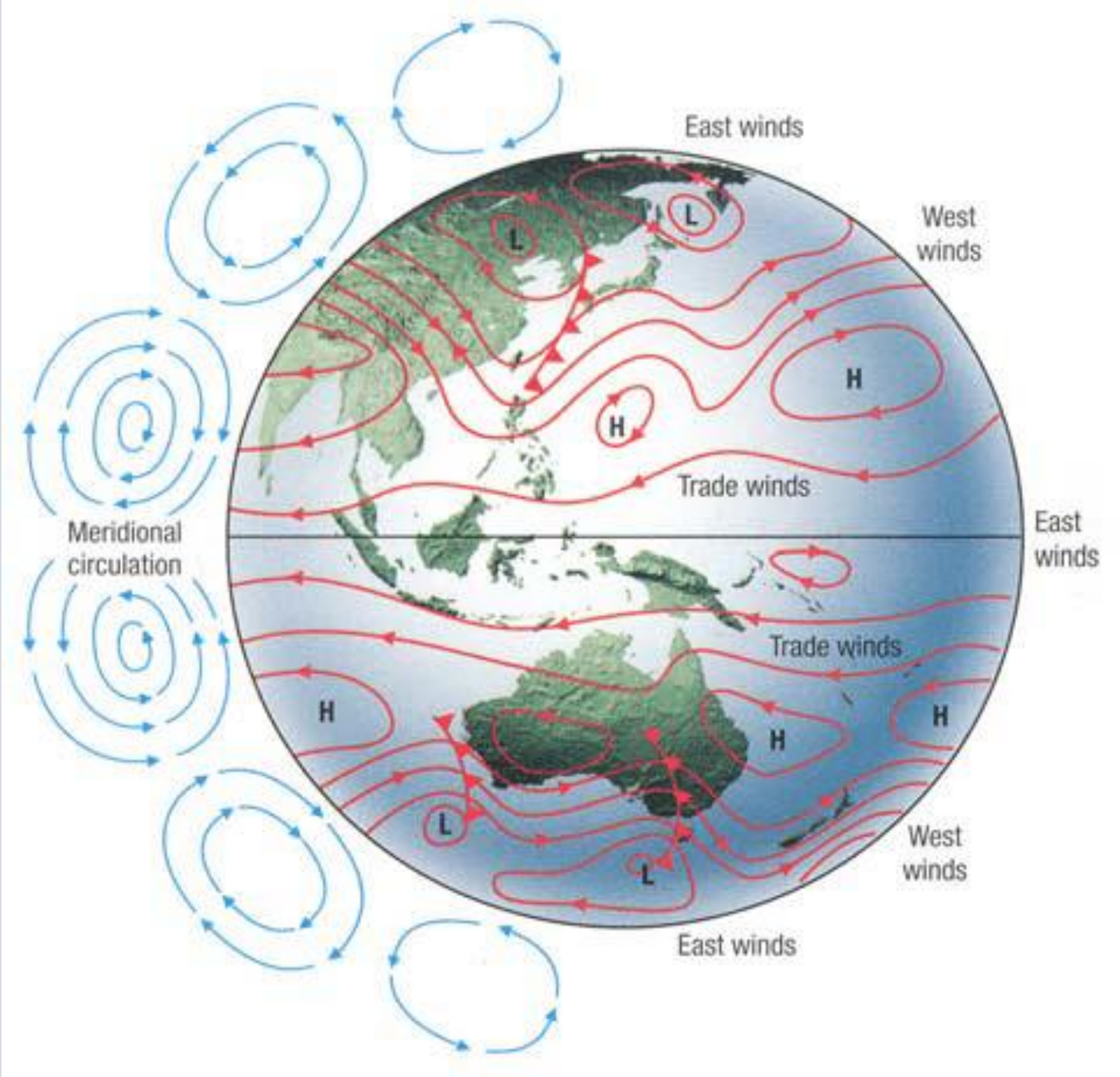
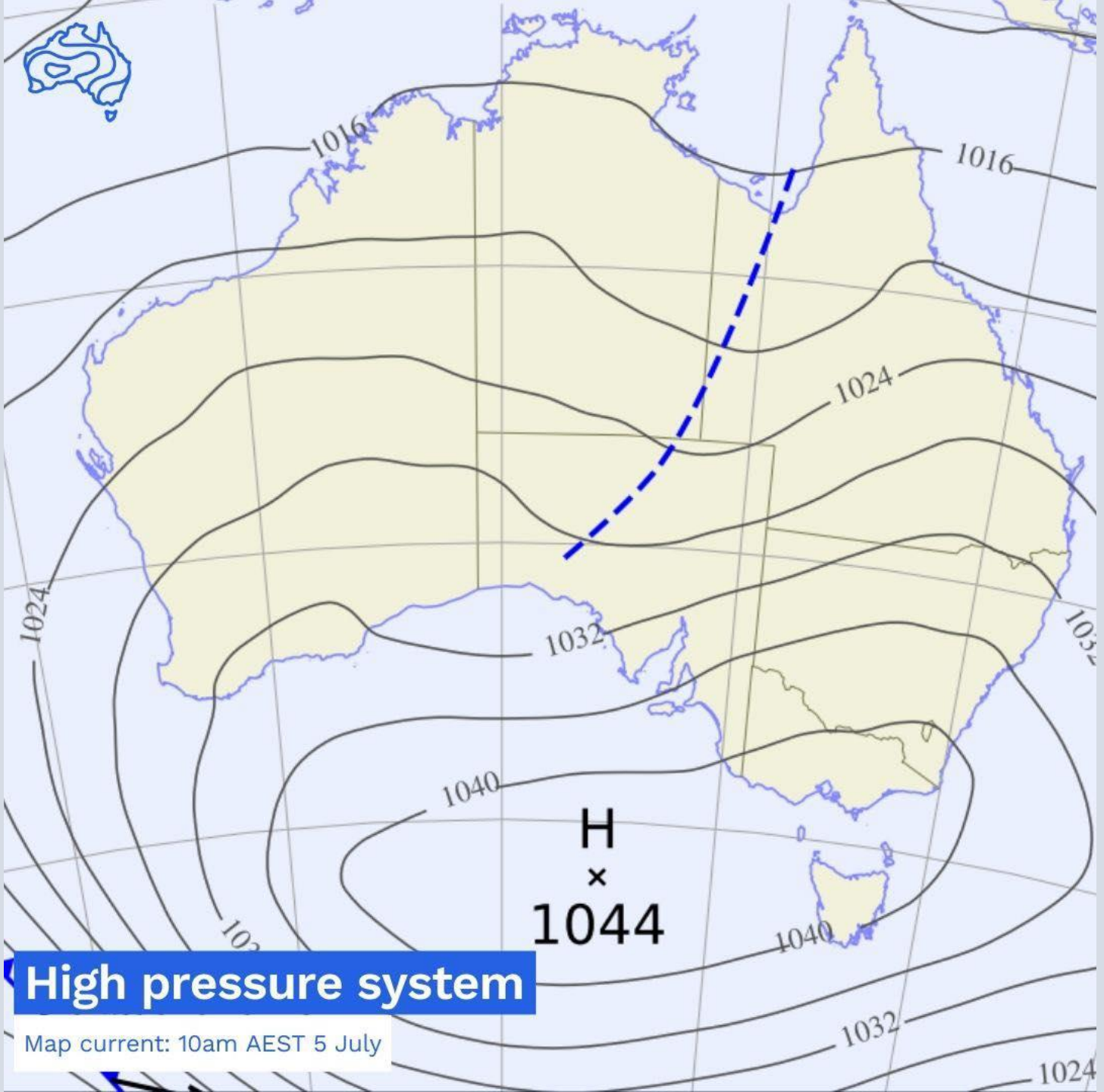
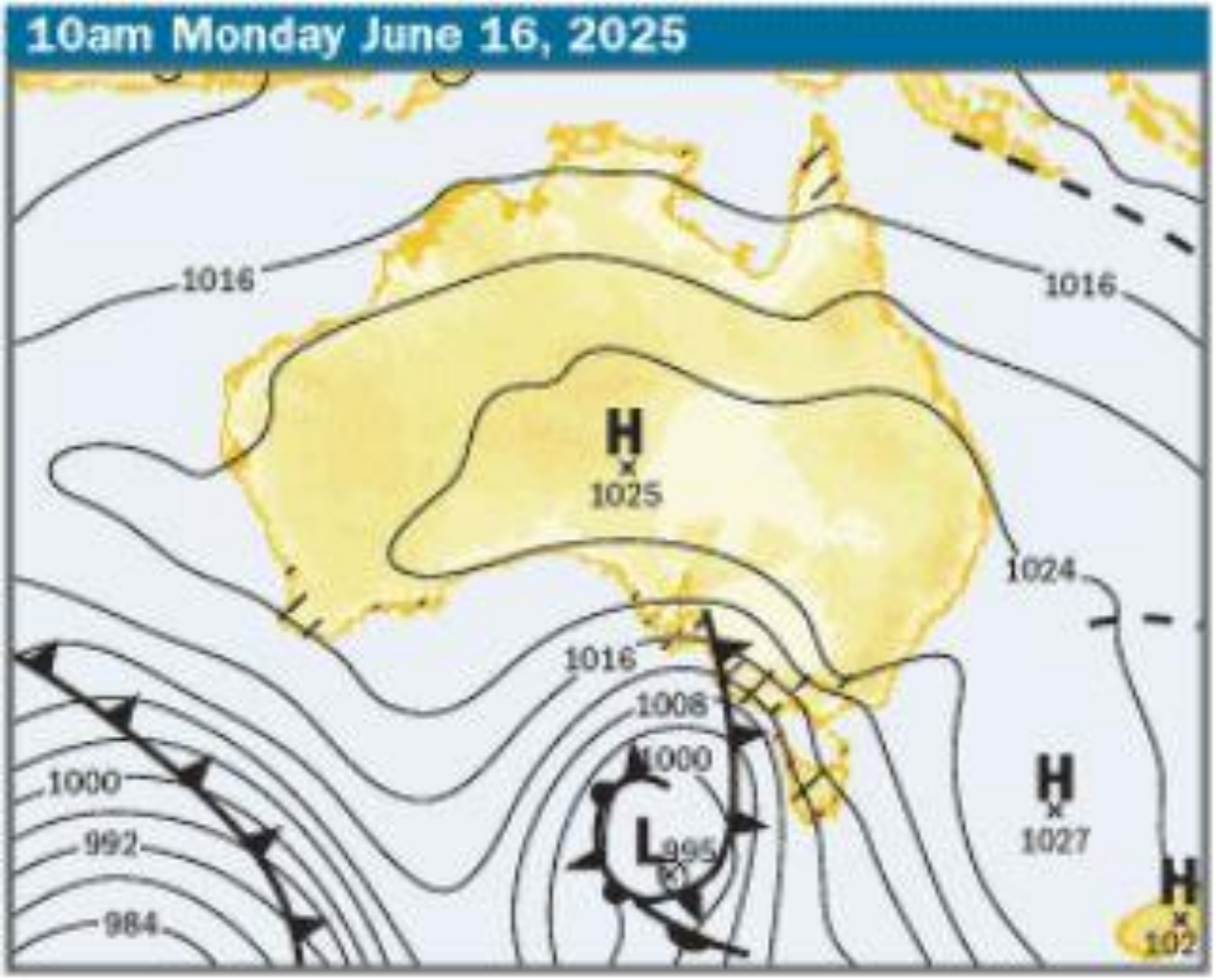
