

# Where do Hurricanes Occur? Naming

## Tracks and Intensity of All Tropical Storms

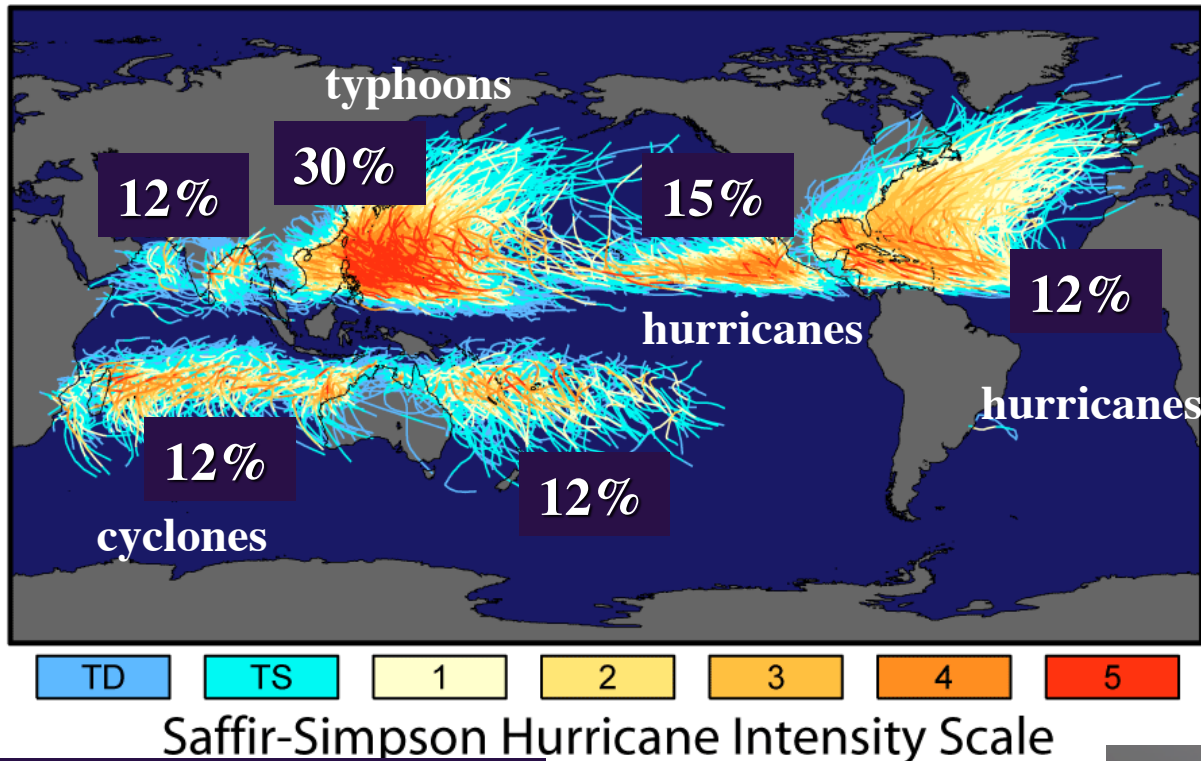


Image: NASA's Earth Observatory

- most hurricanes in W. Pacific (typhoons)
- more hurricanes in E. Pacific than in Atlantic
- Indian Ocean: cyclones

Hurricane **paths**:

N hemisphere: clockw.

S hemisphere: countercw.

