



global ocean climate update 2023 addendum

the climate centre



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How to read this report

Ranks are based on the annual average or sum from 1940 to present day (for ERA5 data), and from 1985 to present day (for CRW data). A value of 1 indicates the highest rank, while a rank of 84 (ERA5 data) or 39 (CRW data) indicates the lowest rank. Anomalies are calculated relative to a 1941-1970 or 1985-1990 average (baseline). ERA5 reanalysis and CRW data represent model-based temperature estimates that may differ from direct observational measurements, particularly in data-sparse regions or during extreme events. To see more information on our methods, refer to our methodology document.

The Global Ocean Climate Update was submitted as an Ocean Commitment to the United Nations Department of Economic and Social Affairs as part of the United Nations Ocean Conference 2025.



Analysis based on ERA5 data

ID	Name	Mean Temp	Baseline (1941 - 1970)	Baseline (1985 - 1990)	Anomaly (1941 - 1970)	Anomaly (1985 - 1990)	Rank	Percentile
170	Isla del Coco	29.04	27.6	27.6	1.44	1.44	1	1%
650	Nationalparken i Nord-og Ostg	-1.55	-1.68	-1.64	0.13	0.09	14	17%
2628_E	Great Barrier Reef	26.28	25.5	25.51	0.78	0.78	7	8%
2628_B	Great Barrier Reef	26.63	25.89	25.95	0.74	0.68	6	7%
10708	Archipelago de Colon (Galapagos)	26.19	23.94	23.82	2.25	2.37	3	4%
11753	Galapagos	26.25	24.01	23.88	2.24	2.37	3	4%
303552	Malpelo	28.23	26.82	26.73	1.41	1.49	1	1%
309888	Phoenix Islands Protected Area	29.38	28.65	28.66	0.73	0.73	11	13%
345888	Terres Australes Francaises	8.71	7.55	7.84	1.16	0.88	1	1%
354083_A	Freycinet	16.23	14.42	15.06	1.81	1.16	1	1%
354086_C	Macquarie Island	5.71	5.41	5.63	0.3	0.08	20	24%
354086_A	Macquarie Island	5.21	4.75	5.07	0.46	0.14	21	25%
365015	Pelagos Sanctuary For The Conservation Of Marine Mammals	19.07	17.77	17.82	1.3	1.25	3	4%
478047	Sub-Antarctic Deep	8.76	8.29	8.51	0.47	0.26	3	4%
478048	Antipodes Transect	9.18	7.99	8.37	1.19	0.81	1	1%
478053	Hikurangi Deep	16.08	15.15	15.41	0.93	0.67	4	5%
478191	South Orkney Islands Southern Shelf Marine Protected Area	-1.07	-1.65	-1.19	0.58	0.12	10	12%
478297	Kermadec	20.79	20.19	20.35	0.59	0.43	11	13%
555512062	Kermadec	21.22	20.58	20.54	0.64	0.68	9	11%
555512063	Arrow Plateau	14.67	13.1	13.31	1.57	1.35	1	1%
555512160	Prince Edward Island Marine Protected Area	6.52	5.57	5.79	0.95	0.73	1	1%