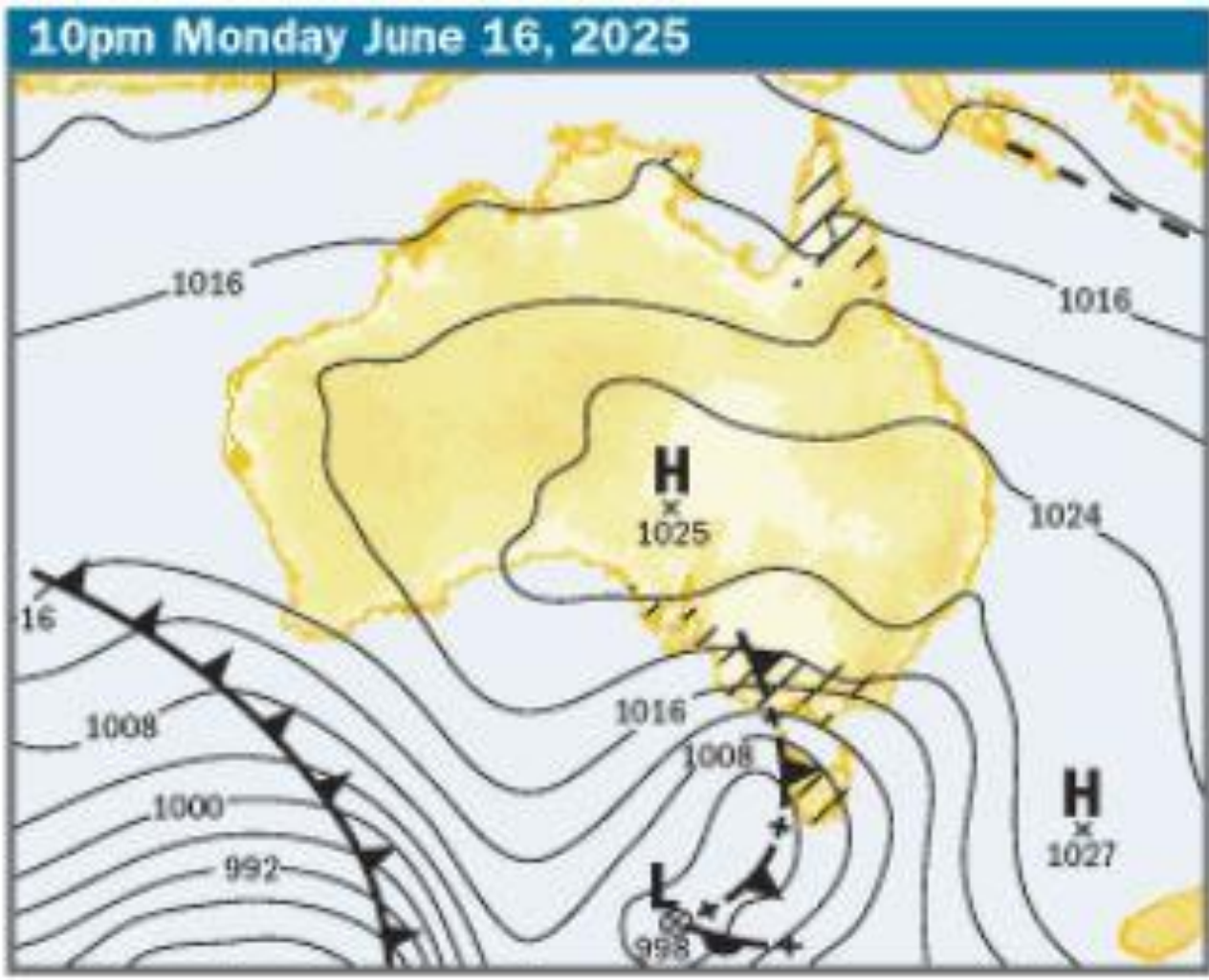
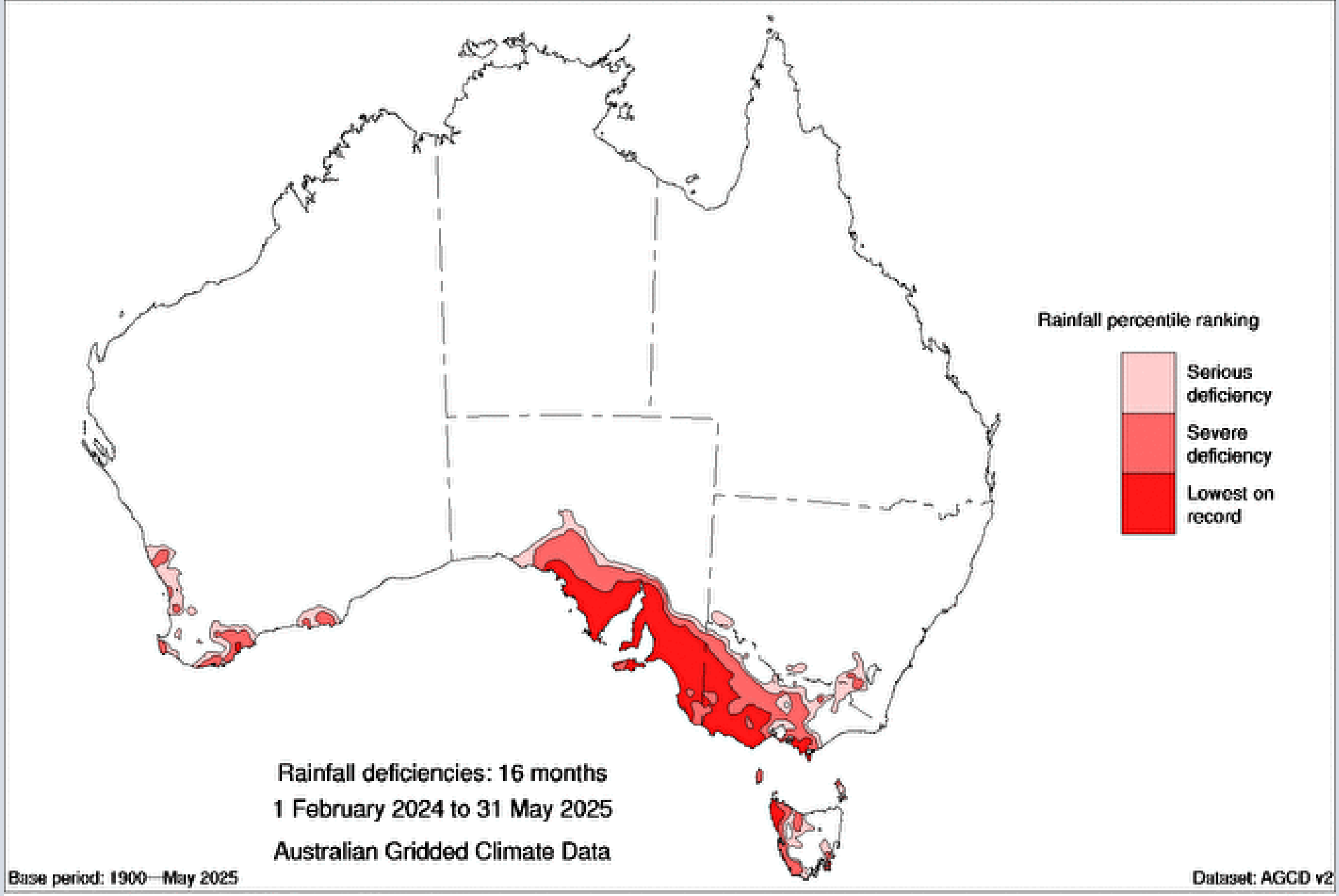

