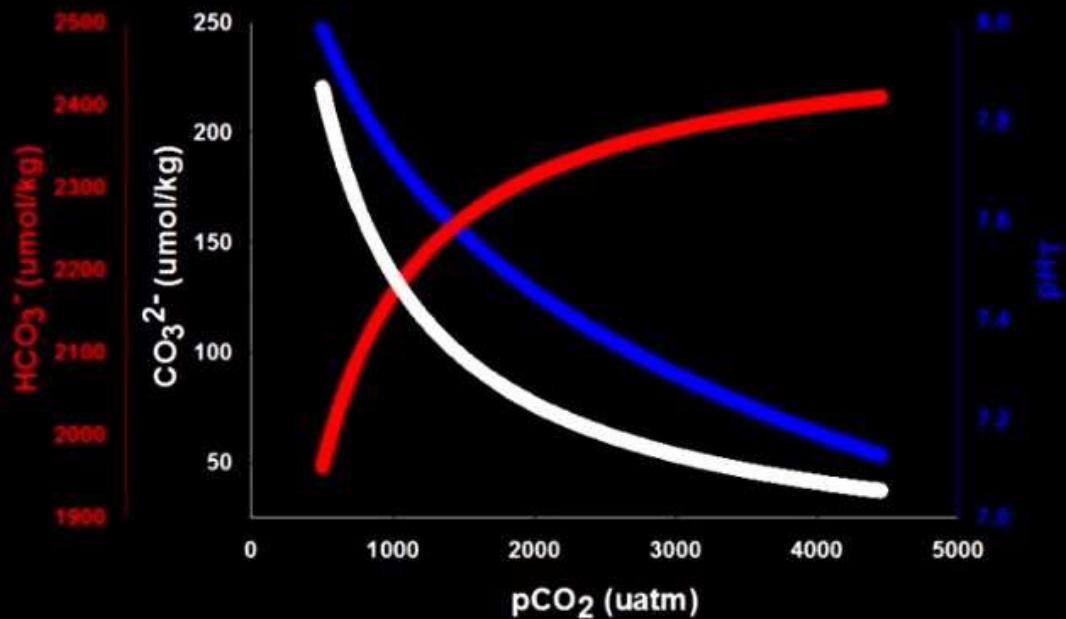
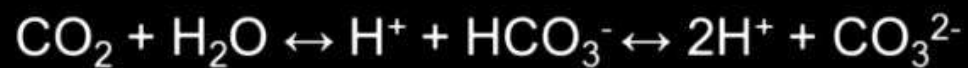


Ocean Acidification Research in Indonesia: Present and Future

Suratno

RCO-LIPI

Ocean acidification:

