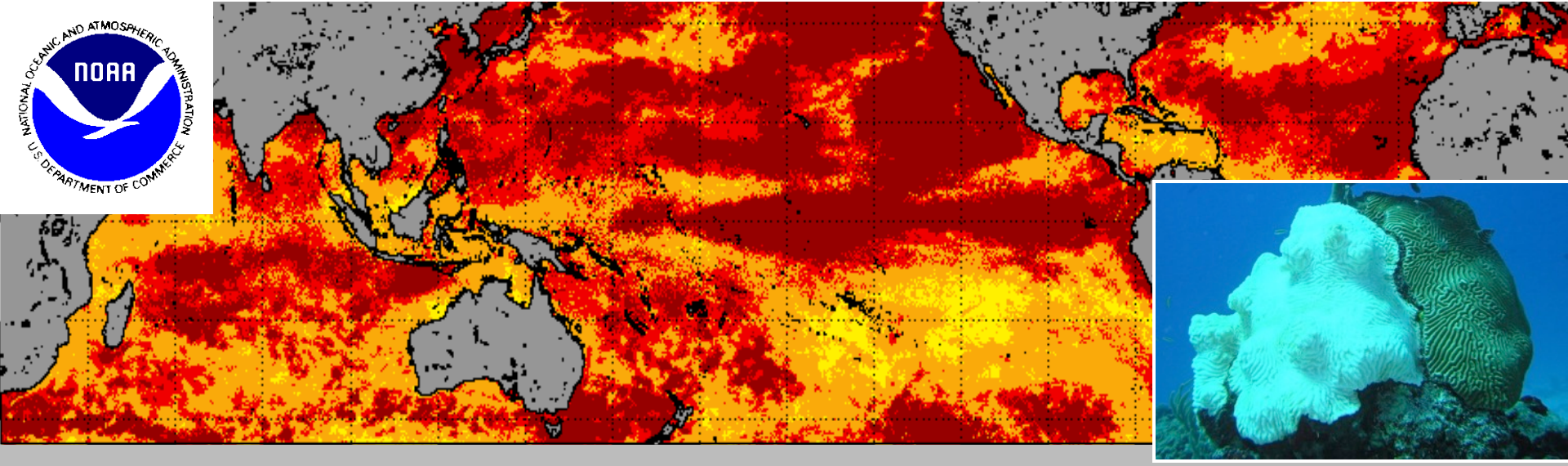


2 ½ Years and Counting: Monitoring and Documenting the Ongoing Global Coral Bleaching Event 2014-2017 (and Beyond?)