555512240	MAR North of the Azores High Seas MPA	17.11	16.37	16.15	0.74	0.96	5	6%
555512241	Charlie-Gibbs South High Seas MPA	12.39	12.12	11.51	0.28	0.88	24	29%
555514309	Mayotte	28.35	27.44	27.57	0.91	0.77	1	1%
555515499	Antipodes Transect	9.42	8.23	8.48	1.19	0.94	1	1%
555547601	South Georgia and South Sandwich Islands Marine Protected Area	1.11	-0.02	0.53	1.13	0.58	1	1%
55556866_C	Abrolhos	22.01	21.68	21.8	0.33	0.2	27	32%
55556868_B	Argo-Rowley Terrace	28.22	27.64	27.74	0.58	0.48	14	17%
55556874_B	Central Eastern	22.71	22.3	22.34	0.41	0.38	19	23%
55556875_C	Coral Sea	26.17	25.51	25.64	0.66	0.53	9	11%
55556875_B	Coral Sea	26.8	26.22	26.38	0.58	0.42	8	10%
55556875_A	Coral Sea	27.34	26.81	26.96	0.52	0.37	9	11%
55556888_C	Kimberley	28.41	27.99	28.25	0.41	0.15	21	25%
55556890_B	Lord Howe	20.77	20.46	20.47	0.31	0.3	25	30%
55556895_B	Norfolk	20.74	20.51	20.57	0.23	0.17	29	35%
55556896_C	Oceanic Shoals	28.85	28.42	28.77	0.43	0.08	21	25%
55556901_C	South-west Corner	17.22	16.83	16.82	0.39	0.4	18	21%
55556901_B	South-west Corner	17.06	16.45	16.34	0.61	0.71	11	13%
55556901_A	South-west Corner	17.45	16.95	16.94	0.5	0.51	13	15%
55557191	Svalbard East	-0.23	-1.4	-1.12	1.17	0.89	7	8%
55557228	Charlie-Gibbs North High Seas MPA	9.68	9.48	8.58	0.2	1.1	20	24%
55556876	15JA2 b (Bollons)	10.48	9.06	9.44	1.43	1.05	1	1%
555577434	Heard Island and McDonald Islands	2.71	1.93	2.03	0.78	0.67	3	4%
555577562	Natural Park of the Coral Sea	25.46	24.96	25.03	0.5	0.43	12	14%
555587040	Agoa	28.12	27.43	27.14	0.69	0.98	3	4%
555596226	Corredor de migracion de cetaceos del Mediterraneo	19.89	18.37	18.64	1.52	1.25	2	2%



555597297	Martinique	28.23	27.56	27.25	0.67	0.98	3	4%
555599922	Saint Helena Island Marine Protected Area	22.89	22.2	22.62	0.69	0.26	8	10%
555621413	Common fishery right area(Hokkaido)	11.6	8.26	8.04	3.34	3.57	1	1%
555622118	Palau National Marine Sanctuary	29.56	28.77	28.85	0.79	0.71	4	5%
555624172	Pitcairn Islands	24.62	24.25	24.3	0.37	0.32	11	13%
555624229	Seaflower	28.74	27.86	27.51	0.88	1.23	1	1%
555624307	Pacifico Mexicano Profundo	27.96	27.19	27.03	0.77	0.93	4	5%
555624810_E	Ross Sea Region Marine Protected Area	-1.52	-1.68	-1.58	0.16	0.06	9	11%
555624810_D	Ross Sea Region Marine Protected Area	-0.98	-1.39	-1.22	0.41	0.24	2	2%
555624810_B	Ross Sea Region Marine Protected Area	1.81	1.1	1.72	0.71	0.09	9	11%
555624810_A	Ross Sea Region Marine Protected Area	-1.44	-1.61	-1.5	0.18	0.06	8	10%
555624907_F	Marine Protected Area (Aitutaki & Ngaputora)	26.93	26.62	26.52	0.31	0.41	15	18%
555624907_A	Marae Moana (Cook Islands Marine Park)	28.04	27.65	27.51	0.39	0.53	6	7%
555629385	Revillagigedo	26.04	25.33	25.42	0.71	0.62	9	11%
555635928	Monumento Natural Do Arquipelago De Sao Pedro E Sao Paulo	27.62	26.99	27.23	0.64	0.4	3	4%
555635929	Monumento Natural Das Ilhas De Trindade E Martim Vaz E Do Monte Columbia	25.88	25.26	25.66	0.62	0.21	11	13%
555635930	Area De Protecao Ambiental Do Arquipelago De Trindade E Martim Vaz	25.71	25.07	25.48	0.64	0.23	8	10%
555635931	Area De Protecao Ambiental Do Arquipelago De Sao Pedro	27.98	27.22	27.38	0.76	0.6	2	2%