East winds
West winds
L
L
H
H
Trade winds
East winds
Meridional circulation
Trade winds
H
H
H
L
L
West winds
East winds

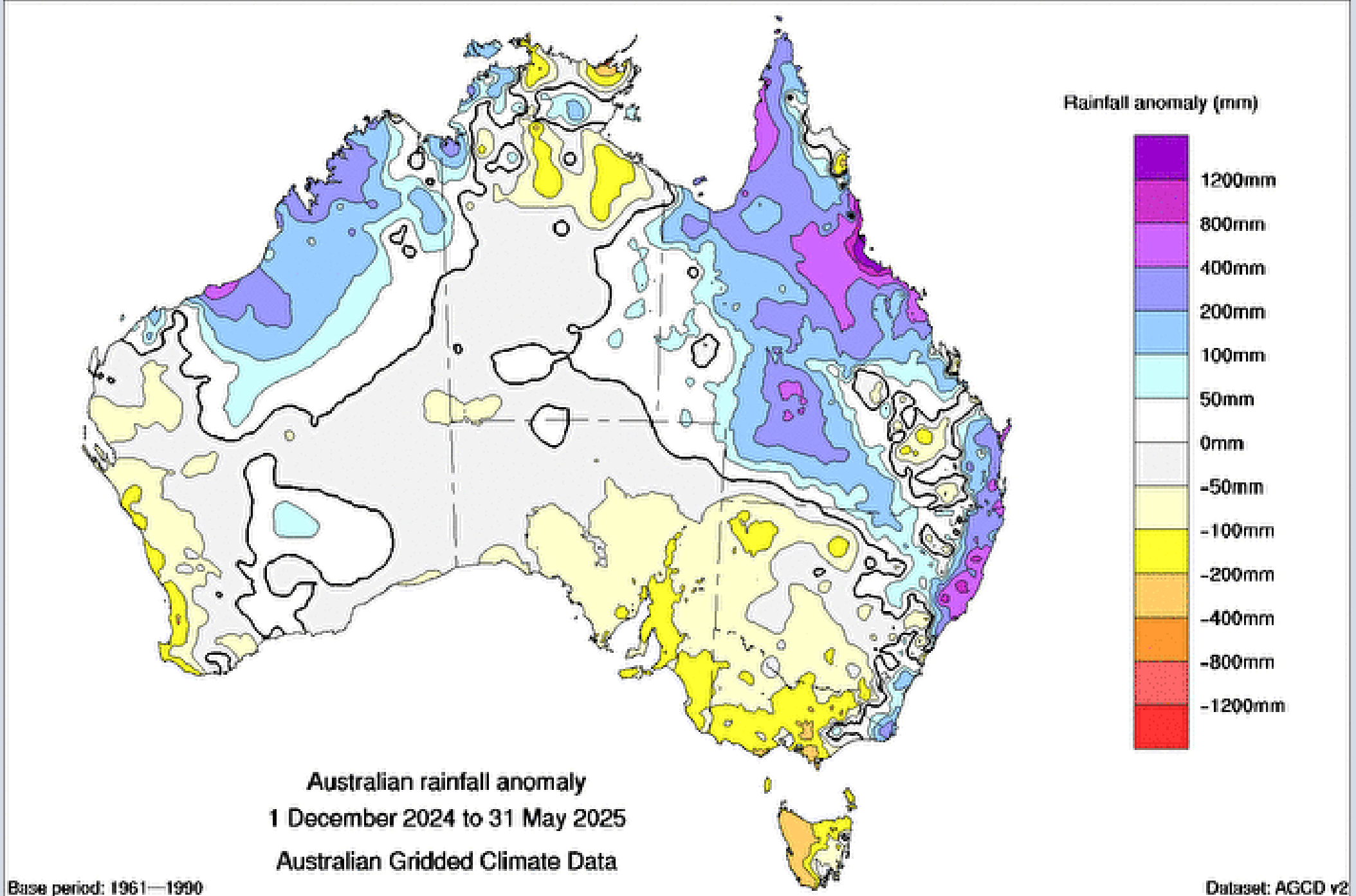

1016
1016
1024
1024
1032
1040
H
×
1044
1040
1032
1024
High pressure system
Map current: 10am AEST 5 July


10am Monday June 16, 2025
1016
1016
H
1025
1024
1016
1008
1000
1000
992
984
L
995
H
1027
H
102


10pm Monday June 16, 2025
1016
1016
H
1025
1024
16
1008
1016
1008
1000
992
L
998
H
1027