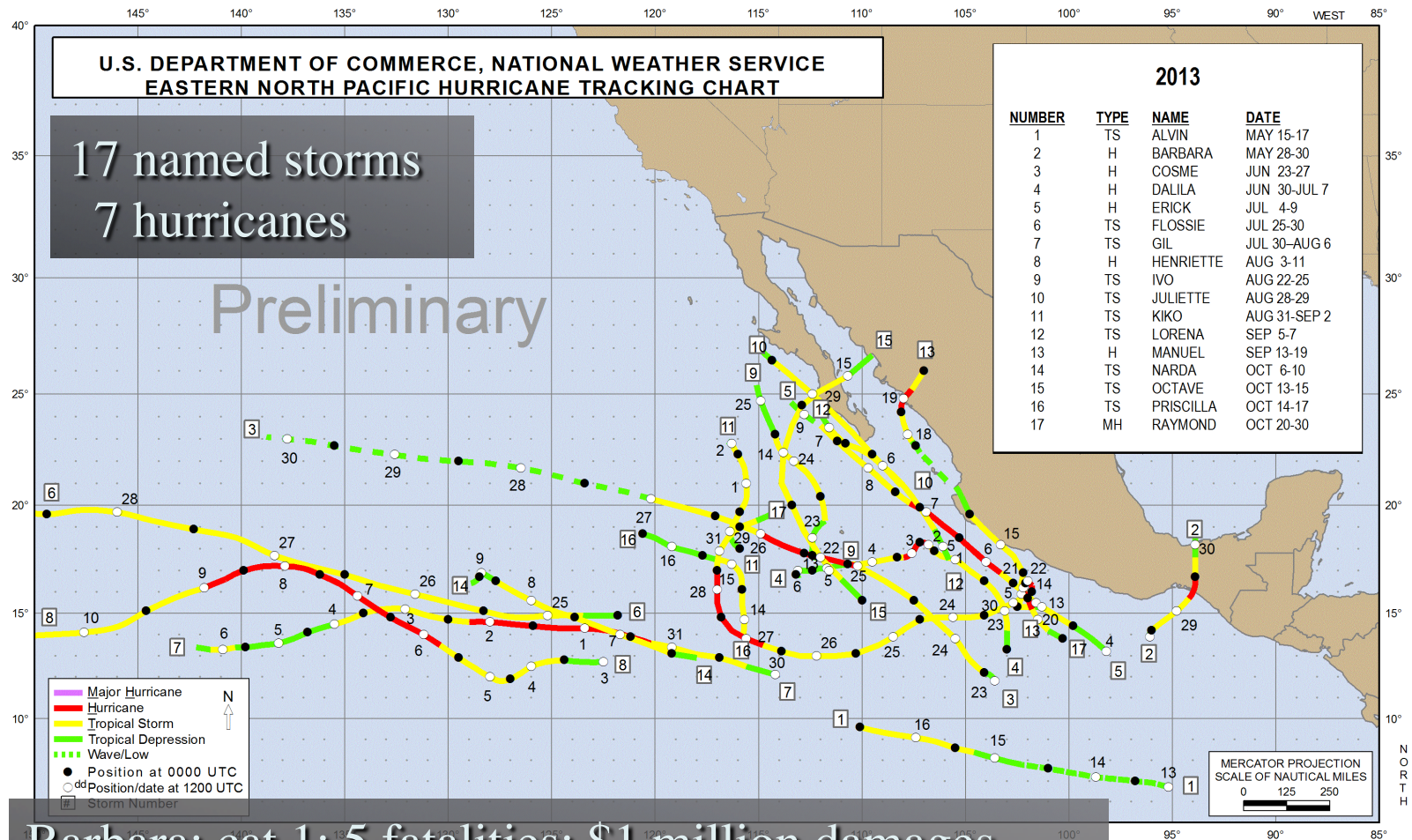
Hurricane **winds**:

N HS: ccw    S HS: cw



# 2013 East Pacific Hurricanes

Image: NOAA Hurricane Center



Barbara: cat 1; 5 fatalities; \$1 million damages

Manuel: cat 1; 169 fatalities; \$4.2 billion damages

Raymond: cat 3; no fatalities; 585 people homeless



# 2013 Atlantic Hurricanes

Andrea: TS; 4 fatalities; \$40,000 damages

Barry: TS; 5 fatalities/Mexico

Fernand: TS; 2 fatalities/Mexico

TD8: extensive flooding/Mexico

Humberto: cat 1; open ocean; freighter missing/5 m swell

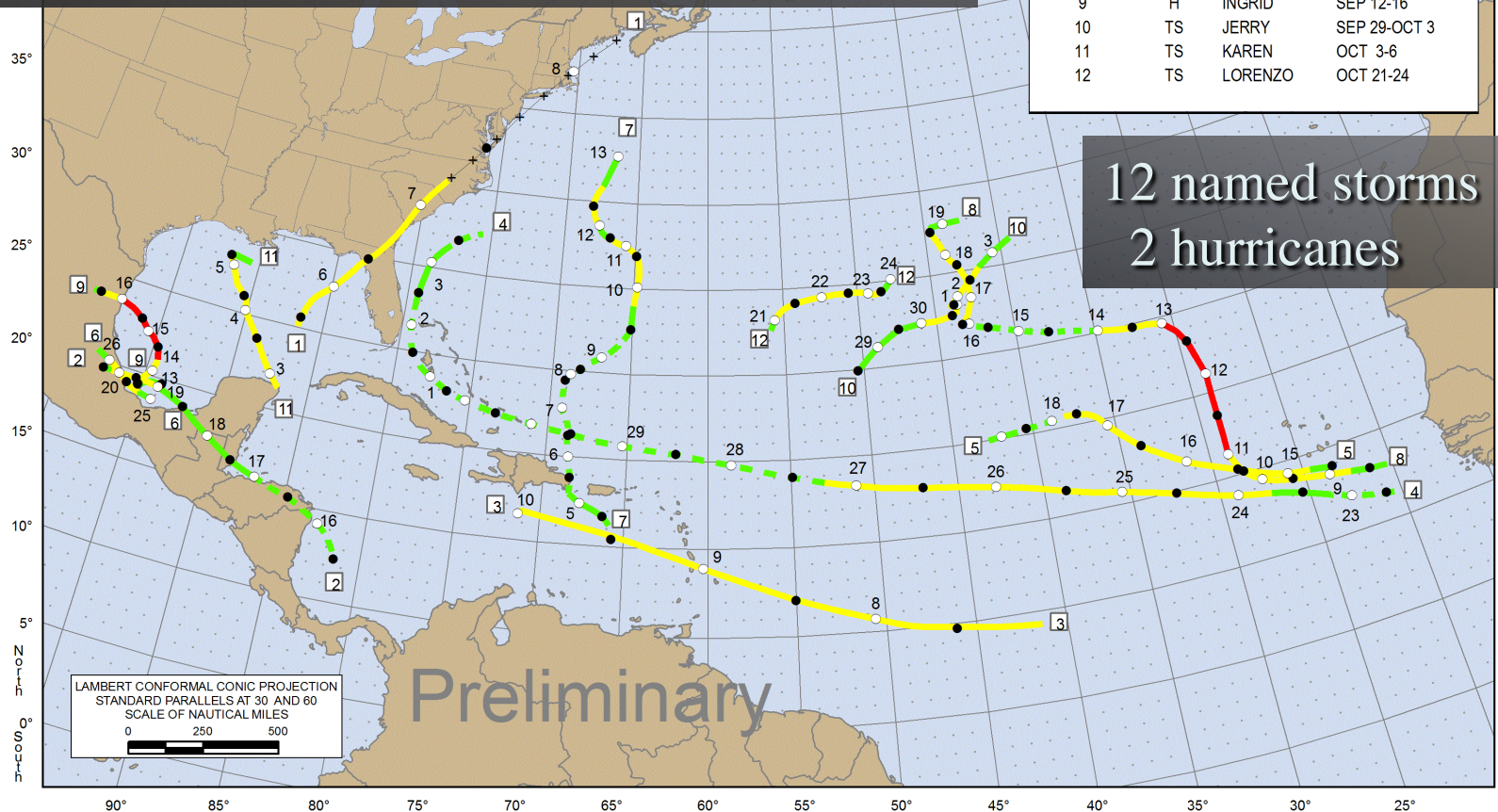
Ingrid: cat 1; 23 fatalities/Mexico; \$1.5 billion damages