	E Sao Paulo							
555636046	Yurupari - Malpelo	28.28	26.72	26.69	1.56	1.59	1	1%
555636411	Area Marina Protegida de la Reserva de Biosfera Seaflower	28.74	27.86	27.51	0.88	1.23	1	1%
555637925_B	Tallurutiup Imanga National Marine Conservation Area	-0.64	-1.28	-1.09	0.64	0.45	9	11%
555643548	Aldabra Group (Marine) National Park	27.82	26.97	27.09	0.85	0.73	1	1%
555643549	Amirantes (Marine) to Fortune Bank (Marine) Area of Outstanding Natural Beauty	28.34	27.57	27.67	0.77	0.66	4	5%
555643566	Yaganes	4.59	4.56	5.09	0.03	-0.5	62	74%
555643567	Yaganes	4.76	4.74	5.27	0.02	-0.51	64	76%
555643633	Mers Celtiques - Talus du golfe de Gascogne	15.14	14.07	14.16	1.07	0.99	1	1%
555645488	Domestic Fishing Zone	29.48	28.8	28.85	0.68	0.63	6	7%
555651558	Ascension Island Marine Protected Area	26.35	25.54	25.84	0.81	0.51	2	2%
555651732	Northeast Newfoundland Slope Closure	5.93	4.89	4.24	1.03	1.68	5	6%
555651733	Offshore Pacific Seamounts and Vents Closure	11.6	10.9	11.18	0.69	0.42	18	21%
555703762	Tuvaijuittuq Marine Protected Area	-1.69	-1.69	-1.69	0	0	58	69%
555705293	Cordillera de Coiba	28.93	27.51	27.46	1.43	1.48	1	1%
555705568	Niue Moana Mahu Marine Protected Area	26.51	26.37	26.08	0.14	0.43	28	33%
555711865	Lena-Del`ta	-0.5	-1.56	-1.32	1.06	0.82	7	8%
555714943	Novosibirskie ostrova	-1.1	-1.66	-1.46	0.57	0.36	10	12%
555715155	North Atlantic Current and Evlanov Basin	14.65	13.87	13.35	0.78	1.3	4	5%
555720256	Tristan da Cunha	14.72	13.8	14.18	0.92	0.54	8	10%
555721445	Izu-Ogasawara Trench	23.18	22.67	22.49	0.51	0.69	12	14%



555721447	Northern part of Naka Mariana Ridge and West Mariana Ridge	27.49	26.84	26.7	0.65	0.79	7	8%
555744944	Montes Submarinos	28.76	27.3	27.27	1.46	1.49	1	1%
555745151	Hernandad	27.98	26.4	26.36	1.58	1.62	3	4%
555745302	Dorsal de Nasca	21.16	19.63	19.82	1.53	1.34	3	4%
555756442	Tainui Atea	26.48	26.07	26.17	0.41	0.31	6	7%
555759264_B	Christmas Island	27.82	27.4	27.7	0.42	0.12	23	27%
555759265_A	Cocos (Keeling) Islands	27.52	27.33	27.45	0.19	0.07	35	42%
555760583	Marine Mammal Reserve	26.38	25.58	25.57	0.79	0.81	1	1%
555786064	Rapa Nui	22.45	22.46	22.4	-0.01	0.05	49	58%
555786068	Mar de Juan Fernandez	17.38	16.73	17.01	0.65	0.37	9	11%
555786069	Islas Diego Ramirez y Paso Drake	4.9	4.77	5.44	0.14	-0.54	57	68%
555790084	Motu Motiro Hiva	22.2	22.07	22.04	0.13	0.16	36	43%
555790085	Nazca-Desventuradas	19.69	18.73	18.9	0.95	0.79	2	2%
555790567	New England Seamount	22.29	21.93	21.74	0.37	0.55	13	15%
555790568	Fogo Seamount	17.43	16.51	16.72	0.92	0.71	18	21%
555790578	Courner Rise Seamount	22.27	21.58	21.54	0.69	0.73	7	8%