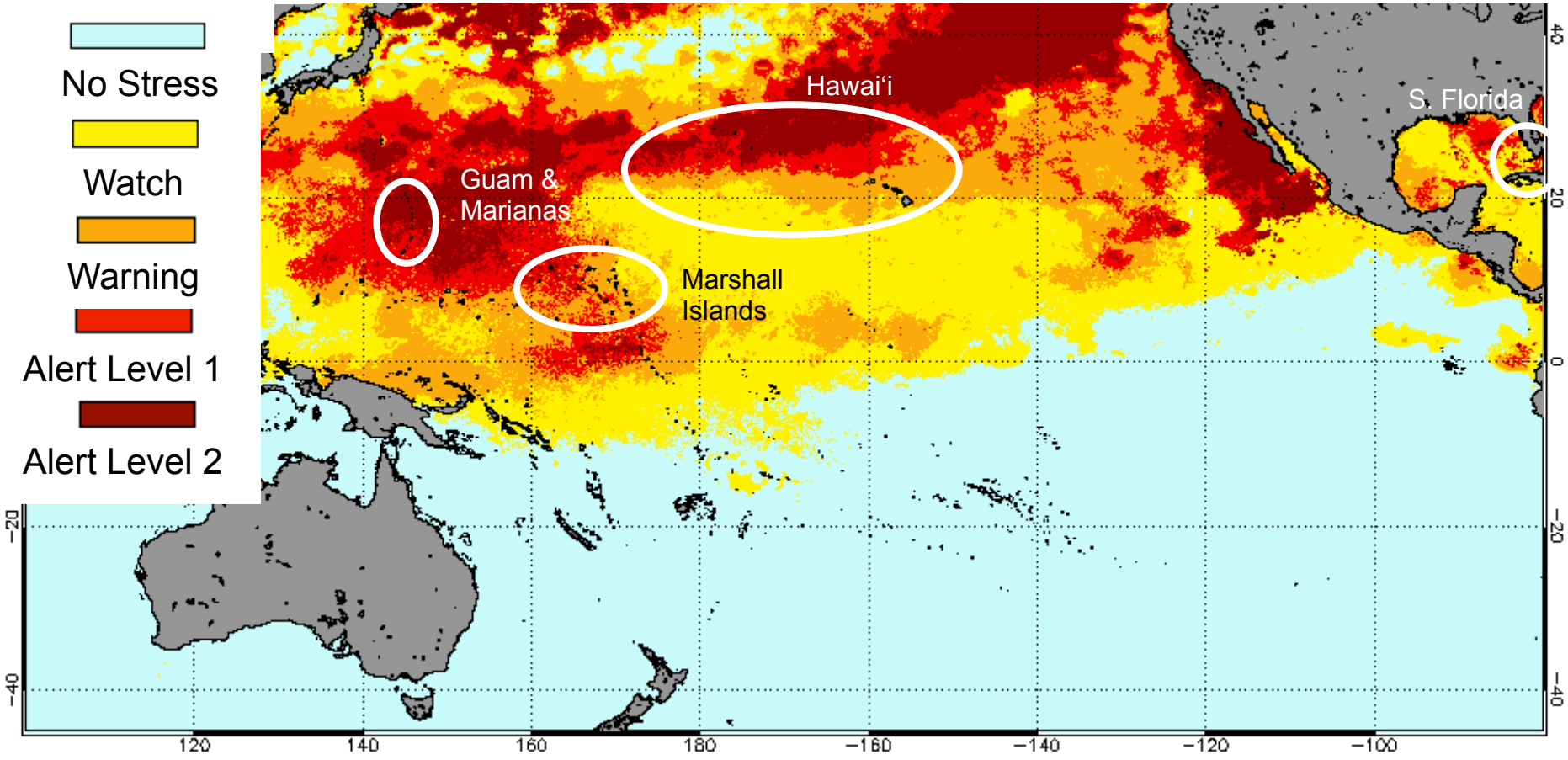
Dr. C. Mark Eakin

NOAA Coral Reef Watch

http://coralreefwatch.noaa.gov

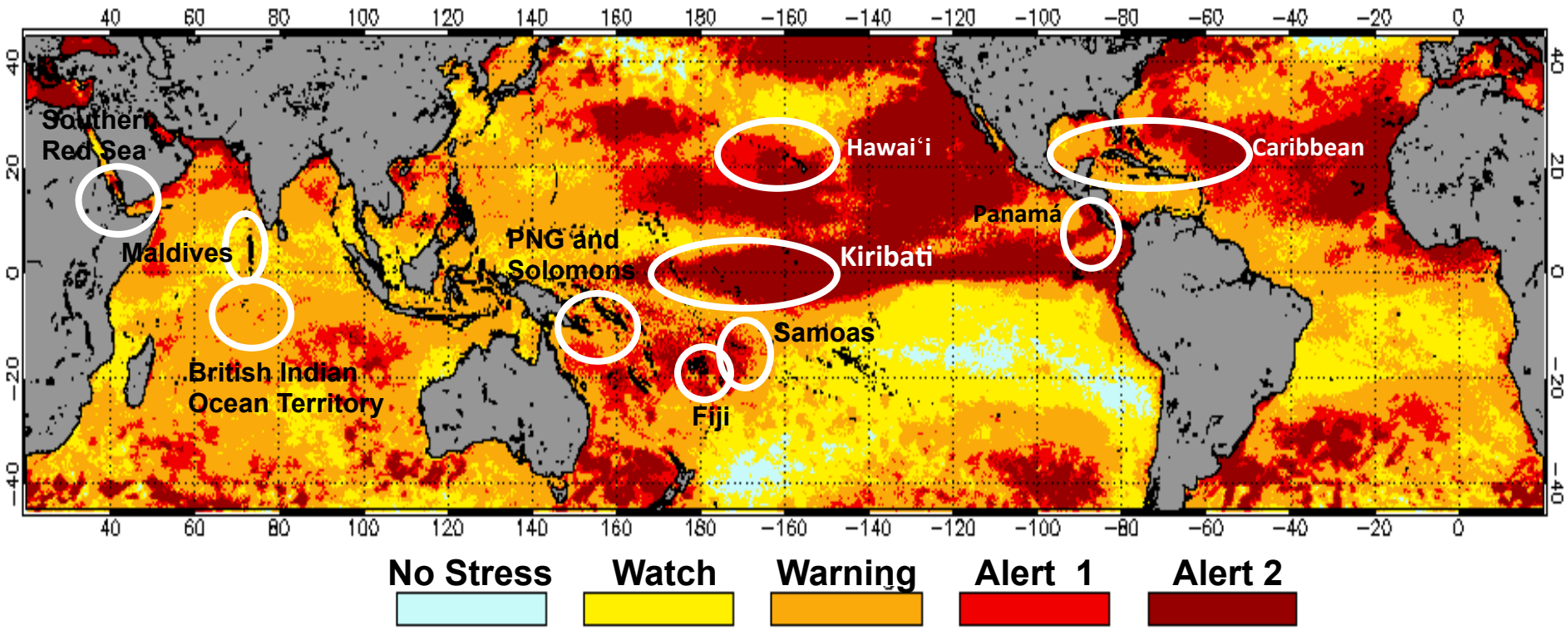
Global Bleaching: Last Half of 2014

NOAA Coral Reef Watch Annual Maximum Satellite Coral Bleaching Alert Area 2014



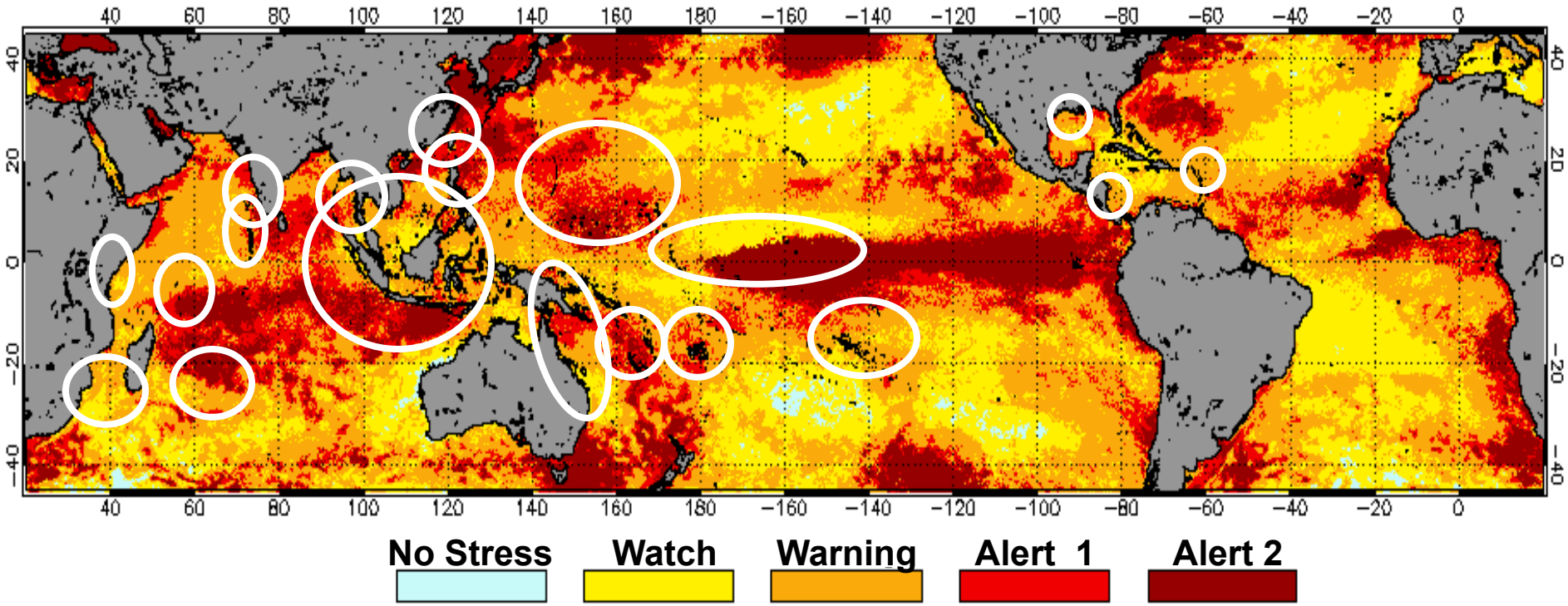