Karen: TS; evacuation orders for LA during furlough

Image: NOAA Hurricane Center

2013			
NUMBER	TYPE	NAME	DATE
1	TS	ANDREA	JUN 5-7
2	TS	BARRY	JUN 17-20
3	TS	CHANTAL	JUL 7-10
4	TS	DORIAN	JUL 23-AUG 3
5	TS	ERIN	AUG 15-18
6	TS	FERNAND	AUG 25-26
7	TS	GABRIELLE	SEP 4-13
8	H	HUMBERTO	SEP 8-19
9	H	INGRID	SEP 12-16
10	TS	JERRY	SEP 29-OCT 3
11	TS	KAREN	OCT 3-6
12	TS	LORENZO	OCT 21-24

12 named storms  
2 hurricanes

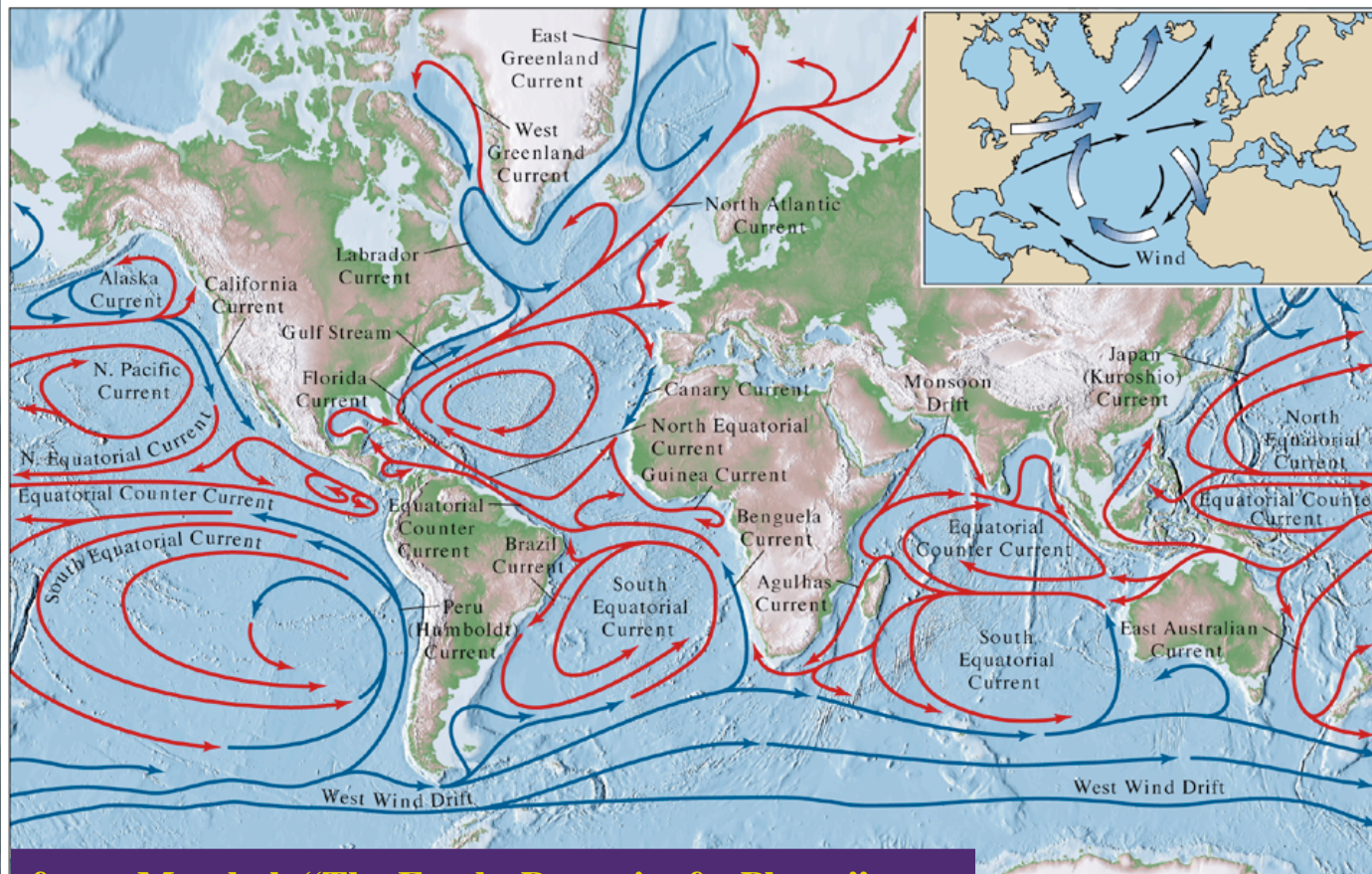




# Hurricanes in Southern California?

## HURRICANES

- need warm water to grow/sustain
- cold California Current protects us
- “no hurricane has ever made landfall in SoCal”



