

ICYCLONE CHASE REPORT

storm	Hurricane NEWTON		
location	Cabo San Lucas, Baja California Sur, Mexico		
date	05-06 September 2016		
chasers	Josh Morgerman	author	Josh Morgerman

Location

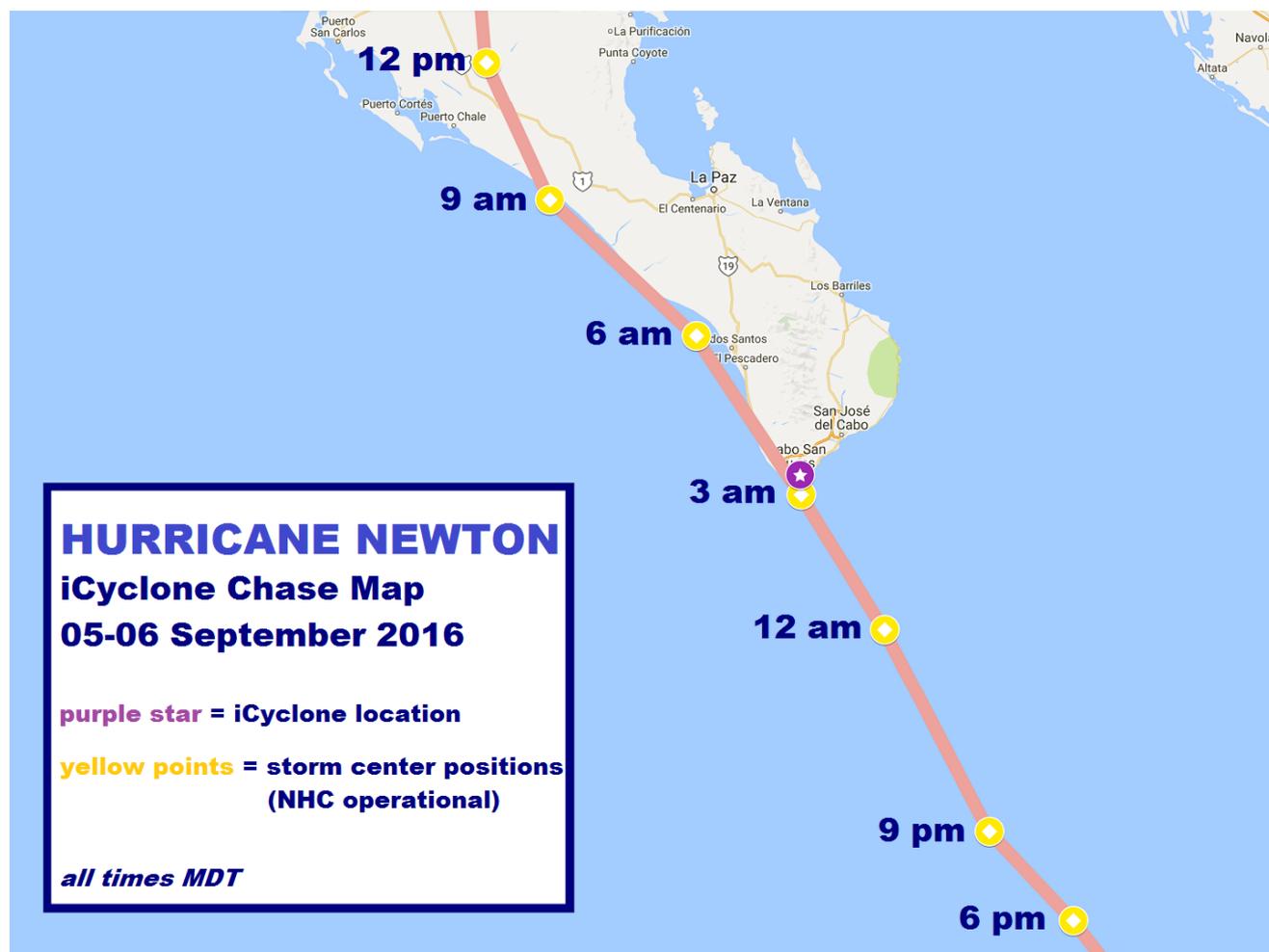
I observed the passage of Hurricane NEWTON in downtown **Cabo San Lucas, Baja California Sur, Mexico**, at **22.8884N 109.9056W**. This location is the Bahia Hotel & Beach Club on Av. del Pescador, in the SE edge of Downtown, one block from the ocean (Medano Beach).