Global Bleaching: 2015

NOAA Coral Reef Watch Annual Maximum Satellite Coral Bleaching Alert Area 2015



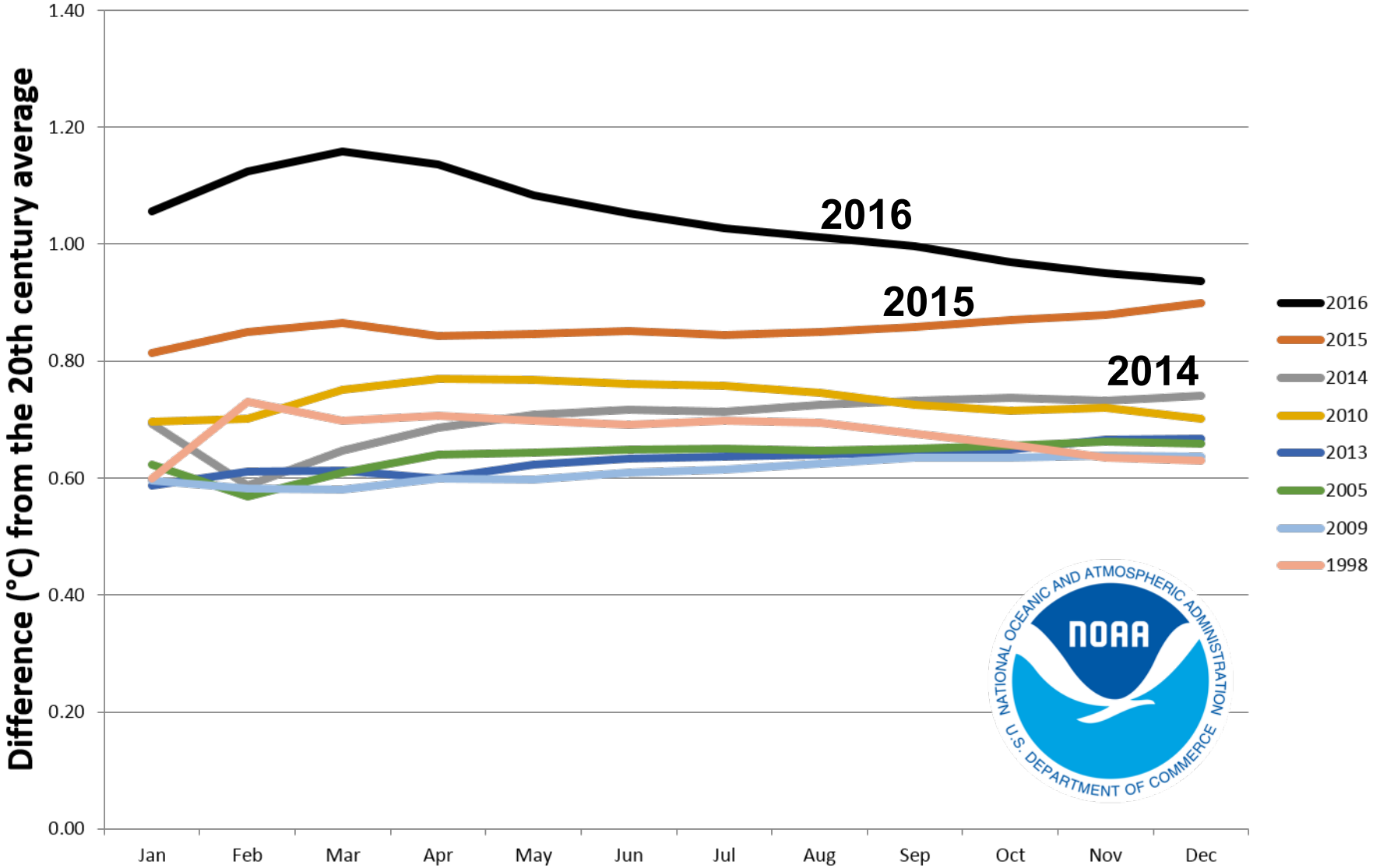
Global Bleaching: 2016

NOAA Coral Reef Watch Maximum Satellite Coral Bleaching Alert Area 2016



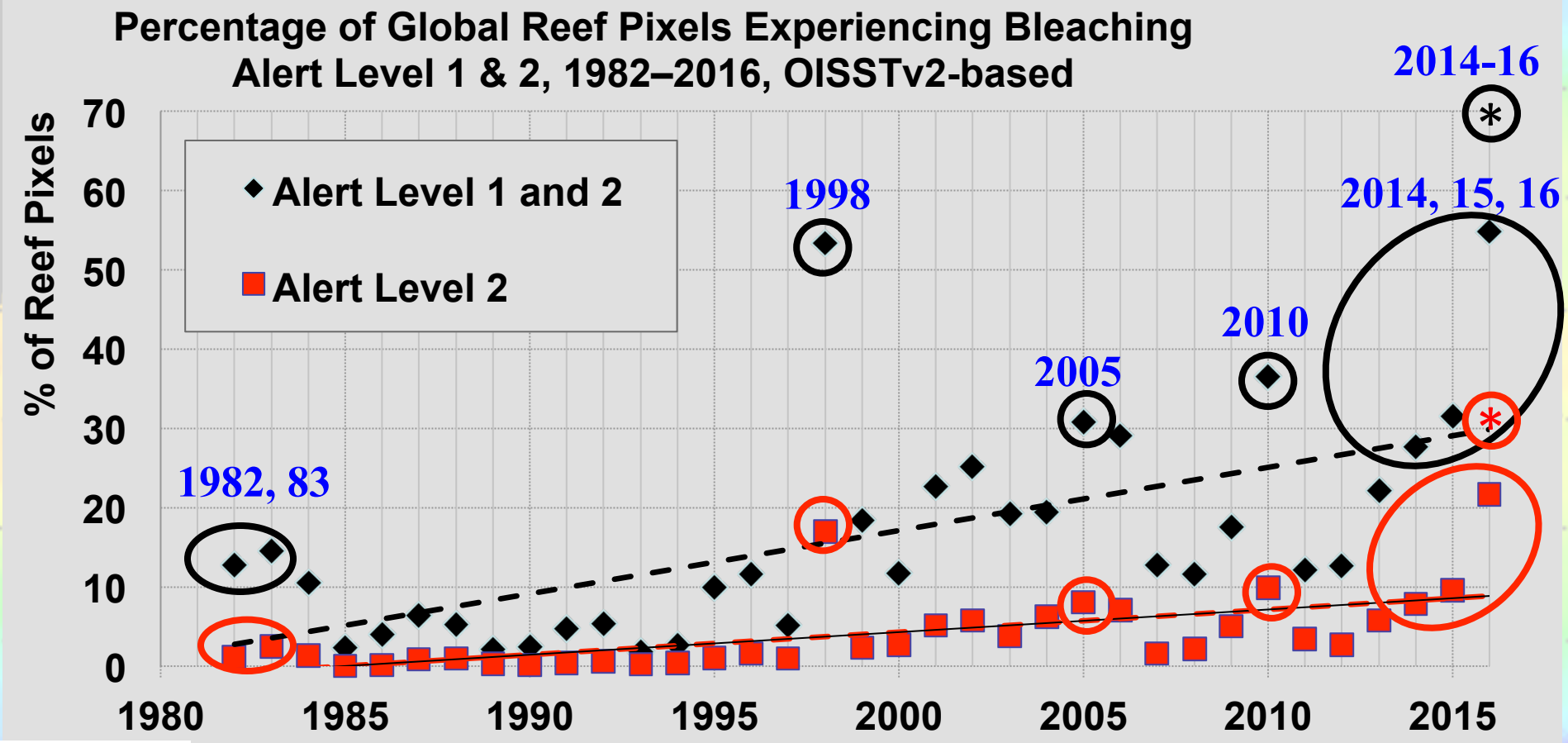
Western India	Taiwan	Vietnam	Marianas	Kiribati
Seychelles Maldives	Philippines	New Caledonia	Palau	French Polynesia
Kenya/Tanzania	Réunion	Thailand	Fiji	Flower Gardens
Mozambique	Mauritius	Indonesia	Micronesia	Yucatan
Madagascar	Maldives	Japan	Marshall Is.	Saba
		E. Australia		Belize

