved inland, becoming tornadoes of EF0 or EF1 intensity.

Reviewing the data available for the different wind sensors, official and non-official, deployed across the island revealed interesting wind gusts as the squall line traversed the island.

Time	Sensor Name	Sensor Location	Wind Speed/Gust MPH
11:15 AM	PREPA	Fajardo	gust to 43 mph
11:15 AM	PREPA	Guayama	gust to 43 mph
11:18 AM	NOS NWLON	Yabucoa Harbor	25 mph gusting to 43 mph
12:00 PM Approx	PREPA	La Parguera, Lajas	gust to 46 mph
12:17 PM	NOS NWLON	Peñuelas- Guayanilla	gust to 53 mph

12:30 PM	PREPA	El Maní Mayaguez	gust to 33 mph
12:45 PM	PREPA	El Maní Mayaguez	gust to 36 mph
1:00 PM	PREPA	El Maní Mayaguez	gust to 30 mph
1:14 PM	National Wildlife Refuge	Cabo Rojo	gust to 48 mph

The NOS-NWLON sensor at the Penuelas-Guayanilla Bay reported a wind gust to 53 mph at 12:17 pm as the squall line moved through. The Cabo Rojo National Wildlife Refuge sensor recorded a wind gust to 48 mph at 1:14 pm. Data from the Puerto Rico Electric Power Company (PREPA) wind sensor at El Mani site near the Mayaguez airport, indicated wind gusts of 33 mph at 12:30 pm, 36 mph at 12:45 pm, and 30 mph at 1:00 pm. The PREPA net highest wind gust was recorded at La Parguera sensor in Lajas, where a 46 mph gust was recorded around noon. Other locations in Puerto Rico recorded wind gusts that ranged between 35 and 45 mph.

The CARA ICOOS sensor (MAROB 42085) near Caja de Muertos Island south of Ponce recorded wind gusts of 40 mph between 12:20 and 12:30 pm.

The Cabo Rojo National Wildlife Refuge RAWs sensor (MCRRP4) recorded sustained winds of 29 mph with gusts to 48 mph from the east southeast at 1:14 pm and 1:43 pm. Followed by a period of sustained winds of 21 to 29 mph with gusts of 42 to 45 mph from the east southeast between 2:34 pm and 3:43 pm.

At 10:51 am the squall line was located about six miles southeast of Yabucoa and was moving west northwest around 30 mph. It moved rapidly inland producing gusty winds and lightning. NOAA's NOS NWLON station (YABP4) at the Yabucoa harbor recorded sustained winds of 25 mph with gusts to 43 mph from the east southeast at 11:18 am. The PREPA wind sensors recorded wind gusts of 43 mph in the municipalities of Fajardo and Guayama at 11:15 am. By 11:31 am, the squall line was across southeast Puerto Rico and moving to the northwest at a speed greater than 35 mph. By 11:37 am, the line of thunderstorms was moving across parts of central Puerto Rico with damaging winds of 35 to 45 mph, and it was expected to reach western sections of Puerto Rico before 12:15 pm.

The National Weather Service Forecast Office in San Juan issued a Special Weather Statement for strong and gusty winds at 10:57 am, followed by updated statements at 11:37 am, 11:52 am, and 12:44 pm. See text special weather statements below.

WWCA82 TJSJ 171457
SPSSJU
PRC015-035-037-057-069-085-095-103-109-123-129-133-151-171530-

SPECIAL WEATHER STATEMENT
NATIONAL WEATHER SERVICE SAN JUAN PR
1057 AM AST SAT JUL 17 2010

THE NATIONAL WEATHER SERVICE IN SAN JUAN HAS ISSUED A SPECIAL WEATHER
STATEMENT EFFECTIVE UNTIL 1130 AM AST FOR PEOPLE IN THE FOLLOWING
MUNICIPALITIES
IN PUERTO RICO

CAYEY...SAN LORENZO...LAS PIEDRAS...ARROYO...PATILLAS...
MAUNABO...NAGUABO...CEIBA...GUAYAMA...HUMACAO...SALINAS...SANTA
ISABEL AND YABUCA