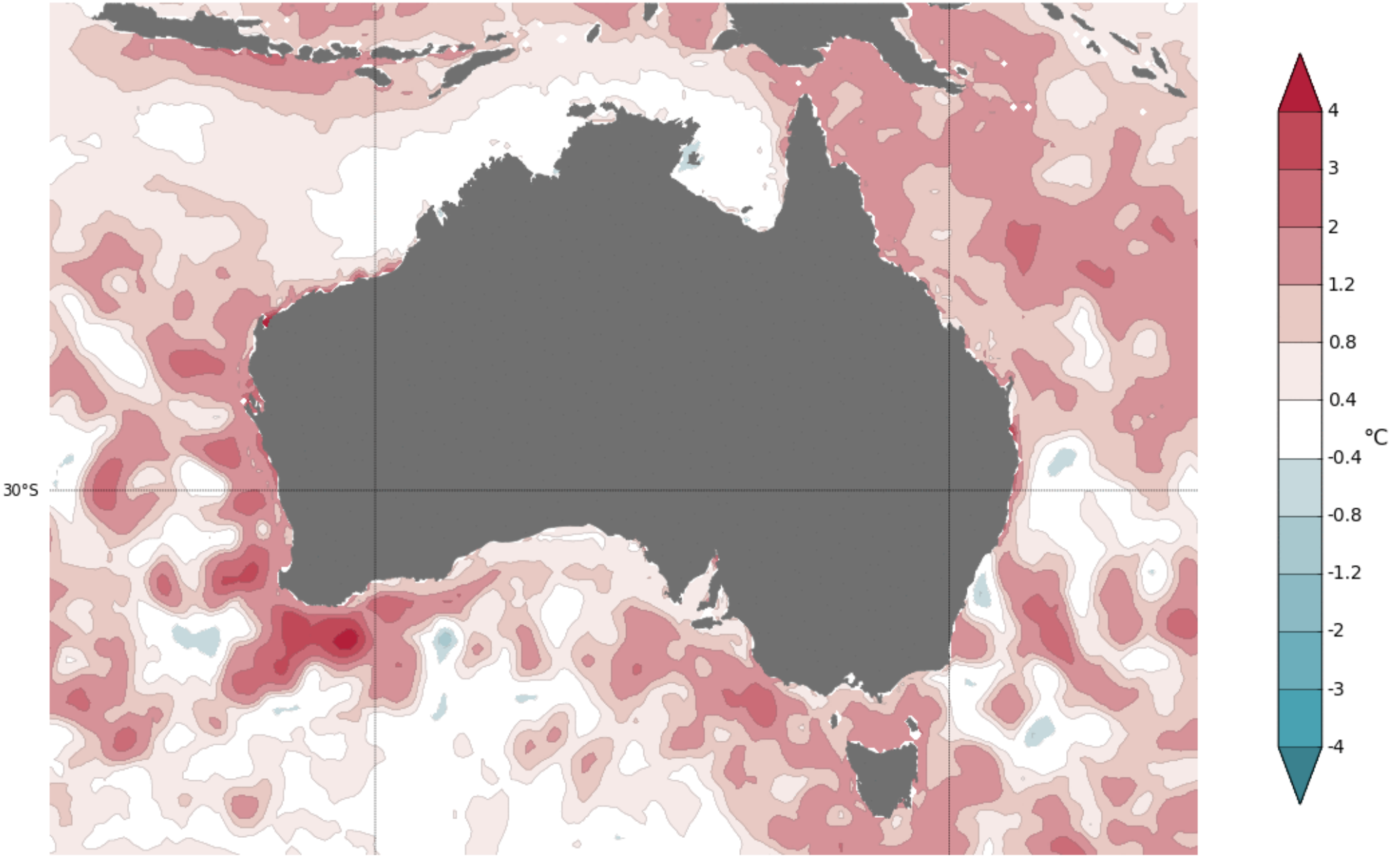


Issued: 04/06/2025



Issued: 31/05/2025

Sea surface temperature anomaly: 02/06/2025 to 08/06/2025

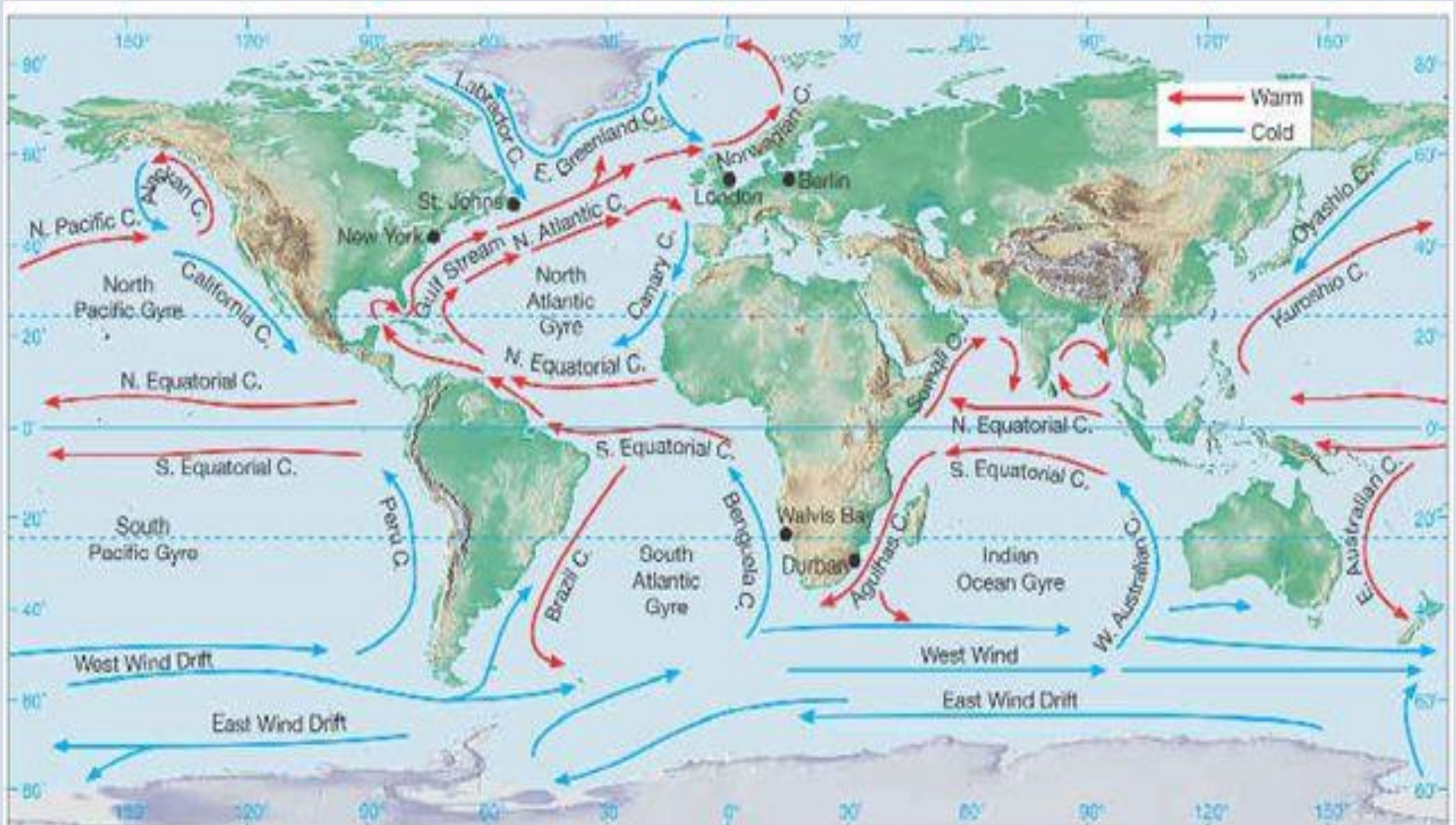


Data: GAMSSA
Climatology baseline: 1991 to 2020

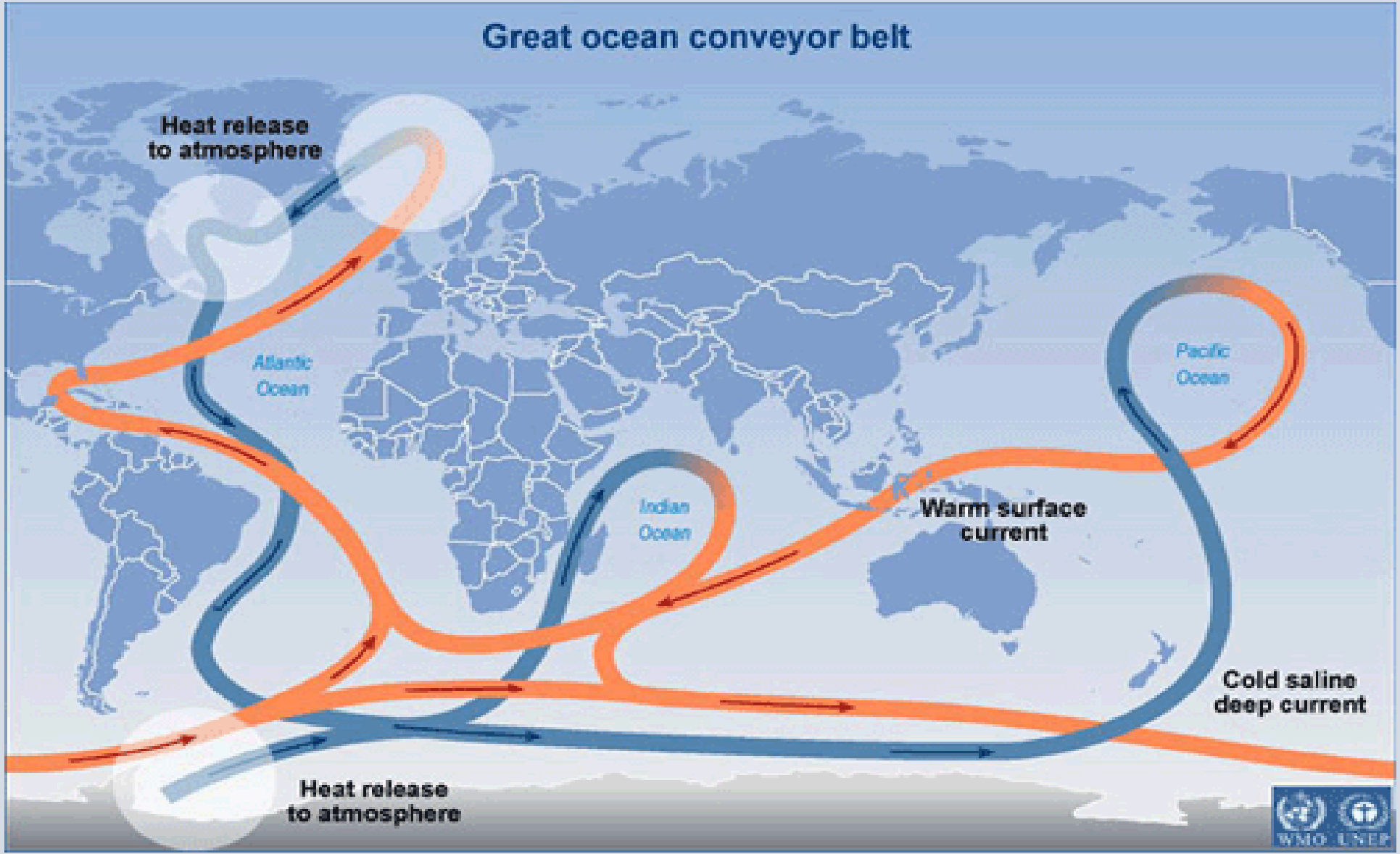
http://www.bom.gov.au/climate

Week ending: 08/06/2025
Created: 09/06/2025

Warm and cold surface ocean currents

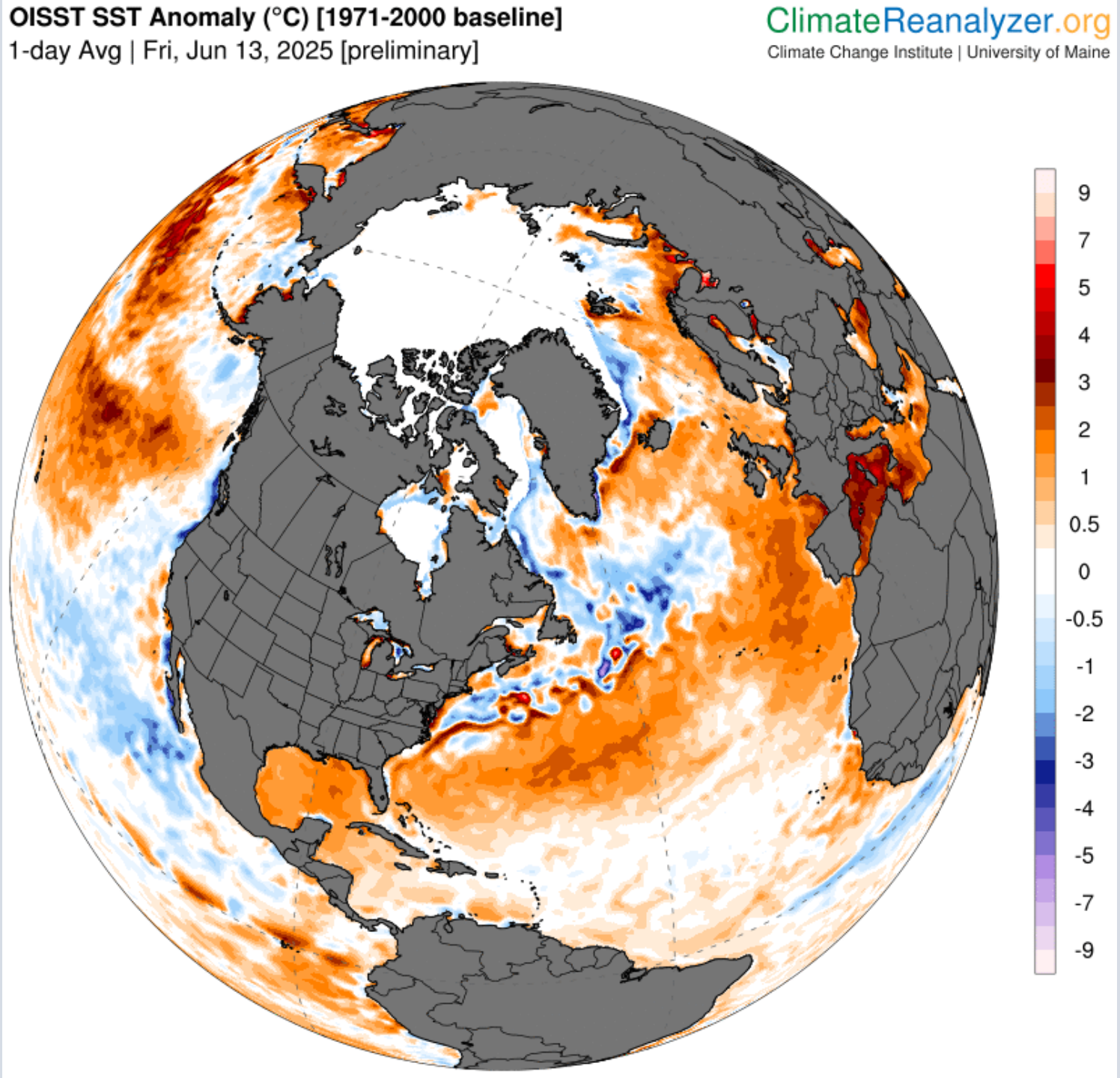