Analysis based on CRW data

ID	Name	Mean Temp	Baseline (1985 - 1990)	Anomaly (1985 - 1990)	Rank	Percentile
170	Isla del Coco	29.05	27.5	1.55	1	3%
650	Nationalparken i Nord-og Ostg	-1.57	-1.72	0.16	15	38%
2628_E	Great Barrier Reef	26.3	25.65	0.65	7	18%
2628_B	Great Barrier Reef	26.61	25.95	0.66	6	15%
10708	Archipelago de Colon (Galapagos)	26.28	23.67	2.61	2	5%
11753	Galapagos	26.29	23.68	2.61	2	5%
303552	Malpelo	28.21	26.62	1.59	1	3%
309888	Phoenix Islands Protected Area	29.4	28.64	0.75	7	18%
345888	Terres Australes Francaises	8.74	7.93	0.81	1	3%
354083_A	Freycinet	16.3	15.08	1.23	1	3%
354086_C	Macquarie Island	5.77	5.63	0.15	8	21%
354086_A	Macquarie Island	5.26	5.16	0.11	9	23%
365015	Pelagos Sanctuary For The Conservation Of Marine Mammals	19.18	17.88	1.3	3	8%
478047	Sub-Antarctic Deep	8.76	8.46	0.3	2	5%
478048	Antipodes Transect	9.17	8.26	0.91	1	3%
478053	Hikurangi Deep	16.09	15.41	0.67	2	5%
478191	South Orkney Islands Southern Shelf Marine Protected Area	-1.15	-1.18	0.03	11	28%
478297	Kermadec	20.84	20.3	0.54	11	28%
555512062	Kermadec	21.23	20.48	0.75	9	23%
555512063	Arrow Plateau	14.69	13.18	1.5	1	3%
555512160	Prince Edward Island Marine Protected Area	6.53	5.87	0.66	1	3%
555512240	MAR North of the Azores High Seas MPA	17.1	16	1.1	3	8%
555512241	Charlie-Gibbs South High Seas MPA	12.37	11.43	0.94	8	21%
555514309	Mayotte	28.36	27.58	0.78	1	3%
555515499	Antipodes Transect	9.44	8.45	0.99	1	3%
555547601	South Georgia and South Sandwich Islands Marine	1.09	0.67	0.42	1	3%



	Protected Area					
555556866_C	Abrolhos	22.02	21.78	0.24	15	38%
555556868_B	Argo-Rowley Terrace	28.21	27.85	0.36	13	33%
555556874_B	Central Eastern	22.73	22.22	0.51	13	33%
555556875_C	Coral Sea	26.17	25.61	0.56	8	21%
555556875_B	Coral Sea	26.79	26.27	0.53	7	18%
555556875_A	Coral Sea	27.36	26.86	0.5	8	21%
555556888_C	Kimberley	28.42	28.23	0.19	16	41%
555556890_B	Lord Howe	20.8	20.46	0.35	19	49%
555556895_B	Norfolk	20.77	20.59	0.18	20	51%
555556896_C	Oceanic Shoals	28.86	28.79	0.07	18	46%
555556901_C	South-west Corner	17.22	16.82	0.4	14	36%
555556901_B	South-west Corner	17.12	16.4	0.73	9	23%
555556901_A	South-west Corner	17.5	16.95	0.55	11	28%
555557191	Svalbard East	-0.2	-0.99	0.8	7	18%
555557228	Charlie-Gibbs North High Seas MPA	9.63	8.49	1.15	8	21%
555566876	15JA2 b (Bollons)	10.47	9.43	1.04	1	3%
555577434	Heard Island and McDonald Islands	2.69	2.08	0.61	3	8%
555577562	Natural Park of the Coral Sea	25.47	24.97	0.5	10	26%
555587040	Agoa	28.13	27.04	1.09	3	8%
555596226	Corredor de migracion de cetaceos del Mediterraneo	19.89	18.62	1.27	2	5%
555597297	Martinique	28.24	27.17	1.07	3	8%
555599922	Saint Helena Island Marine Protected Area	22.9	22.53	0.36	8	21%
555621413	Common fishery right area(Hokkaido)	11.77	9.52	2.24	1	3%
555622118	Palau National Marine Sanctuary	29.57	28.82	0.75	4	10%
555624172	Pitcairn Islands	24.64	24.33	0.31	9	23%
555624229	Seaflower	28.75	27.58	1.17	1	3%
555624307	Pacifico Mexicano Profundo	27.96	27.03	0.94	4	10%
555624810_E	Ross Sea Region Marine Protected Area	-1.6	-1.61	0.02	10	26%
555624810_D	Ross Sea Region Marine Protected Area	-1.03	-1.24	0.21	1	3%
555624810_B	Ross Sea Region Marine Protected Area	1.65	1.36	0.29	3	8%