INCLUDING THE FOLLOWING LOCATIONS

AGUAS CLARAS...ANTON RUIZ...ARROYO...BUENA VISTA...CEIBA...
COCO...COQUI...CORAZON...GUAYAMA...HUMACAO...JAUCA...JOBOS...
SALINAS...MARTORELL...NAGUABO...OLIMPO...PALMAS AND ROOSEVELT
ROADS

AT 1051 AM AST NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED A A
LINE OF THUNDERSTORMS 8 MILES SOUTHEAST OF MARTORELL...OR ABOUT 6
MILES SOUTHEAST OF YABUCA...MOVING WEST NORTHWEST AT 30 MPH. THESE
THUNDERSTORMS HAVE PRODUCED GUSTS OF 40 TO 45 MPH WHERE THEY HAVE
TOUCHED LAND. RESIDENTS SHOULD EXPECT VERY GUSTY WINDS FOR A PERIOD
OF 10 OR 20 MINUTES AS THEY DISSIPATE ONSHORE. HEAVY RAINS AND
CLOUD-TO-GROUND LIGHTNING STRIKES ARE ALSO LIKELY

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SNELL

WWCA82 TJSJ 171537
SPSSJU
PRC001-019-021-031-033-039-043-045-047-051-059-061-073-075-087-101-
105-107-111-113-127-135-137-141-143-145-149-153-171630-

SPECIAL WEATHER STATEMENT
NATIONAL WEATHER SERVICE SAN JUAN PR
1137 AM AST SAT JUL 17 2010

THE NATIONAL WEATHER SERVICE IN SAN JUAN HAS ISSUED A SPECIAL WEATHER
STATEMENT EFFECTIVE UNTIL 1230 PM AST FOR PEOPLE IN THE FOLLOWING
MUNICIPALITIES
IN PUERTO RICO

BAYAMON...CIALES...COAMO...COROZAL...COMERIO...BARRANQUITAS...
JAYUYA...ADJUNTAS...OROCOVIS...NARANJITO...MOROVIS...TOA ALTA...
UTUADO...YAUACO...VILLALBA...VEGA ALTA...DORADO...GUAYANILLA...
GUAYNABO...CAROLINA...JUANA DIAZ...PONCE...CATANO...VEGA BAJA...
SAN JUAN...PENUELAS...LOIZA AND TOA BAJA

INCLUDING THE FOLLOWING LOCATIONS

ADJUNTAS...BARAHONA...BARRANQUITAS...BAYAMON...CAMPANILLA...

CANDELARIA...CANDELARIA ARENAS...CAROLINA...CATANO...CIALES...
COROZAL...COTO LAUREL...FRANQUEZ...GALATEO...GUAYABAL...
GUAYANILLA...GUAYNABO...H. RIVERA COLON...JAYUYA...LEVITTOWN...
MOROVIS...NARANJITO...PAJAROS...PENUELAS...TOA ALTA...SAN
JOSE...RIO LAJAS...SABANA SECA...SAN JUAN...SANTO DOMINGO...
TALLABOA ALTA AND VILLALBA

AT 1131 AM AST NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED A
LINE OF THUNDERSTORMS ACROSS SOUTHEAST PUERTO RICO MOVING AT GREATER
THAN 35 MPH TO THE NORTHWEST. THIS LINE WILL BRING GUSTY WINDS OF 35
TO 45 MPH TO MOST AREAS IN ITS PATH IN SOUTH AND CENTRAL PUERTO RICO
WITH SOME LESSER GUSTS IN THE SAN JUAN METROPOLITAN AREA BEFORE NOON
AST. THE LINE APPEARS TO BE MAINTAINING STRENGTH AS IT MOVES THROUGH
PUERTO RICO.