SHALLOW & DEEP CURRENTS

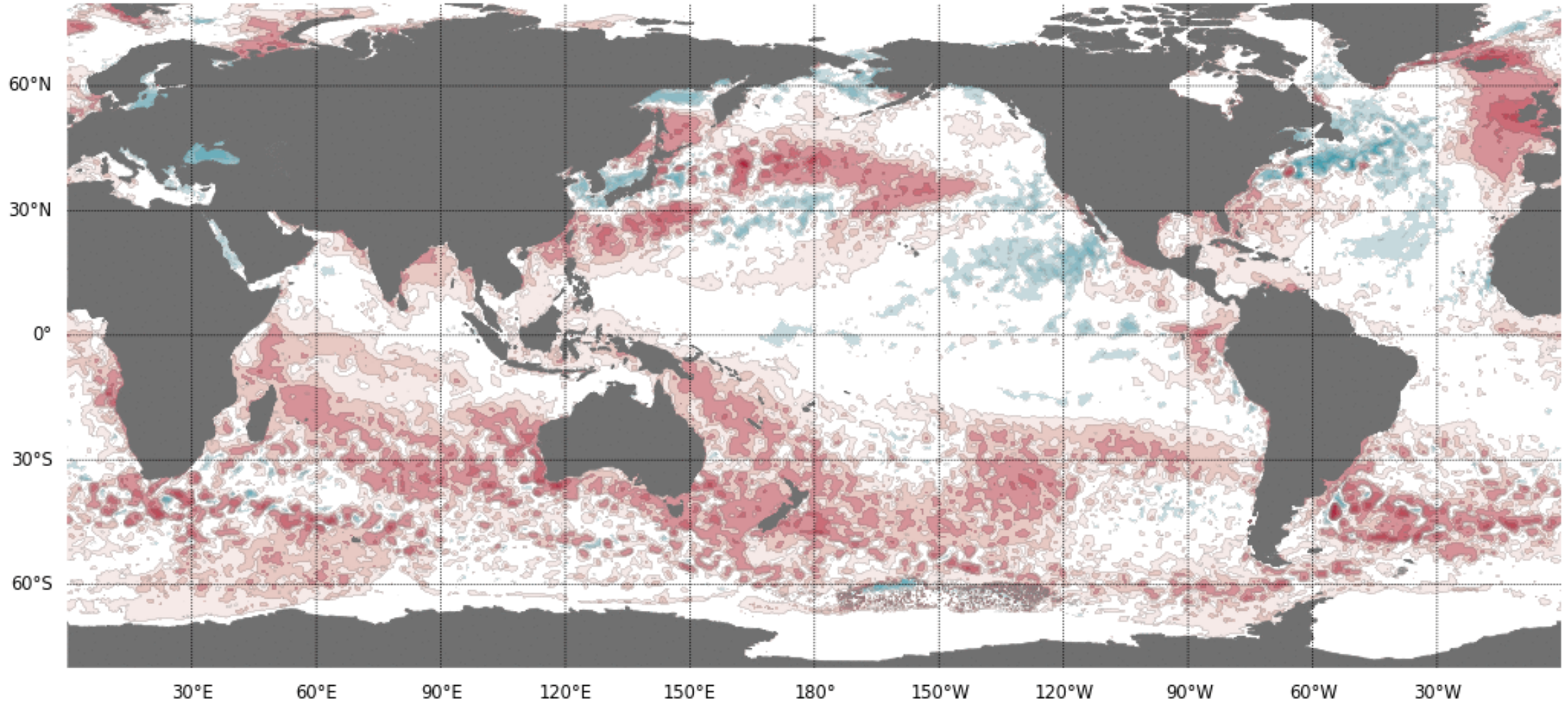


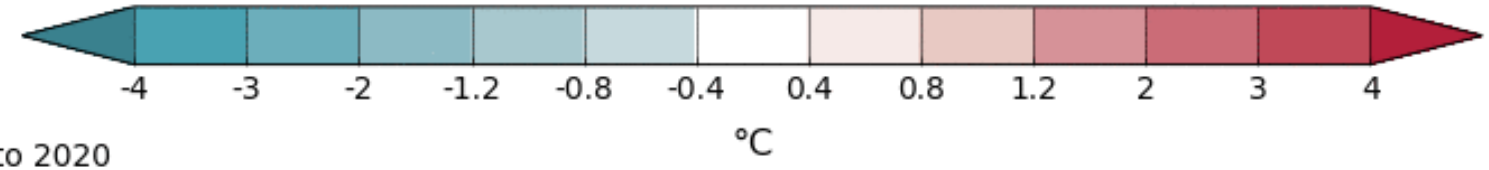
ATLANTIC GULF STREAM CURRENT

- AT ICE FORMATION, SEA WATER BECOMES SALTIER, DENSER & SINKS
- THIS DRIVES GLOBAL BOTTOM WATER CIRCULATION
- SINCE 2004, THE GULF STREAM HAS SLOWED BY 10-15%
- BILLIONS OF LITRES OF COLD FRESH WATER ARE POURING INTO THE NORTH ATLANTIC OCEAN
- ?? EFFECTS UNKNOWN