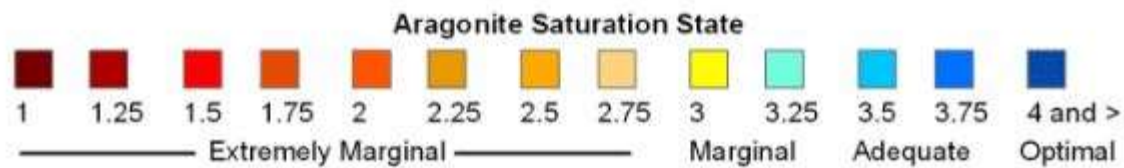


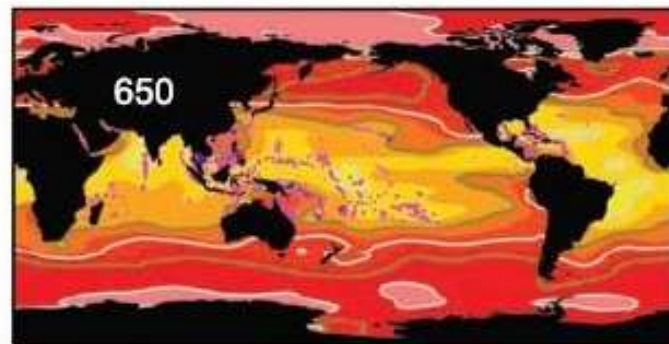
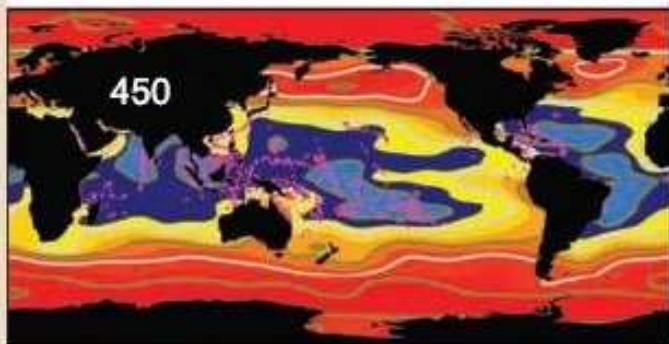
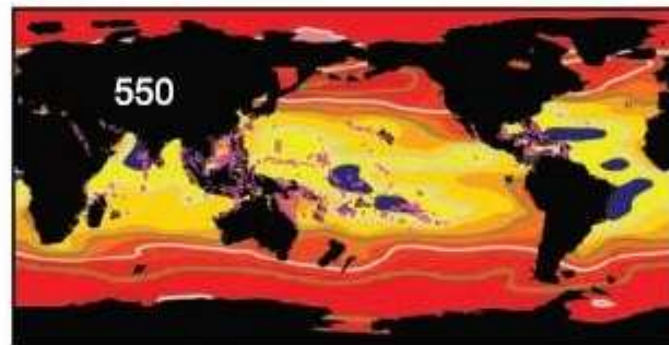
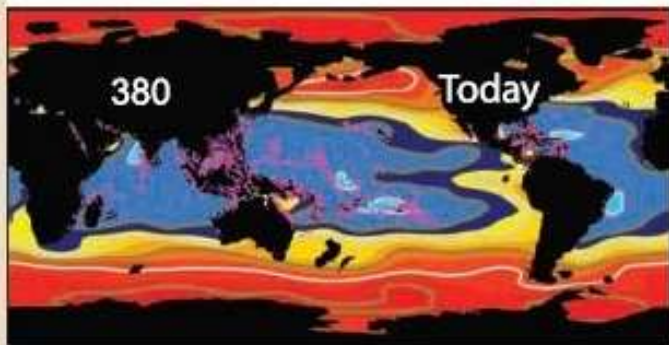
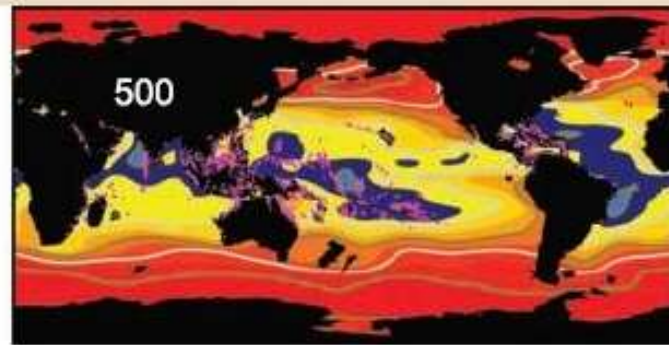
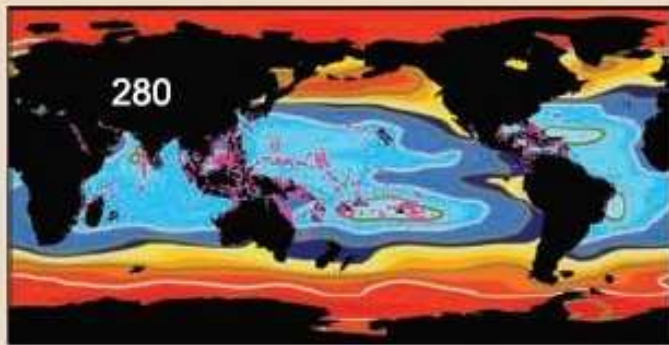


380 ppm CO₂
(2005)

450 ppm CO₂
(2030)

500 ppm CO₂
(2050)