WWCA82 TJSJ 171552

SPSSJU

PRC001-011-013-017-023-027-039-051-054-055-059-065-067-073-079-081-
083-091-093-097-101-107-111-113-121-125-131-137-141-143-145-153-
171645-

SPECIAL WEATHER STATEMENT

NATIONAL WEATHER SERVICE SAN JUAN PR

1152 AM AST SAT JUL 17 2010

THE NATIONAL WEATHER SERVICE IN SAN JUAN HAS ISSUED A SPECIAL WEATHER
STATEMENT EFFECTIVE UNTIL 1245 PM AST FOR PEOPLE IN THE FOLLOWING
MUNICIPALITIES
IN PUERTO RICO

HORMIGUEROS...CIALES...FLORIDA...JAYUYA...ADJUNTAS...MARICAO...
OROCOVIS...MOROVIS...SABANA GRANDE...SAN GERMAN...SAN
SEBASTIAN...UTUADO...YAUCO...VEGA ALTA...LAS MARIAS...LARES...
DORADO...GUAYANILLA...BARCELONETA...CAMUY...GUANICA...HATILLO...
MANATI...PONCE...CABO ROJO...MAYAGUEZ...VEGA BAJA...PENUELAS...
TOA BAJA...LAJAS...ANASCO AND ARECIBO

INCLUDING THE FOLLOWING LOCATIONS

ADJUNTAS...ARECIBO...BAJADERO...BARAHONA...BARCELONETA...
BRENAS...CABO ROJO...CIALES...COTO NORTE...DORADO...FLORIDA...
FRANQUEZ...GUANICA...GUAYANILLA...HORMIGUEROS...IMBERY...
JAYUYA...LA ALIANZA...LA LUISA...LAJAS...LARES...MANATI...
MAYAGUEZ...MIRANDA...MONSERRATE...MOROVIS...YAUCO...PALOMAS...
PENUELAS...RAFAEL CAPO...RAFAEL GONZALEZ...SABANA GRANDE...SAN
ANTONIO...SAN GERMAN...SANTO DOMINGO...TOA BAJA...UTUADO...VEGA
ALTA...VEGA BAJA AND PUERTO REAL

AT 1137 AM AST NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED A
LINE OF THUNDERSTORMS MOVING RAPIDLY ACROSS CENTRAL PUERTO RICO WITH
DAMAGING 35 TO 45 MPH WINDS WILL MOVE INTO WESTERN PUERTO RICO
BEFORE 12:15 AM AST. THIS LINE WILL ALSO BE ACCOMPANIED BY DANGEROUS
LIGHTNING AND HEAVY RAINS. PERSONS IN OPEN OR EXPOSED AREAS SHOULD
TAKE SHELTER.

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WWCA82 TJSJ 171559 CCA

SPSSJU

PRC001-011-013-017-023-027-039-051-054-055-059-065-067-073-079-081-
083-091-093-097-101-107-111-113-121-125-131-137-141-143-145-153-
171645-

SPECIAL WEATHER STATEMENT...CORRECTED

NATIONAL WEATHER SERVICE SAN JUAN PR

1159 AM AST SAT JUL 17 2010

THE NATIONAL WEATHER SERVICE IN SAN JUAN HAS ISSUED A SPECIAL WEATHER
STATEMENT EFFECTIVE UNTIL 1245 PM AST FOR PEOPLE IN THE FOLLOWING
MUNICIPALITIES

IN PUERTO RICO

HORMIGUEROS...CIALES...FLORIDA...JAYUYA...ADJUNTAS...MARICAO...
OROCOVIS...MOROVIS...SABANA GRANDE...SAN GERMAN...SAN
SEBASTIAN...UTUADO...YAUCO...VEGA ALTA...LAS MARIAS...LARES...
DORADO...GUAYANILLA...BARCELONETA...CAMUY...GUANICA...HATILLO...
MANATI...PONCE...CABO ROJO...MAYAGUEZ...VEGA BAJA...PENUELAS...
TOA BAJA...LAJAS...ANASCO AND ARECIBO