OISST SST Anomaly (°C) [1971-2000 baseline]
1-day Avg | Fri, Jun 13, 2025 [preliminary]
ClimateReanalyzer.org
Climate Change Institute | University of Maine
9
7
5
4
3
2
1
0.5
0
-0.5
-1
-2
-3
-4
-5
-7
-9

Sea surface temperature anomaly: 19/05/2025 to 25/05/2025



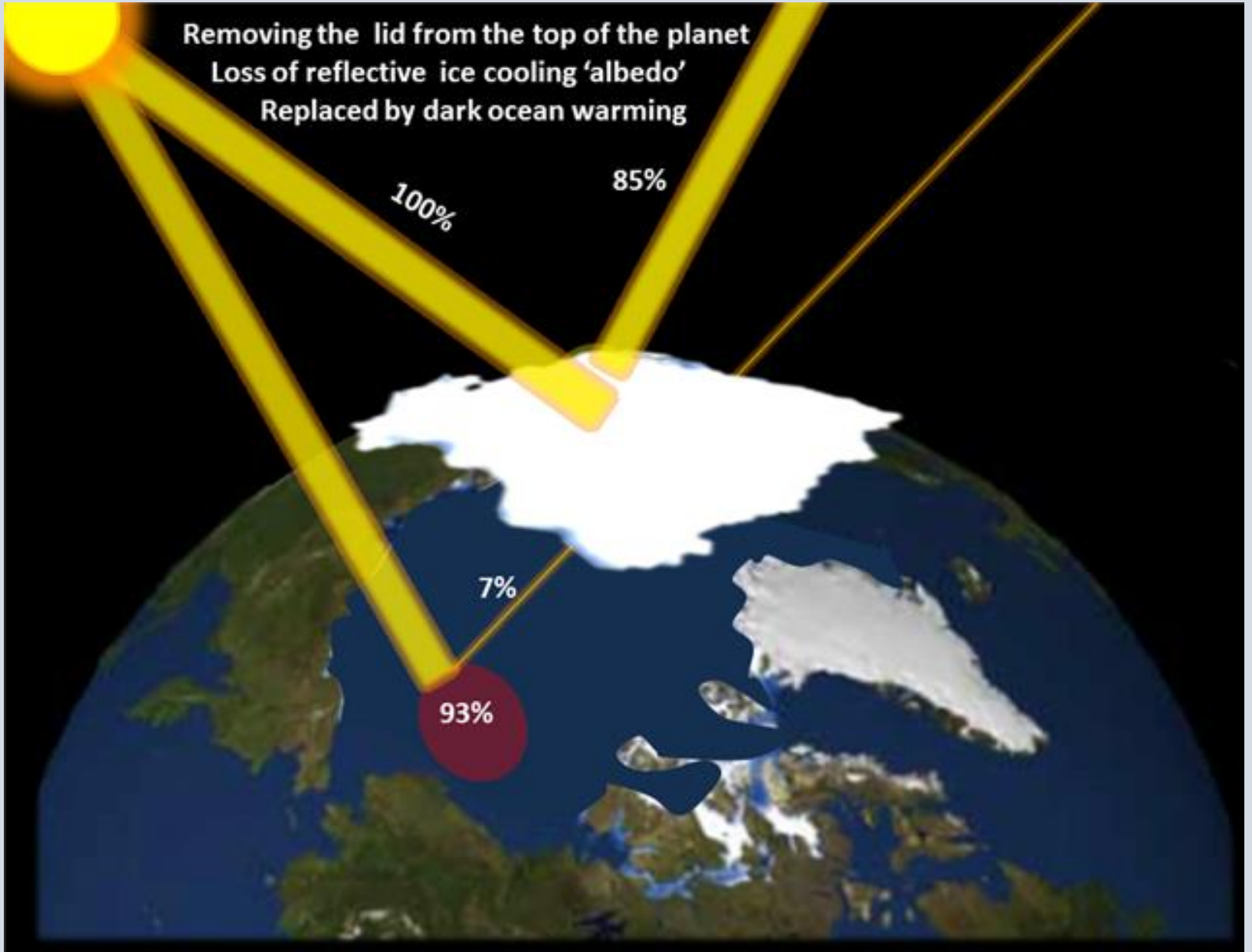


Data: GAMSSA
Climatology baseline: 1991 to 2020

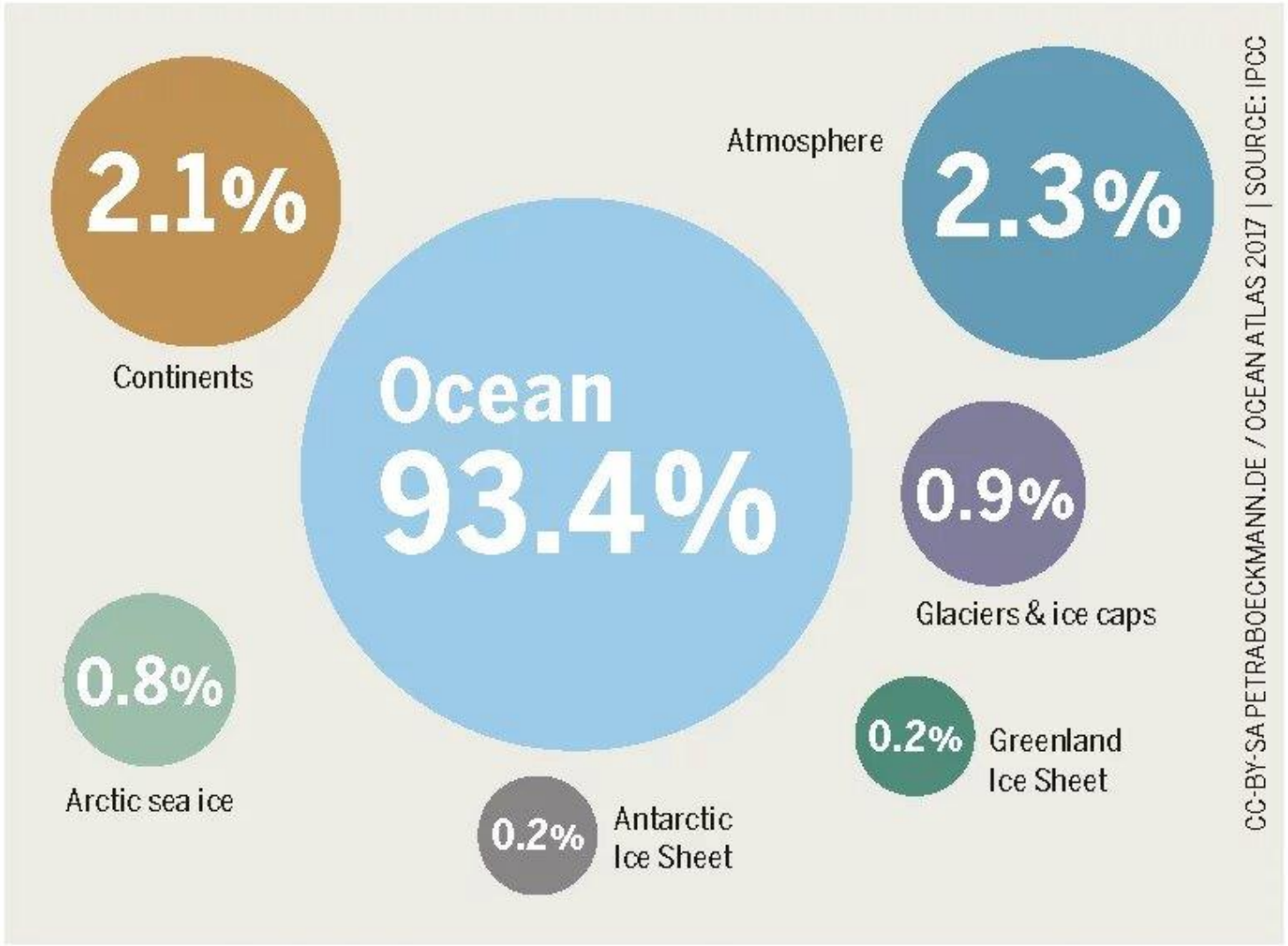
http://www.bom.gov.au/climate

Week ending: 25/05/2025
Created: 26/05/2025

REFLECTIVITY OF LIGHT AND DARK COLOURED SURFACES



Where Does the Warmth Go?