As per NHC advisory positions, this was very close to the cyclone's track—less than **3 n mi E of NEWTON's center** (at its point of closest approach).

I arrived at this location on the afternoon preceding the storm. I remained there during the approach and passage of NEWTON's center, staying there until more than a day after the cyclone had passed.

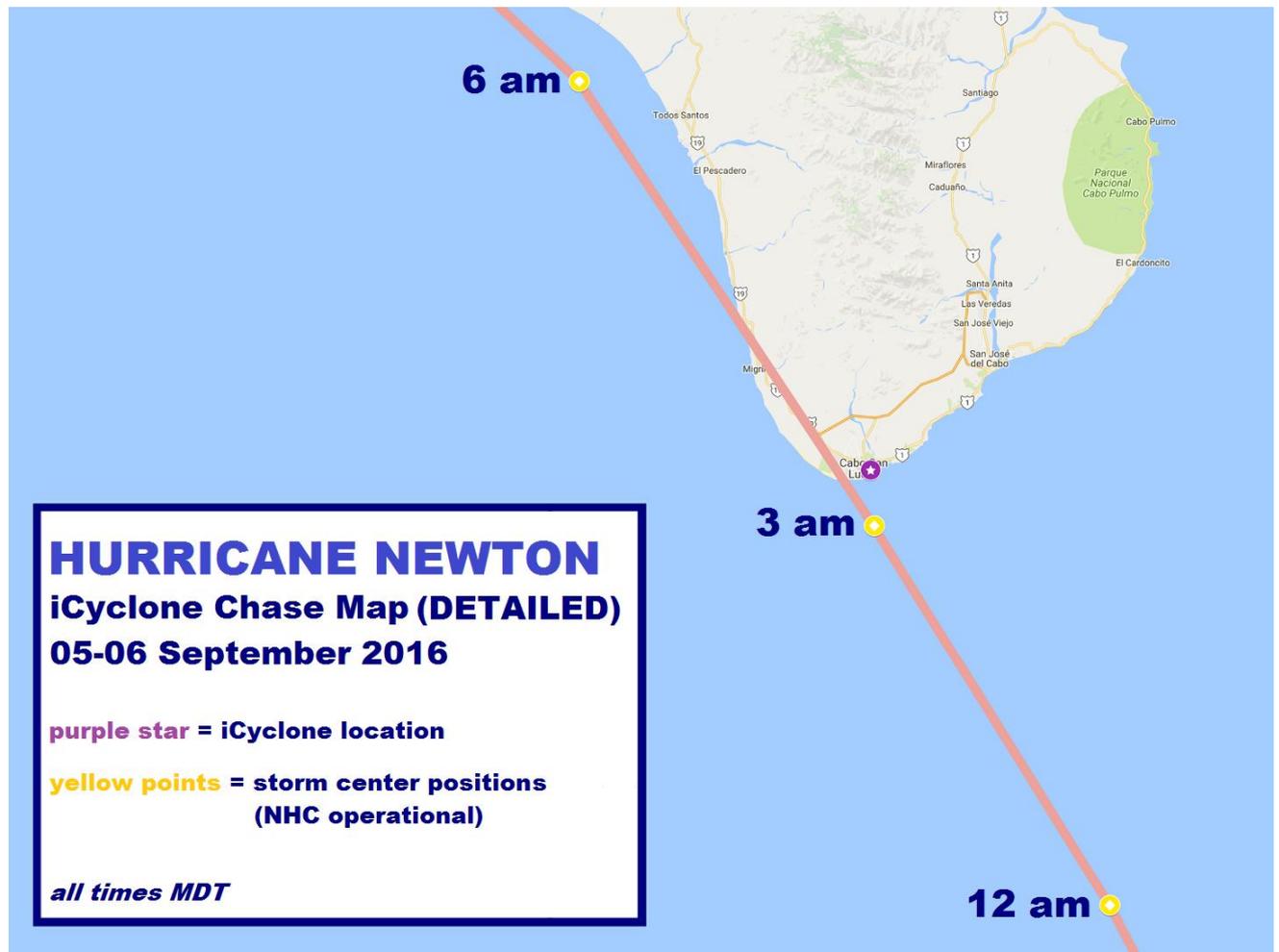
The **Chase Map** shows **my location (purple star)** in relation to **NEWTON's center (yellow points)**, as per NHC advisory positions. (**Chase Map Detail** is a closer view.)