INCLUDING THE FOLLOWING LOCATIONS

ADJUNTAS...ARECIBO...BAJADERO...BARAHONA...BARCELONETA...
BRENAS...CABO ROJO...CIALES...COTO NORTE...DORADO...FLORIDA...
FRANQUEZ...GUANICA...GUAYANILLA...HORMIGUEROS...IMBERY...
JAYUYA...LA ALIANZA...LA LUISA...LAJAS...LARES...MANATI...
MAYAGUEZ...MIRANDA...MONSERRATE...MOROVIS...YAUCO...PALOMAS...
PENUELAS...RAFAEL CAPO...RAFAEL GONZALEZ...SABANA GRANDE...SAN
ANTONIO...SAN GERMAN...SANTO DOMINGO...TOA BAJA...UTUADO...VEGA
ALTA...VEGA BAJA AND PUERTO REAL

AT 1137 AM AST NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED A
LINE OF THUNDERSTORMS MOVING RAPIDLY ACROSS CENTRAL PUERTO RICO WITH
DAMAGING 35 TO 45 MPH WINDS WILL MOVE INTO WESTERN PUERTO RICO
BEFORE 12:15 PM AST. THIS LINE WILL ALSO BE ACCOMPANIED BY DANGEROUS
LIGHTNING AND HEAVY RAINS. PERSONS IN OPEN OR EXPOSED AREAS SHOULD
TAKE SHELTER.

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WWCA82 TJSJ 171644

SPSSJU

PRC001-003-005-011-013-017-027-039-047-051-054-065-071-073-081-083-
091-097-099-101-107-115-117-131-135-137-141-143-145-149-171745-

SPECIAL WEATHER STATEMENT

NATIONAL WEATHER SERVICE SAN JUAN PR

1244 PM AST SAT JUL 17 2010

THE NATIONAL WEATHER SERVICE IN SAN JUAN HAS ISSUED A SPECIAL WEATHER
STATEMENT EFFECTIVE UNTIL 145 PM AST FOR PEOPLE IN THE FOLLOWING
MUNICIPALITIES

IN PUERTO RICO

ISABELA...CIALES...COROZAL...FLORIDA...JAYUYA...ADJUNTAS...
OROCOVIS...MOROVIS...MOCA...TOA ALTA...QUEBRADILLAS...SAN
SEBASTIAN...UTUADO...VILLALBA...VEGA ALTA...AGUADILLA...

AGUADA...LAS MARIAS...LARES...DORADO...BARCELONETA...CAMUY...
HATILLO...MANATI...MAYAGUEZ...VEGA BAJA...RINCON...TOA BAJA...
ANASCO AND ARECIBO

INCLUDING THE FOLLOWING LOCATIONS

ACEITUNAS...AGUADA...AGUADILLA...ANASCO...ARECIBO...BAJADERO...
BARAHONA...BARCELONETA...BRENAS...CABAN...CAMPANILLA...CAMUY...
CANDELARIA...CANDELARIA ARENAS...CIALES...COROZAL...COTO
NORTE...DORADO...FLORIDA...FRANQUEZ...GALATEO...H. RIVERA
COLON...HATILLO...IMBERY...INGENIO...ISABELA...JAYUYA...LA
ALIANZA...LA LUISA...LA PLAYA...LARES...LEVITTOWN...LUYANDO...
MANATI...MIRANDA...MOCA...MONSERRATE...MOROVIS...QUEBRADILLAS...
RAFAEL CAPO...RAFAEL GONZALEZ...TOA ALTA...SAN JOSE...RIO
LAJAS...SABANA SECA...SAN ANTONIO...SAN SEBASTIAN...TOA BAJA...
UTUADO...VEGA ALTA AND VEGA BAJA

AT 1237 PM AST NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED A
LINE OF THUNDERSTORMS CREATING STRONG GUSTY WINDS FROM 35 TO 50 MPH.
THESE WINDS HAVE BEEN KNOCKING DOWN NUMEROUS TREES AND ELECTRICAL
POWERLINES.