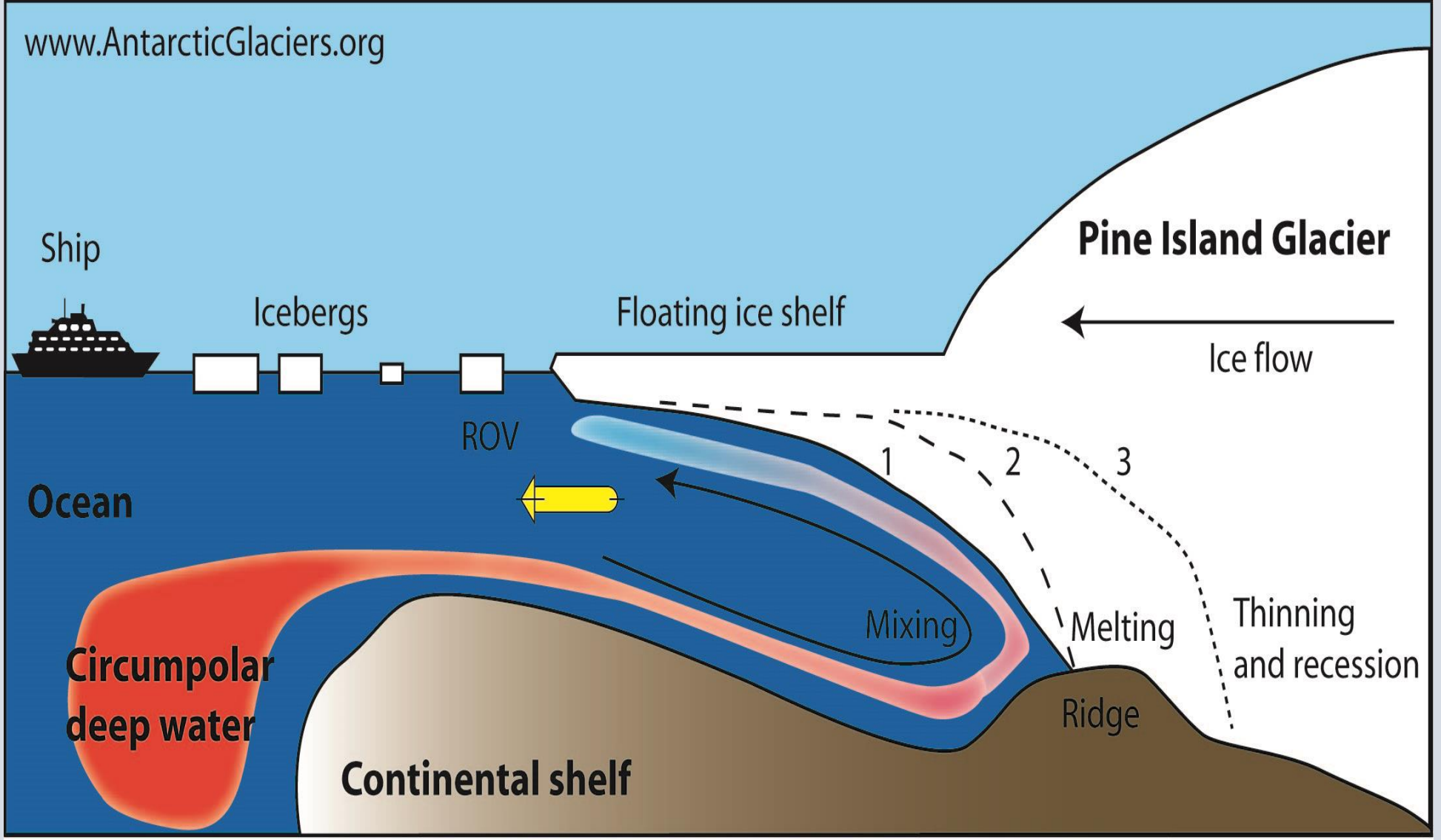


The ocean absorbs the lion's share of the additional warmth resulting from human CO_2 emissions, which supplements the natural greenhouse effect.