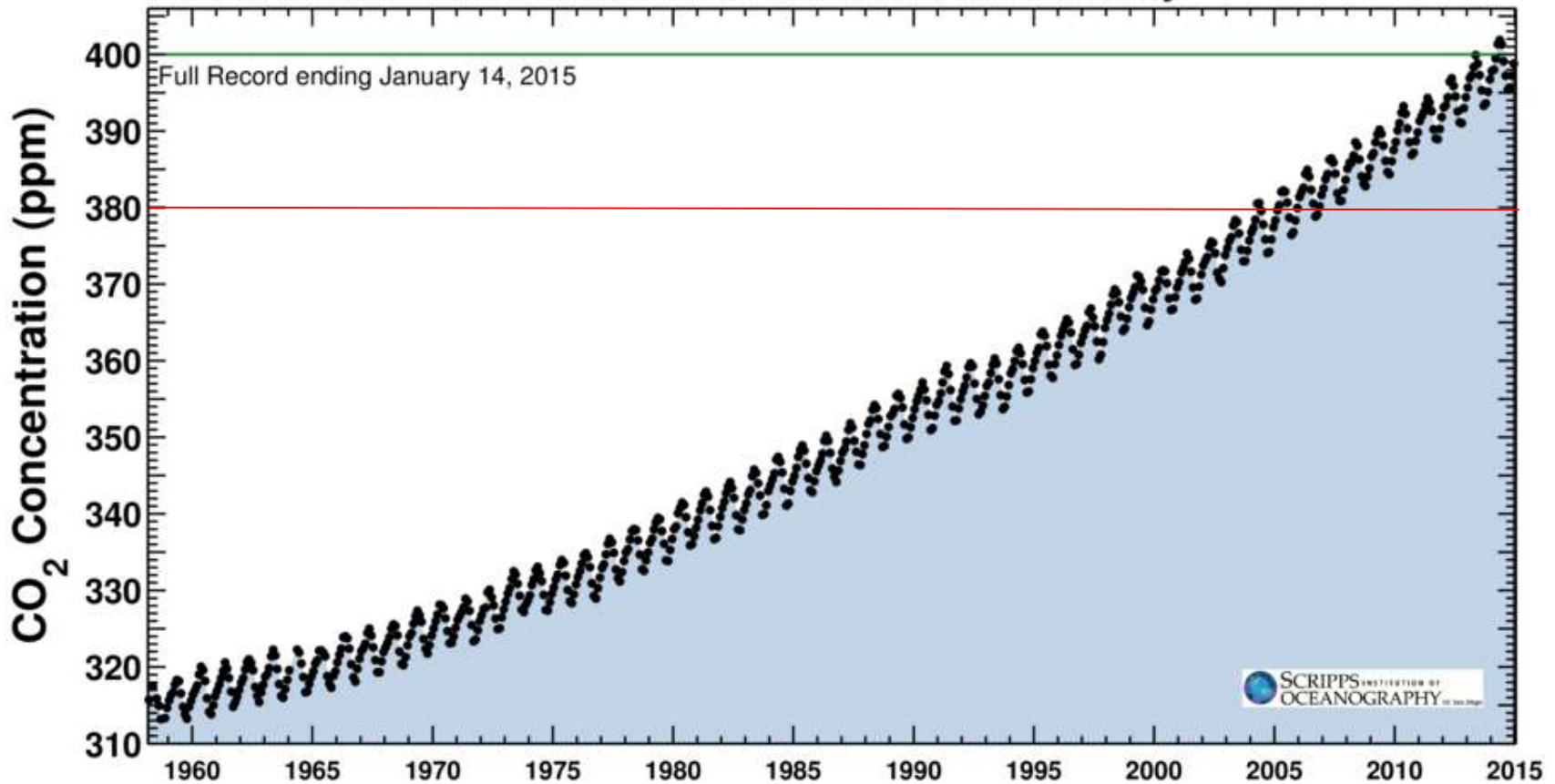


Hoegh-Guldberg et al. 2007

Latest CO₂ reading
January 12, 2015

401.48 ppm

Carbon dioxide concentration at Mauna Loa Observatory

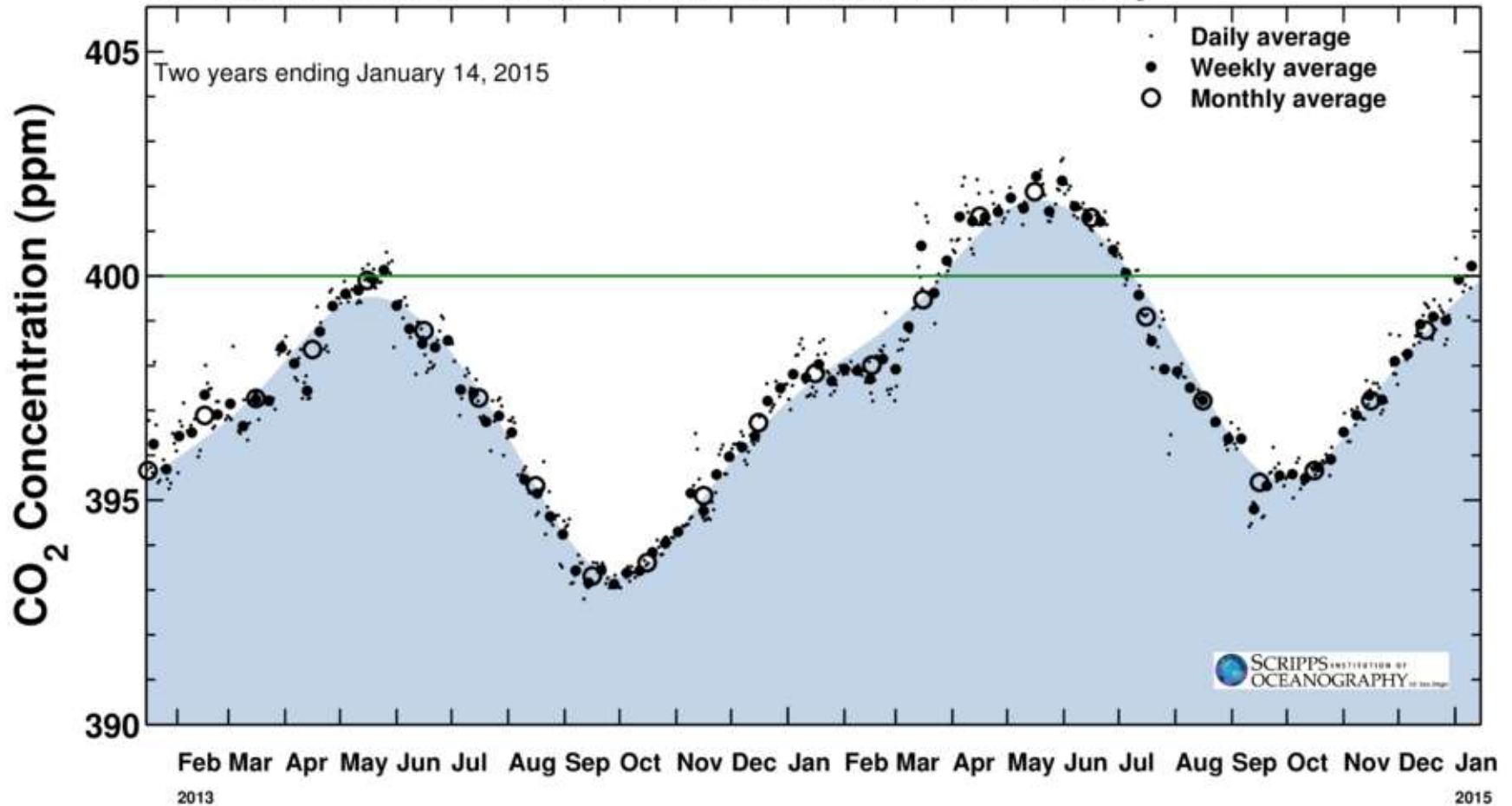


<https://scripps.ucsd.edu/programs/keelingcurve/>

Latest CO₂ reading
January 12, 2015

401.48 ppm

Carbon dioxide concentration at Mauna Loa Observatory



<https://scripps.ucsd.edu/programs/keelingcurve/>

Research in Indonesian sea

➤ Chemical aspect

➤ 2008

Pari Island (Seribu Island)

August $239.55 \mu\text{atm}$

November $201.97 \mu\text{atm}$

Cirebon Estuarine

August $406.57 \mu\text{atm}$

November $304.03 \mu\text{atm}$

- 2009
 - Banten Bay :
 - July (354.18 μatm)
 - August (322.8 μatm)
 - (Adi and Agustin, 2010)
- 2010
 - Donan Estuarine, Cilacap:
 - June (1018.53–1152.52 μatm)
 - (Afdal et. al, 2011)
 - Nasik Strait, Belitung
 - April (591.8–1,002.01 μatm)
 - (Afdal et al. 2012)
- 2011
 - Pari Island (April) : 260.7 μatm
 - Java Sea to Natuna Sea (April)
 - April (370–460 μatm)
 - (Prayitno et al. 2011)

➤ 2012