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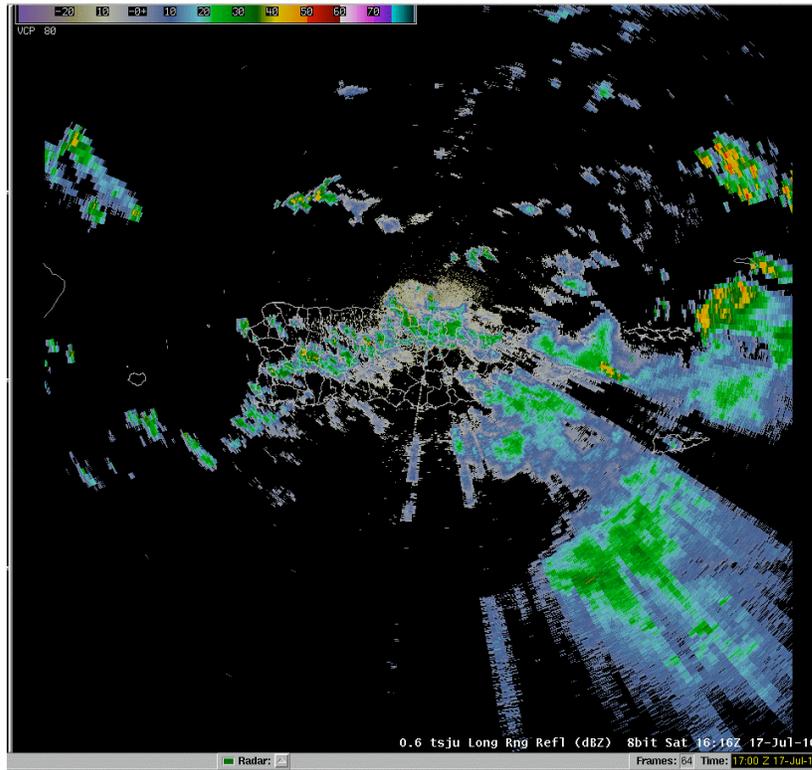
The following picture of the squall line was taken by Dr. Eddie Laboy as he was driving from the municipality of Santa Isabel to Juana Diaz along Highway PR 52. Around noon, he arrived to a location near Cerro Puntas, inland Ponce, where he felt the winds to be remarkably strong.



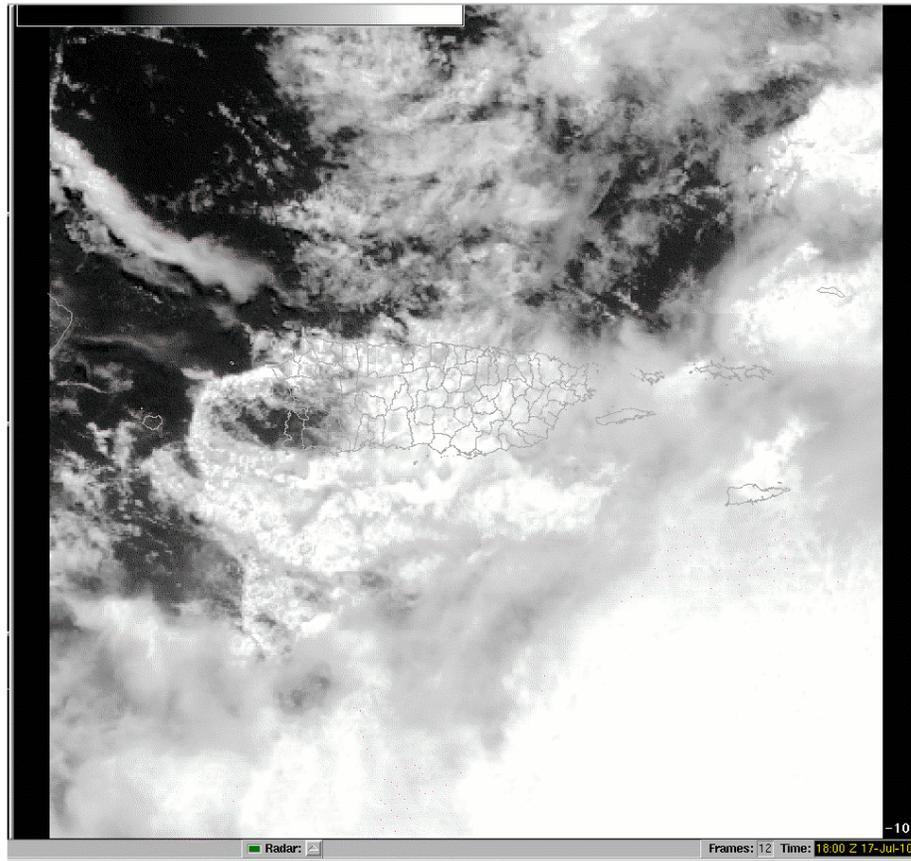
Squall line moving inland between the coastal municipalities of Juana Diaz and Santa Isabel around noon on July 17, 2010. Photo by Dr. Eddie Laboy