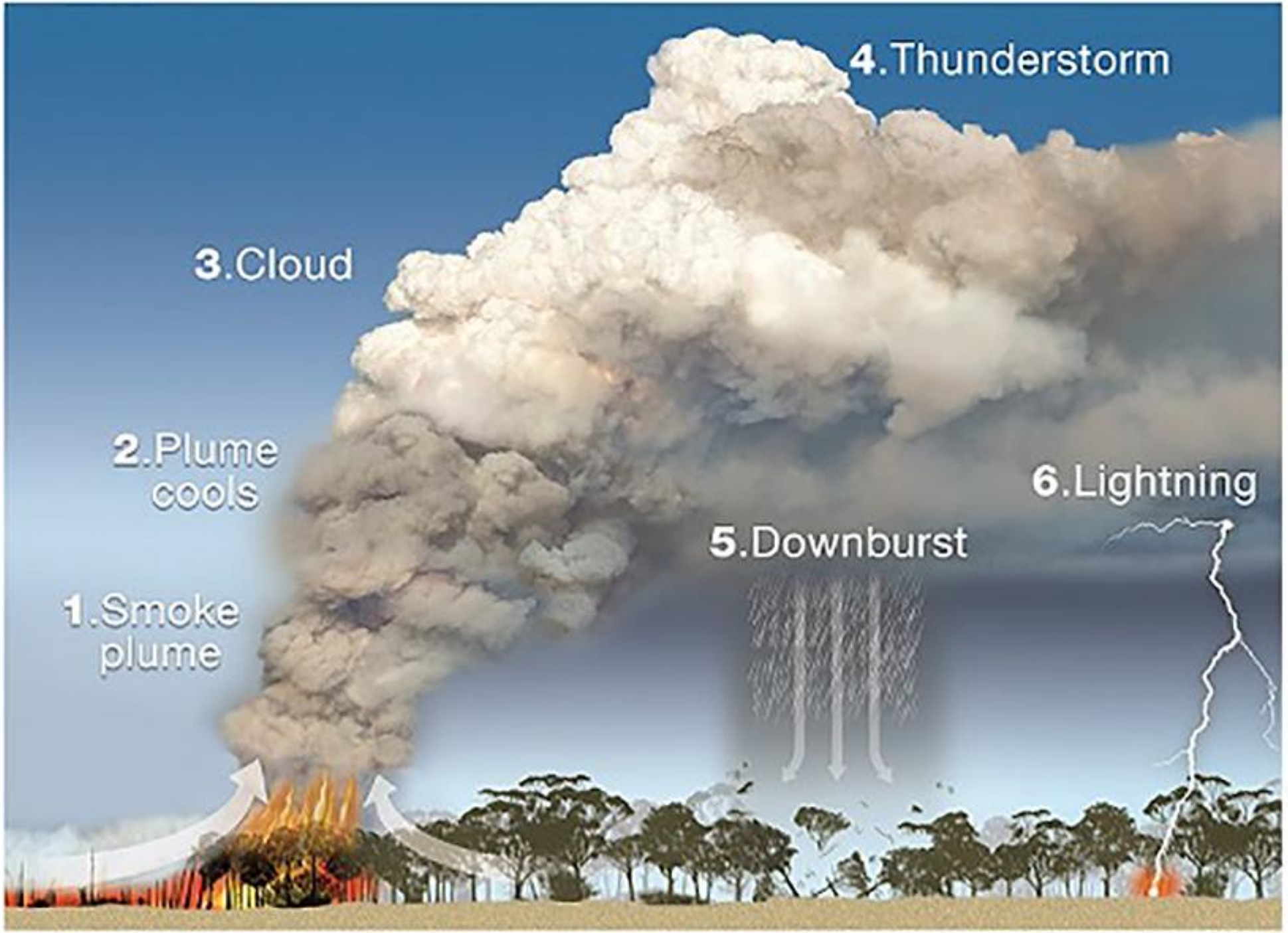
ANTARCTICA

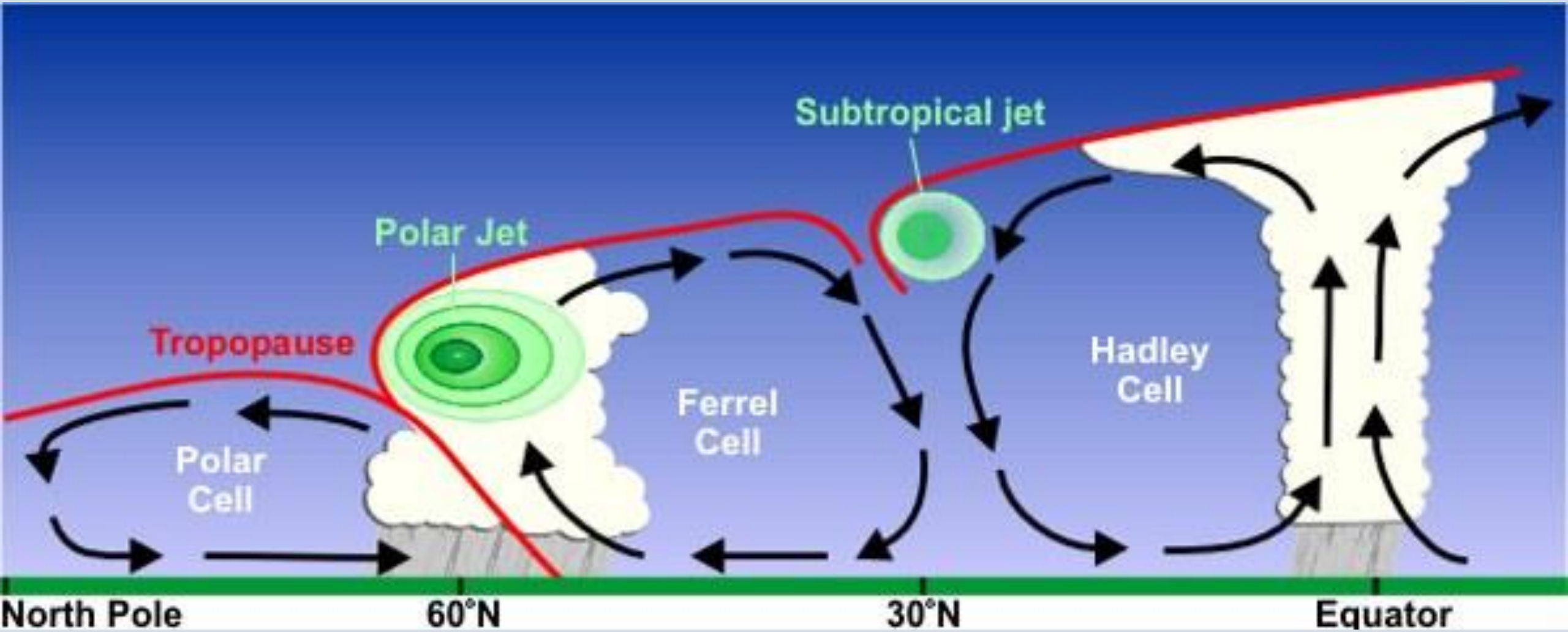
Thwaites Glacier, Antarctica

The most rapid retreat — at up to 400 metres per year — is presently happening at Thwaites Glacier in West Antarctica. Thwaites alone encompasses enough ice to lift the world's oceans by 3 metres. And the rate of inland ocean water invasion at this single location is a very serious concern.



1. Early 1970s. Pine Island Glacier is grounded at a bedrock ridge.
2. Warm, inflowing Circumpolar Deep Water melts the base of the glacier. The glacier steepens and accelerates.
3. Present day, observed by a remotely operated vehicle (ROV). Glacier is thinning and receding.


4.Thunderstorm
3.Cloud
2.Plume cools
6.Lightning
5.Downburst
1.Smoke plume


Subtropical jet
Polar Jet
Tropopause
Hadley Cell
Ferrel Cell
Polar Cell
North Pole
60°N
30°N
Equator

JET STREAMS

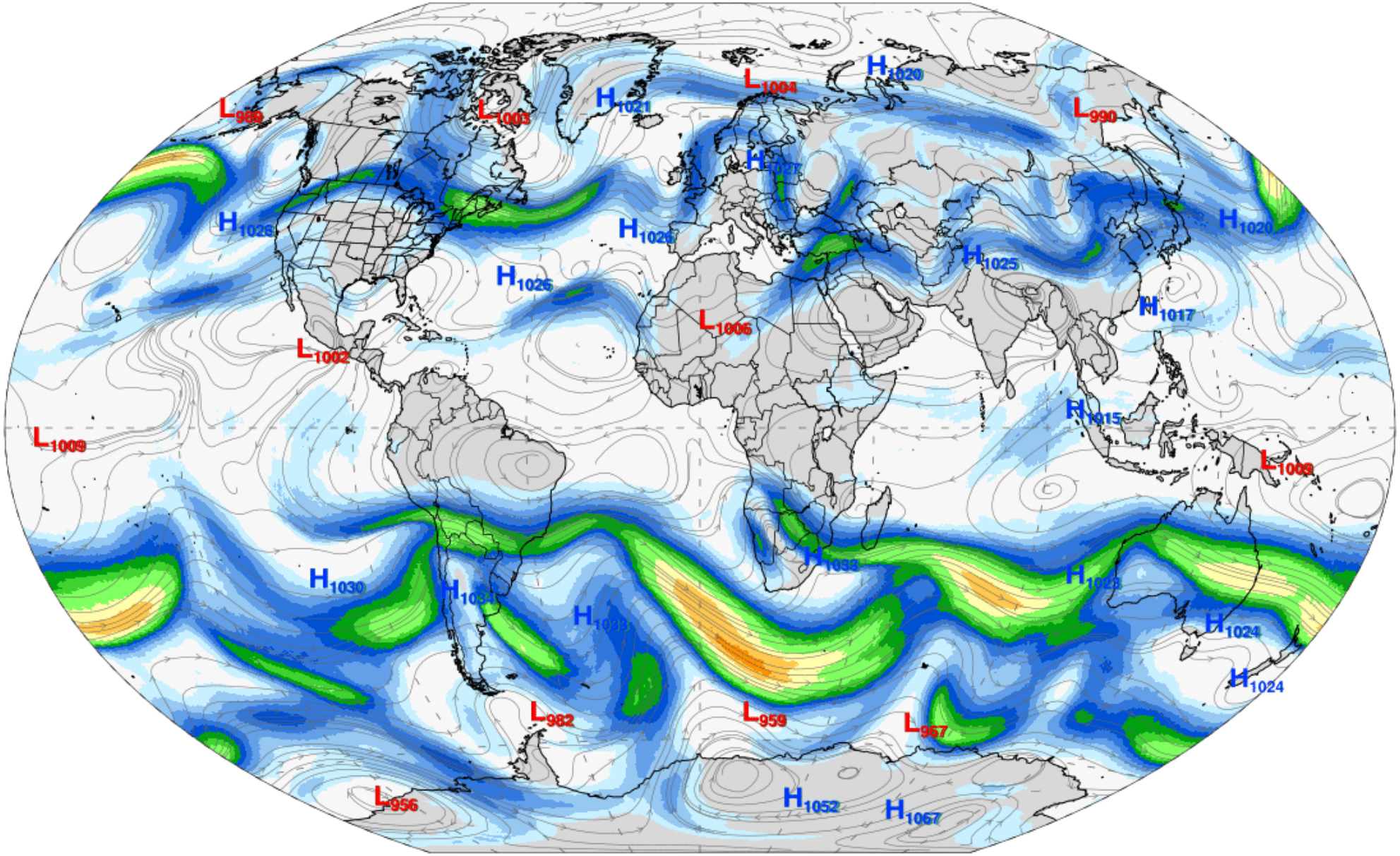
- Jet streams are rapidly moving rivers of air, high up in the atmosphere
- Polar jet streams restrict polar air to the polar region
- A **weakening**, **meandering** polar jet stream is allowing cold air to move further away from the poles & warm air to travel towards the poles
- Weather systems (highs & lows) can persist longer over one area

GFS 250hPa Jetstream (kt), MSLP (hPa)

1-day Avg | Sat, Jun 14, 2025

ClimateReanalyzer.org

Climate Change Institute | University of Maine



30 40 50 60 70 80 90 100 120 140 160 180 200 220 240