Figure 1: Chase Map



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Figure 2: Chase Map (Detail)



Chronology

NEWTON made a direct hit on Cabo San Lucas. The hurricane's eye passed directly over Downtown, resulting in a prolonged calm period in the city—about 2 hours.

Following are observations made in Cabo San Lucas, with color-coding to indicate passage of the **cyclone's core** and **calm eye** over the location. All times are **MDT**:

- **9:20 pm.** Heavy rain.
- **9:45 pm.** Power flickering, but no real wind yet. 1004 mb.
- **10:10 pm.** Wind stiffening. 1003 mb.
- **11 pm.** Much windier; light rain. 1002 mb.
- **12:15 am.** Wind really picking up: palm trees swaying, banging sounds. 998 mb.
- **1:50 am.** Rumbling, roaring sounds; transformers exploding across city. 991 mb.
- **2:10 am.** Powerful winds coming in "waves"—getting dangerous.
- **2:15 am.** Destructive winds, generally from ENE. Large flying debris; crashing sounds.
- **2:30 am.** Winds tearing violently at palms, shredding them; building rumbling; high-pitched whistling sounds. 987 mb.
- **2:50 am.** Wind slacking off; rain much lighter. 984 mb.
- **3 am.** Calming.
- **3:15 am.** Calm. 984 mb.
- **3:30 am.** Calm—but ocean turbulent.

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- **4:50 am.** Wind gradually picking up again, now from SW; bands of heavy rain. Backside of hurricane moving in.

I stopped recording detailed observations at this point—however, I recall the hurricane was starting to die down by dawn.

The lowest air pressure was **984.3 mb**, measured at **2:47 am MDT**, at which time the NW edge of the eye was just reaching the city. The pressure hovered at or near this minimum value for the next 35 minutes, as the city experienced a pronounced calm in the eye.

See more below Re: instrument calibration and data collection.

Air Pressure Data

I collected quality-controlled air-pressure data with two Kestrel 4500s.

Both devices were stored in a sheltered, controlled environment in my 5th-floor hotel room and left undisturbed during the storm. The sampling rate was one reading per minute.

Calibration

The hotel is on a steep hill, well above sea level. Geographer James Hyde checked local data and estimated the ground elevation at this location to be **~55 ft**.

Since the devices were on the 5th floor of the hotel, ~35 ft above ground, they were calibrated for sea-level pressure using a **reference altitude of 90 ft** (55 ft + 35 ft).

Controlled Data

Both devices registered the same minimum value multiple times:

Device 1 – Min pressure: 984.3 mb

- **2:47 am**—as edge of calm eye was reaching city.
- **3:17 am**—while city was in calm eye.

Device 2 – Min pressure: 984.3 mb

- **2:47 am**—as edge of calm eye was reaching city.
- **3:05 am**—while city was in calm eye.
- **3:23 am**—while city was in calm eye.
- **3:24 am**—while city was in calm eye.

It should be noted that it's unusual for two devices to record identical minimum values—and at the same time.

The data from **Device 1** are graphed in **Figure 3**, below.

Spot Reading

I had a third device hanging from a lanyard around my neck, and I used it to take spot readings during the storm.

While in the calm eye, I walked down to the beach and measured **~983 mb** at ~3:30 am.