Around 12:35 pm, the squall line reached the city of Mayaguez, producing strong gusty winds that downed a scaffold equipped with lighting equipment at the Isidoro Garcia Park Olympic Stadium, along road 102, near the Mayaguez coast. Several persons were injured and some vehicles were damaged as the platform fell to the ground.

The Peñuelas-Guayanilla NOAA NOWS-NWLON (MPLSP4) sensor recorded sustained winds of 41 mph with gusts to 53 mph from the south at 12:17 pm, followed by a period of sustained winds of 33-38 mph with gusts from 38-47 mph from the south and south southeast between 12:27 pm and 1:08 pm.

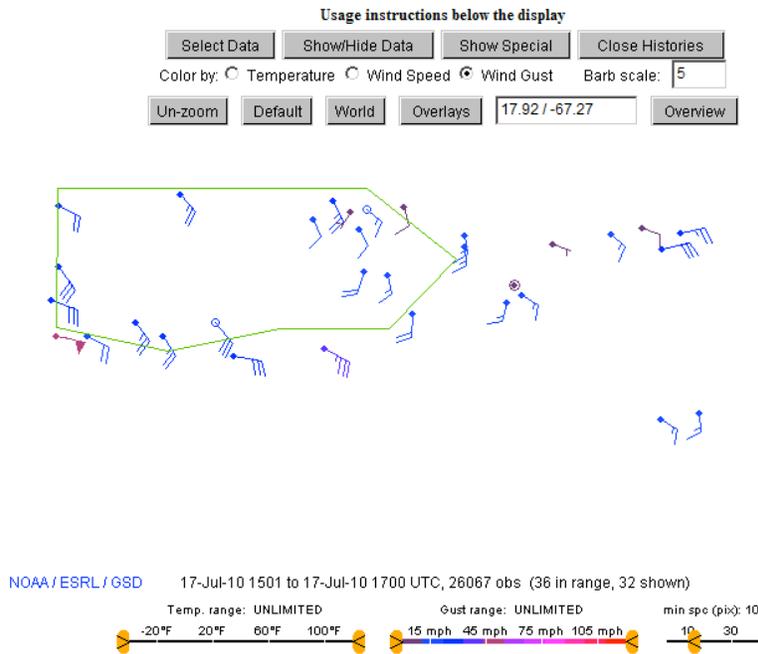


The thunderstorm outflow boundary denoted by a band of higher reflectivity values can be seen moving rapidly northwest and into Mayaguez in this 12:16 pm radar image.



The thunderstorm outflow boundary or arc cloud is evident on this visible satellite image just off of the west coast of Puerto Rico at 12:45 pm.

Refer to attached graphic below from MADIS (figure X).



In conclusion, there were no indications of significant rotation within the thunderstorm that affected the Mayaguez 2010 Central American Games site, nor were there any visual reports or station observations that indicated that a tornado had developed over land or a waterspout had moved ashore. All available meteorological data examined for this wind event, indicate that the series of strong wind gusts and resulting injuries and damage were from a thunderstorm outflow boundary (squall line) or down-rushing, rain-cooled air spreading out along the surface, moving quickly west northwest across Puerto Rico, and eventually affecting the west coast of the island, including Mayaguez.