2016: Warmest Year Ever for 3rd Year in a Row



http://www.ncdc.noaa.gov/sotc/global/2016/12/supplemental/page-2

Ocean Warms, Bleaching Increases

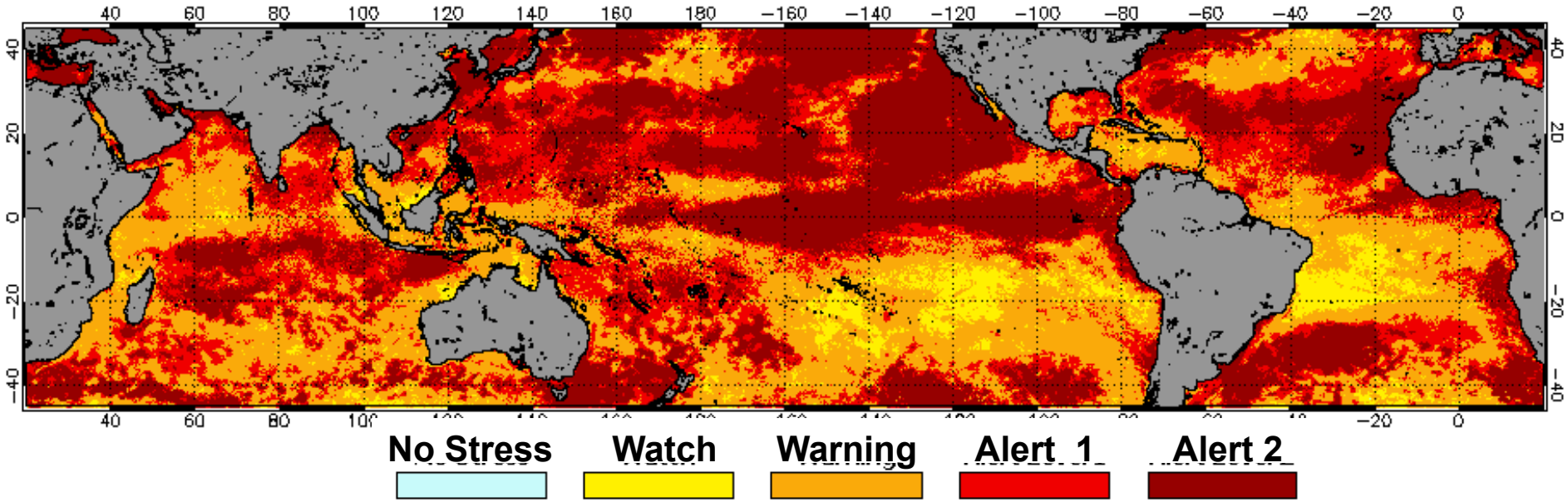


http://coralreefwatch.noaa.gov

June 2014-Dec. 2016 Thermal Stress

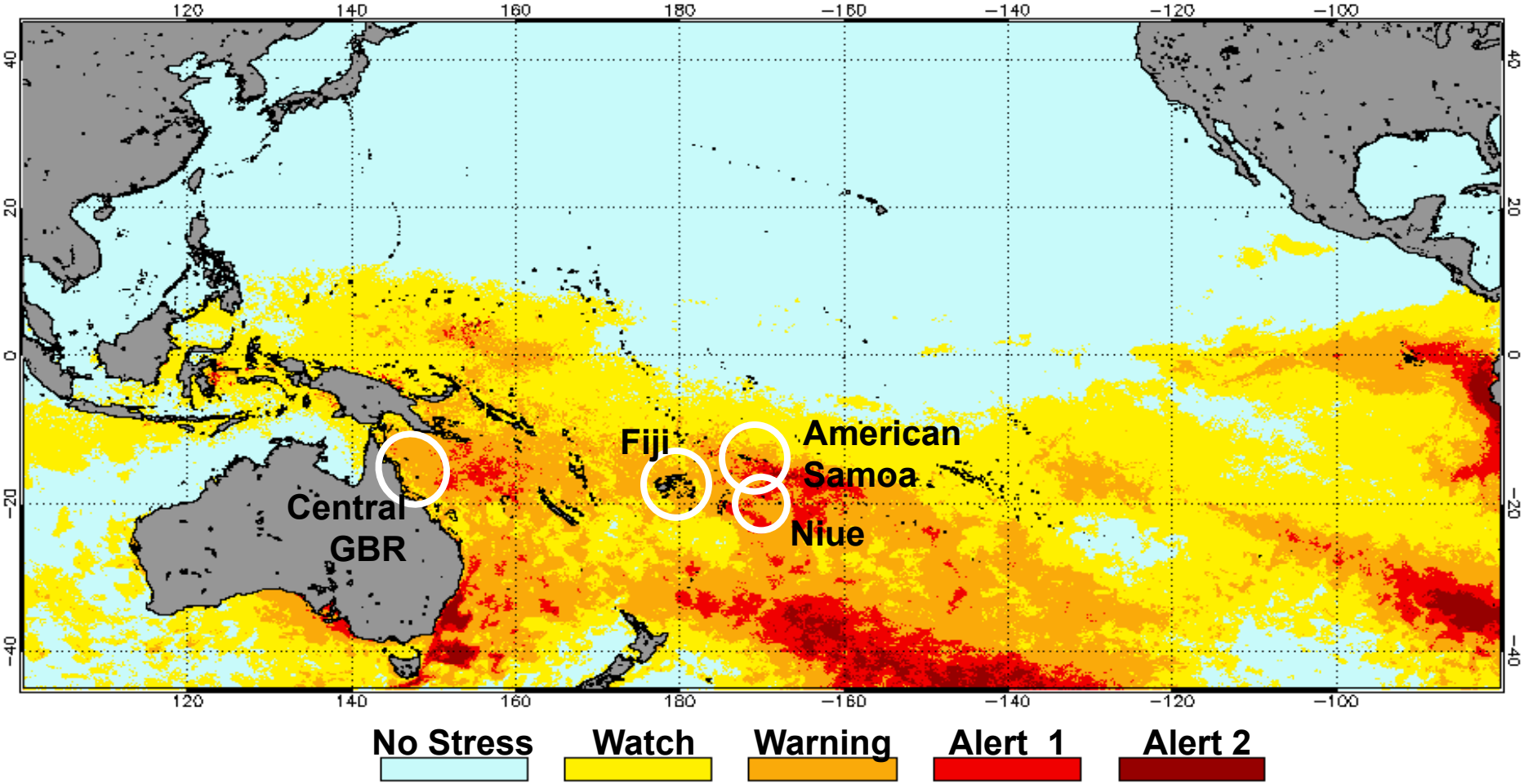
- Longest global bleaching event ever
- Most widespread global bleaching event ever
- Over ½ exposed twice (Guam 4 years in a row)
- ~100% stressed

NOAA Coral Reef Watch Maximum Satellite Coral Bleaching Alert Area Jan. 2014-Dec. 2016