from: Marshak “The Earth: Portrait of a Planet”



# Hurricanes close to home (Baja California)

1997: Cat 5 Hurricane Linda  
(strongest ever recorded in E.P.)



- sustained winds: 185mph
- gusts: 220mph
- pressure: 902 mbar
- no landfall but hit Socorro Island
- no fatalities but \$3.2Mio Damage

Aug 24: tropical wave off Africa  
undeveloped across Atl.  
crossed Central America  
convection increased

Sep 10: tropical storm

Sep 11: hurricane  
cat 5 within 30h

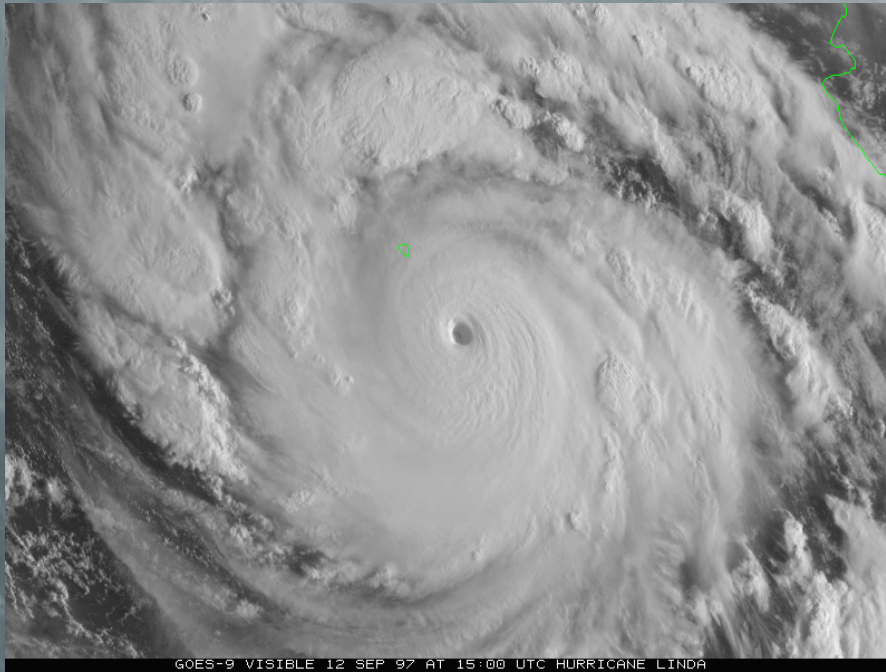
Sep 17: dissipation

... sep 13: could landfall in So. Cal??





# Hurricanes close to home (Baja California)



Linda and Mainland

cut power to met. station on Socorro  
closed resorts in Baja  
flooding in mainland Mexico  
15ft surge in So. Cal.  
5 people swept off jetty in Newport Beach  
severe flooding and mudslides in So. Cal.  
(destroyed 2 houses, damaged 77)





# S.D. Meteorological Observations

- no hurricane ever made landfall in So. Cal.
- landfall of a tropical storm in 1939 (\$ 2Mio damage)
- some came into SW but made landfall somewhere else

- meteorological records don't go back very far
- newspaper accounts -> Oct 2 1858 San Diego Hurricane
- from winds speeds and pressure -> category 1/F2 winds
- ships blown ashore
- house completely destroyed
- 1860 population of New San Diego county: 4325