- Probolinggo Estuarine:

March (330.77–1997.66 μatm)

June (288.71 – 520.36 μatm)

(Afdal, 2014)

-Lombok, West Nusa Tenggara (April 2012)

Sekotong Bay (342.27 – 411.39 μatm)

Kodek Bay (217.19 – 369.89 μatm)

(Afdal, 2013)

-Maluku Area (April 2012)

Ternate (344.12–408.11 μatm)

Tidore (329.74–389.30 μatm)

Halmahera (308.18–415.58 μatm)

(Afdal and Giyanto, 2013)

-North Sulawesi

Buyat bay (414.17–608.29 μatm)

Ratatotok bay (428.18–516.97 μatm)

Manado bay (385.16–395.52 μatm)

Lembah strait (394.54–568.32 μatm)

(Nasprianto et al, 2014)

➤ 2013

Bintan (March): 249.65–354.38 μatm



Cocos



Biological aspect

➤ Lab experimental

Emiliana huxleyi, *Gephyrocapsa oceanica*,
Oschospaera sp. ==> 385 and 1000 ppm
CO₂ (Rukminasari et al, 2014)

➤ *Halimeda* sp. ==> 385, 750 and 1000ppm
CO₂ (Sahabuddin et al, 2014)

- Limited research and publication OA
 - High cost (time period)
 - No Specific area (wide area)
 - Monsoon (west and east monsoon)
- Future research
 - Experimental approach
 - RCO - COREMAP - University (joint research)



Thank You