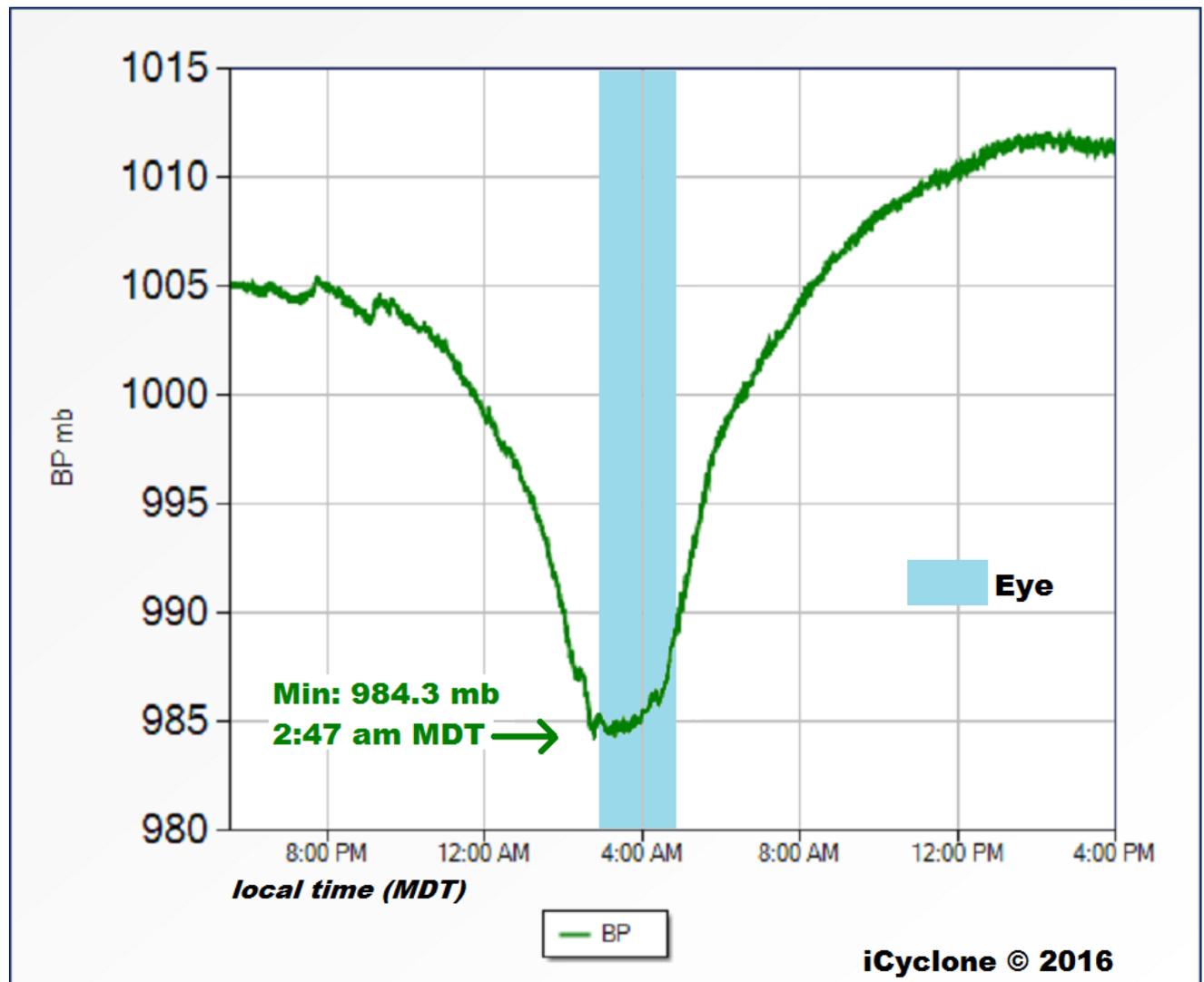
While this device wasn't in a controlled environment, the reading is interesting because I was right at the water's edge and therefore able to almost perfectly calibrate the device for sea-level readings. At this same time, the two controlled devices in the hotel were indicating slightly higher pressures—between 984.5 and 985.0 mb—suggesting their calibration might have been **slightly** off.

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While I'm not using the 983 mb as the official iCyclone minimum value for this event, it at least lends confidence that the minimum values recorded by the two controlled devices weren't too low.

Figure 3: Barogram for Device 1

Air-pressure data reveal the minimum value of 984.3 mb occurred at 2:47 am, and again at 3:17 am, as the eye reached and passed over the city.