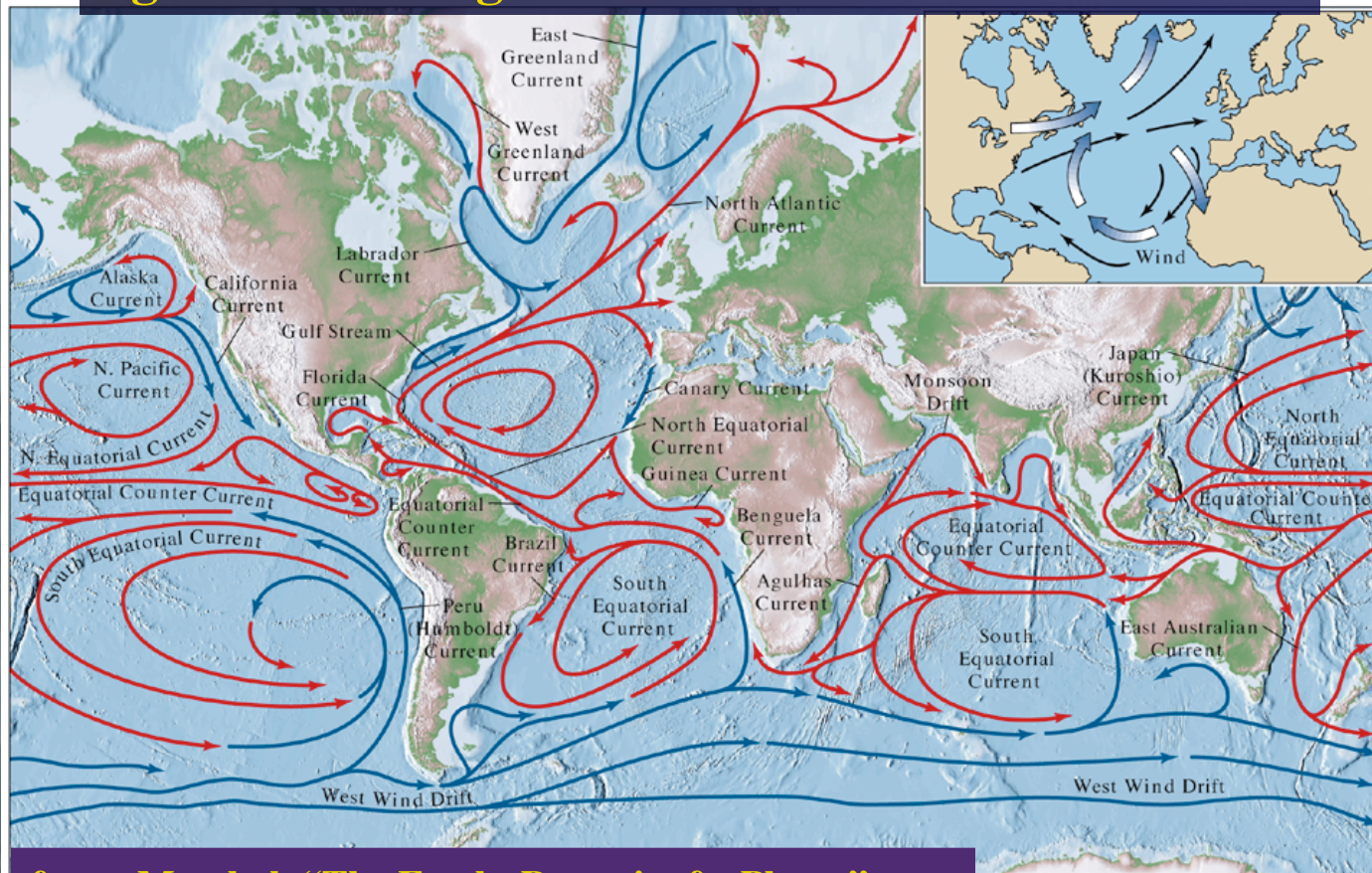
Damage if such a hurricane would strike today: several \$100Mio



# Hurricanes in Southern California?

## HURRICANES

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- cold California Current protects us
- “no hurricane has ever made landfall in SoCal”
- **global warming could shift currents**



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