SEA LEVEL RISE

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MONTHLY MEANS SAN JUAN SEA LEVEL RISE (from April 1962)

Black Curve with crosses: monthly averages of sea surface elevation
Least Squares Fit of all data: red straight line (SLR rate 2.00 mm/year)
Least Squares Fit (start at 2010): blue straight line (SLR rate 14.90 mm/year)
Lowess low pass filter (green curve) with span of 11 years
Least Squares Fit of Lowess (green) curve (SLR rate since 2010; curve not shown): 10.68 mm/year

(data source NOAA: updated up to February 2016; Aurelio Mercado Irizarry/UPRM)
MONTHLY MEANS MAGUEYES ISLAND SEA LEVEL RISE (from January 1955)

- Black Curve with crosses: monthly averages of sea surface elevation
- Least Squares Fit of all monthly data: red straight line (SLR rate 1.76 mm/year)
- Least Squares Fit of monthly data (starting at 2010): blue straight line (SLR rate 12.40 mm/year)
- Lowess low pass filter (green curve) with span of 11 years
- Least Squares Fit of Lowess (green) curve (SLR rate since 2010; curve not shown): 8.77 mm/year

(data source NOAA; updated up to February 2016; Aurelio Mercado Irizarry/UPRM)
What lies ahead for 2016?

January 2016 hottest since records began: NOAA
What lies ahead for 2016?

Climate and Weather:
February 2016 Was the Most Abnormally Warm Month Ever Recorded, NOAA and NASA Say

February global temperature anomaly sets new record for the globe
December-February also breaks existing temperature records

Aurelio Mercado-Irizarry/Physical Oceanography Lab/UPRM
HAWAI BAJO LOS EFECTOS TEMPOREROS DE UN REMOLINO DE AGUA CALIENTE

It is still unclear at exactly what scale and timeframe the Hawaiian Islands will experience accelerated sea level rise. It is also difficult to predict exactly how shorelines will respond. However, there are already analogs in Hawaii for the type of erosion impacts that can be expected. On Maui, the erosion experienced in Kaanapali in the summer of 2003 is one example. That summer, short-term increases in sea level were experienced as mesoscale eddies (large rotating water masses) propagated through the islands. These eddies produced tides that were 0.5 ft higher than normal. The elevated water levels, coupled with a minor south swell, resulted in enough wave energy traveling alongshore to transport massive amounts of beach sediment to the opposite end (north) of the beach system. The beach in the resort area disappeared entirely at some locations and there was high anxiety about possible infrastructure damage. Fortunately, temporary emergency protection measures were implemented and the beach recovered after a period of weeks. However, the implication is that a small increase in water level, only 0.5 ft in this case, can contribute to substantial shoreline retreat.