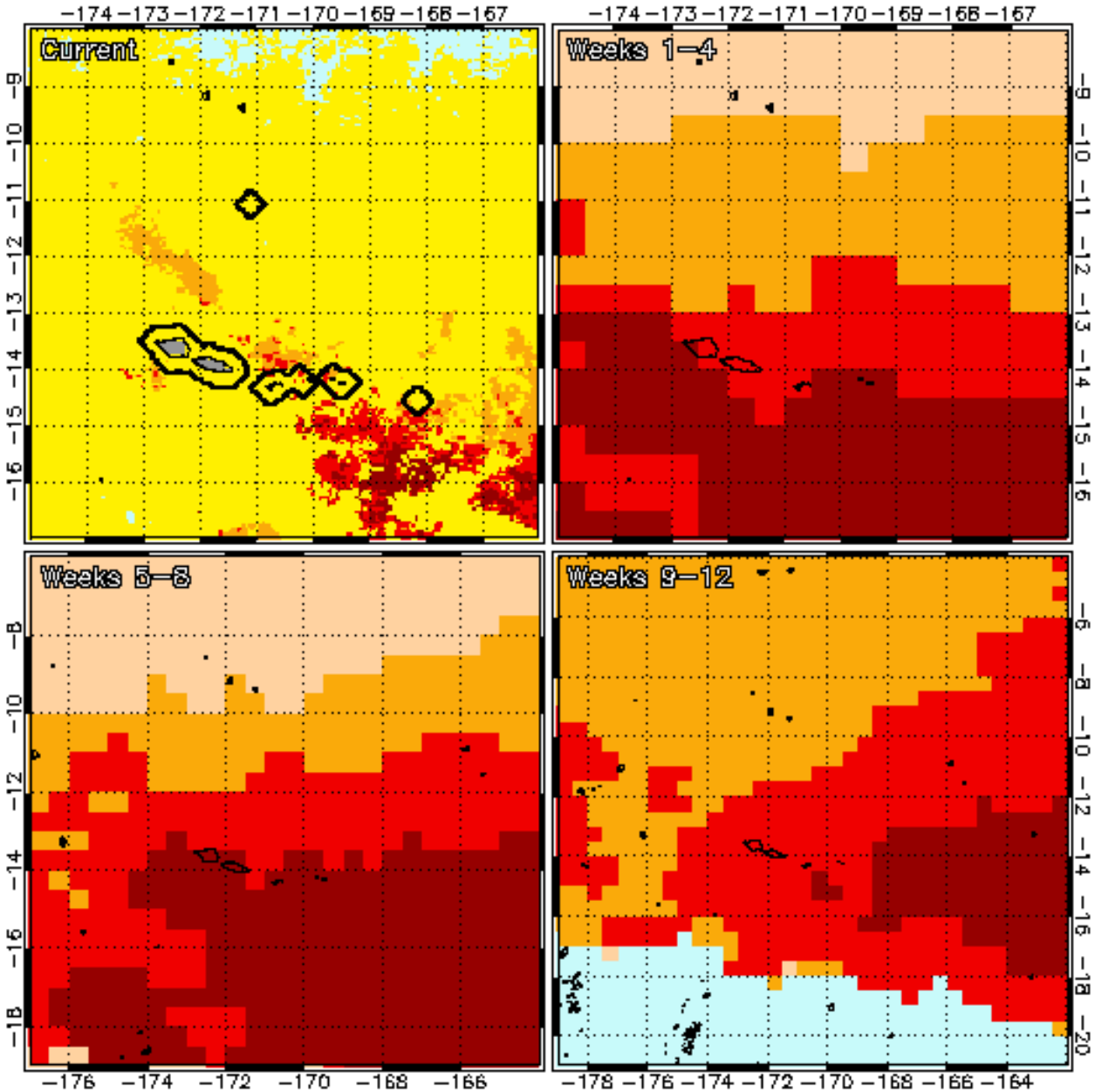


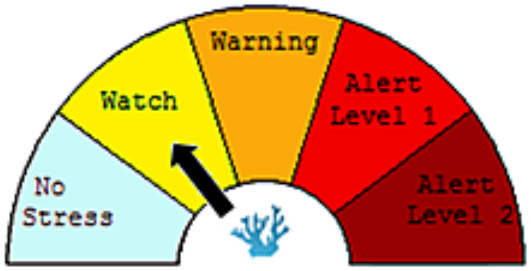
Global Bleaching: 2017 to date

NOAA Coral Reef Watch Maximum Satellite Coral Bleaching Alert Area 2017 Through 20 Feb.