HURRICANE NEWTON: 05-06 Sep 2016
Cabo San Lucas, Baja California Sur, Mexico
22.8884N 109.9056W – ref el 55 ft **DEVICE 1**

Damage

Damage around the city was mostly light—what you'd expect from a Cat-1 hurricane: downed signs, damaged roof tiles, tree branches in the street, some broken windows, decks along the beach torn up by the waves, the beach littered with storm-surge debris—and widespread power outages.

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Figure 4: Eye of hurricane nearing Cabo San Lucas.

This infrared shot shows the NW edge of Hurricane NEWTON's large eye nearing Cabo San Lucas (black star) at 2 am MDT (0800Z) 06 Sep 2016.

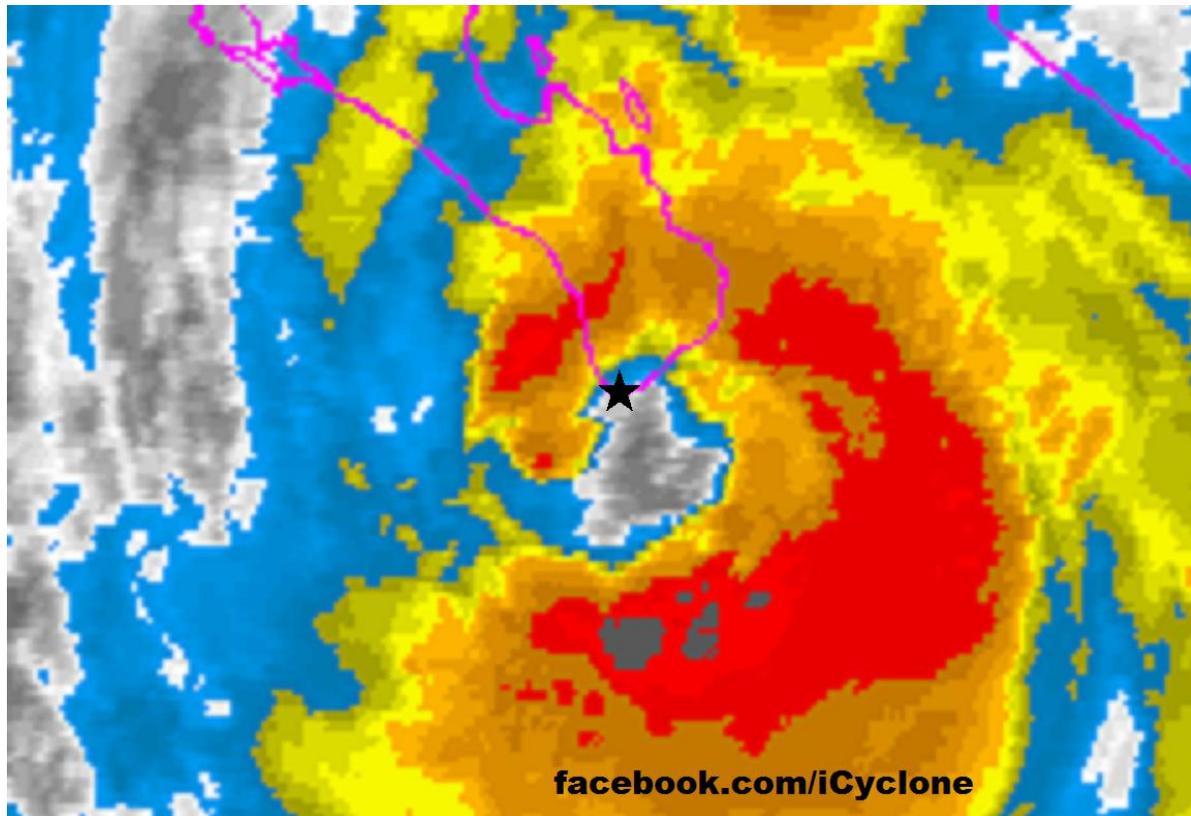


Figure 5: Hurricane lashing Cabo San Lucas.

Sparks flew as Hurricane NEWTON's winds tore up power lines in Cabo San Lucas.



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Figure 6: Hurricane lashing Cabo San Lucas.

Hurricane NEWTON's core raked Cabo San Lucas in the middle of the night.



Figure 7: Hurricane lashing Cabo San Lucas.

Transformers exploded across Cabo San Lucas as Hurricane NEWTON raked the city.



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Questions or Feedback?

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