Samoas Satellite Coral Bleaching Alert Area and Outlook
2017-02-20





Current Coral Bleaching Alert Level

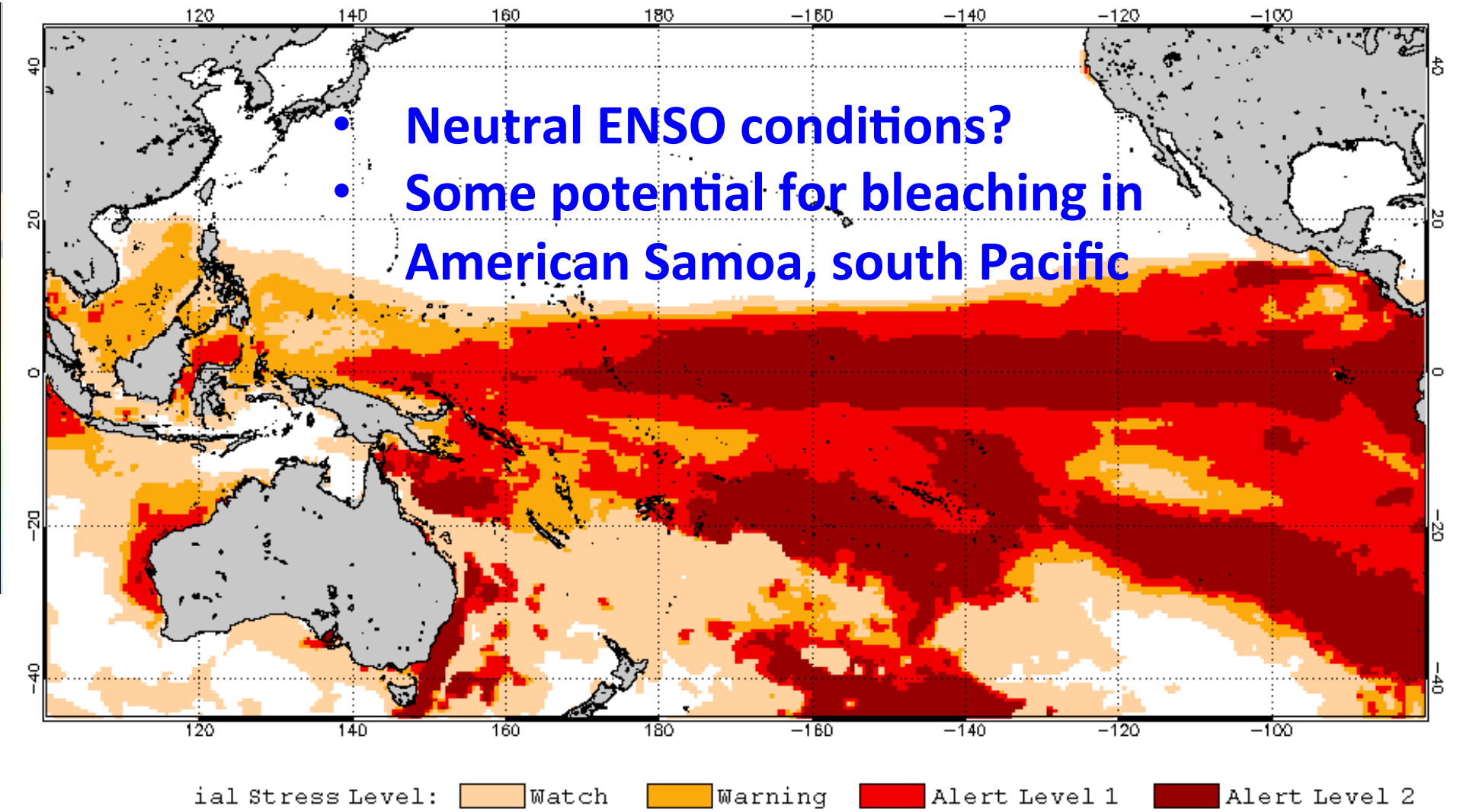
Coral Bleaching Alert Level
Outlook Weeks 1–4

Coral Bleaching Alert Level
Outlook Weeks 5–8

Coral Bleaching Alert Level
Outlook Weeks 9–12

Bleaching Risk Through June 2017

2017 Feb. 21 NOAA Coral Reef Watch 60% Probability Coral Bleaching Thermal Stress for March-June



- Neutral ENSO conditions?
- Some potential for bleaching in American Samoa, south Pacific

Key Messages

2014-16 Bleaching:

- **Longest, most widespread, often repeated bleaching**
- **> 40% of global reefs affected**
- **72% of US reefs affected**

2017 Bleaching?

- **Potential for more bleaching in American Samoa**
- **Potential in northern hemisphere unknown**

Summary paper and Special Issue on 2014-16 Global Coral Bleaching

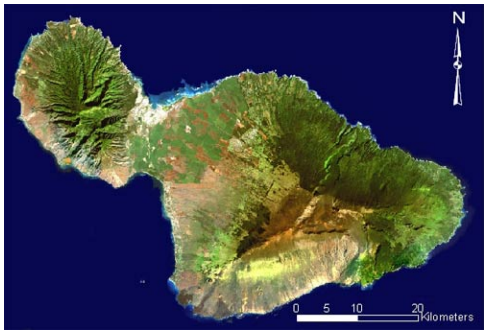
- **Premiered at Sundance Film Festival, January 2017**
- **Won Audience Award for Best US Documentary**
- **Planning for public screening at Florida USCRTF meeting**

50reefs.org

50 Reefs Launch Video
50
REEFS™
Bloomberg Philanthropies
THE PAUL G. ALLEN FAMILY FOUNDATION
THE TIFFANY & CO. FOUNDATION
1:39 / 1:52
HD
YouTube

Climate Change & Ocean Acidification Working Group

- Moving forward with 4 foci:
  - Mainstream climate change into local management
  - Mainstream climate change into USCRTF activities and products
  - Support & facilitate outcomes on the ground
  - Communicate/translate to public & stakeholders
- Webinar series (ongoing since Jan. 2015)
- Corals & Climate Adaptation Planning (CCAP) Project (2013-present)
  - Key partners: EPA, NOAA, DOI, TNC, CCWG, TetraTech
  - Focus: Steps 4 & 5 of planning cycle
  - Hawaii stakeholder workshop

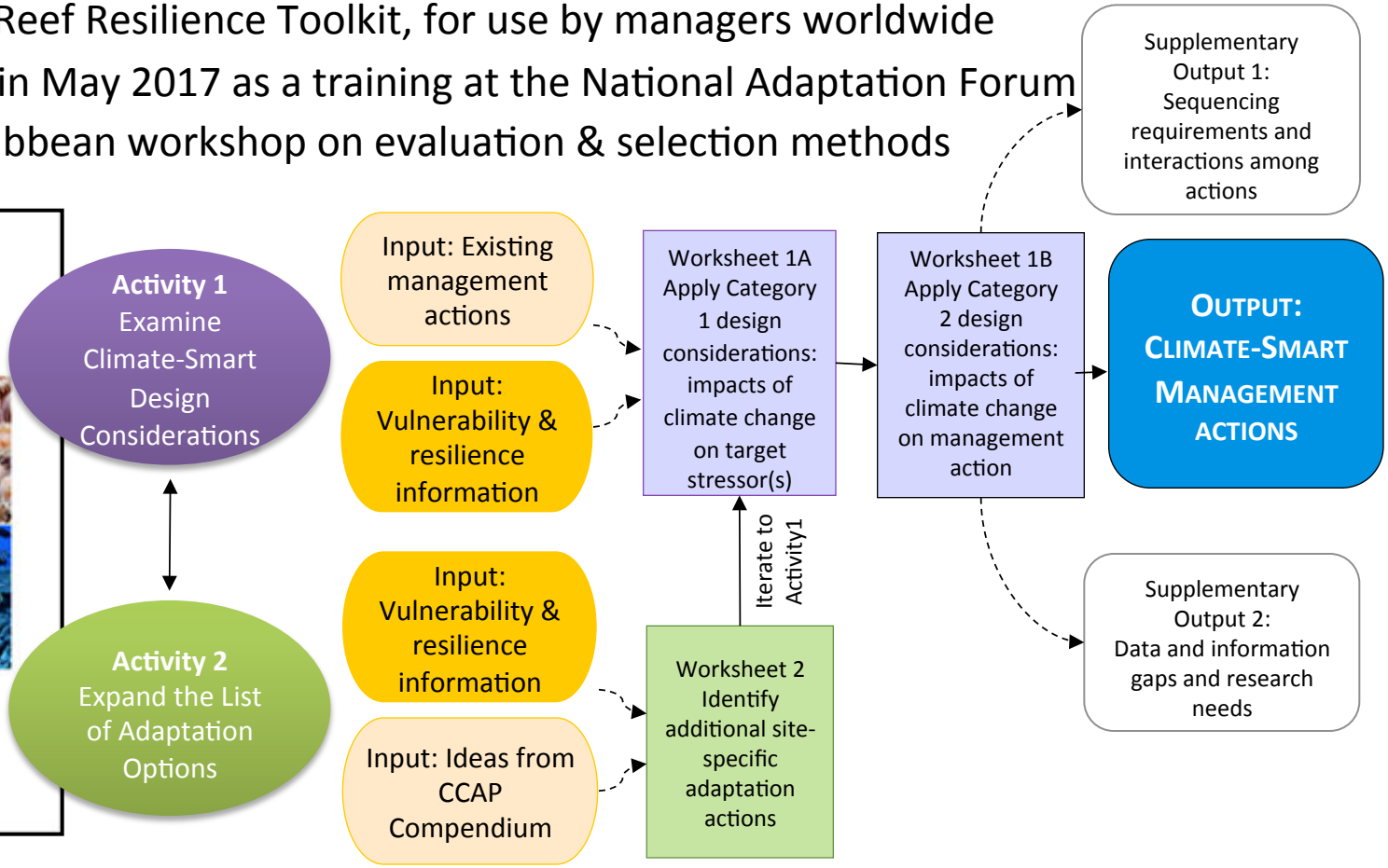


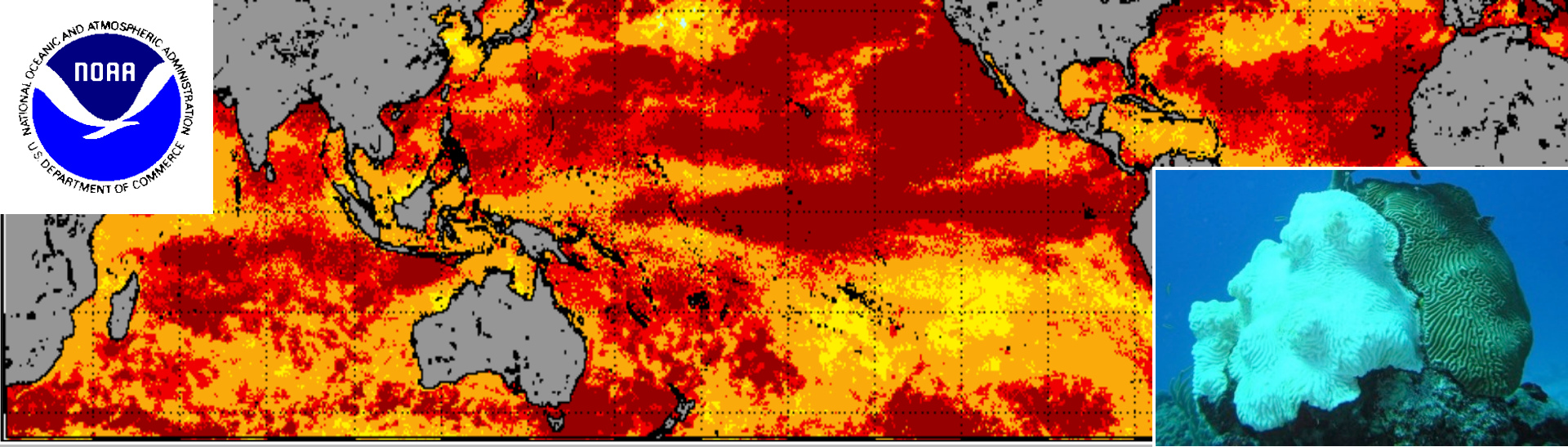
Journal article:
West et al. 2016. Climate-Smart Design for Ecosystem Management: A Test Application for Coral Reefs. Environmental Management doi 10.1007/s00267-016-0774-3

Climate-Smart Conservation Cycle with Adaptation Design Framework

CCAP Project
Adaptation Design Tool

- Tool for integrating climate change information into the design of management actions
- User guide (Parker et al. 2017): https://www.coris.noaa.gov/activities/CCAP_design/
- Tested with practitioners in the Pacific (West Maui) and Caribbean (Guánica Bay)
- In development for June 2017: online learning module for The Nature Conservancy's Reef Resilience Toolkit, for use by managers worldwide
- To be featured in May 2017 as a training at the National Adaptation Forum
- Next steps: Caribbean workshop on evaluation & selection methods





Questions?

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