555624810_A	Ross Sea Region Marine Protected Area	-1.51	-1.56	0.04	8	21%
555624907_F	Marine Protected Area (Aitutaki & Ngaputora)	26.96	26.39	0.57	11	28%
555624907_A	Marae Moana (Cook Islands Marine Park)	28.05	27.38	0.67	4	10%
555629385	Revillagigedo	26.05	25.34	0.7	7	18%
555635928	Monumento Natural Do Arquipelago De Sao Pedro E Sao Paulo	27.64	26.98	0.66	2	5%
555635929	Monumento Natural Das Ilhas De Trindade E Martim Vaz E Do Monte Columbia	25.89	25.6	0.29	8	21%
555635930	Area De Protecao Ambiental Do Arquipelago De Trindade E Martim Vaz	25.73	25.4	0.33	7	18%
555635931	Area De Protecao Ambiental Do Arquipelago De Sao Pedro E Sao Paulo	27.99	27.2	0.79	2	5%
555636046	Yurupari - Malpelo	28.28	26.54	1.75	1	3%
555636411	Area Marina Protegida de la Reserva de Biosfera Seaflower	28.75	27.58	1.17	1	3%
555637925_B	Tallurutiup Imanga National Marine Conservation Area	-0.66	-1.09	0.42	9	23%
555643548	Aldabra Group (Marine) National Park	27.85	26.93	0.92	1	3%
555643549	Amirantes (Marine) to Fortune Bank (Marine) Area of Outstanding Natural Beauty	28.36	27.52	0.84	3	8%
555643566	Yaganes	4.56	5.1	-0.54	30	77%
555643567	Yaganes	4.79	5.33	-0.54	32	82%
555643633	Mers Celtiques - Talus du golfe de Gascogne	15.13	14.11	1.02	1	3%
555645488	Domestic Fishing Zone	29.48	28.82	0.67	6	15%
555651558	Ascension Island Marine Protected Area	26.37	25.81	0.56	2	5%
555651732	Northeast Newfoundland Slope Closure	5.94	4.27	1.67	6	15%
555651733	Offshore Pacific Seamounts and Vents Closure	11.58	11.09	0.49	12	31%
555703762	Tuvaijuittuq Marine Protected Area	-1.79	-1.8	0.01	15	38%
555705293	Cordillera de Coiba	28.9	27.4	1.51	1	3%
555705568	Niue Moana Mahu Marine Protected Area	26.53	25.91	0.62	16	41%
555711865	Lena-Del`ta	0.05	-1.14	1.19	5	13%
555714943	Novosibirskie ostrova	-1.1	-1.52	0.42	12	31%
555715155	North Atlantic Current and Evlanov Basin	14.74	13.38	1.36	1	3%



555720256	Tristan da Cunha	14.74	14.08	0.67	7	18%
555721445	Izu-Ogasawara Trench	23.2	22.44	0.76	10	26%
555721447	Northern part of Naka Mariana Ridge and West Mariana Ridge	27.5	26.81	0.69	6	15%
555744944	Montes Submarinos	28.73	27.09	1.65	1	3%
555745151	Hermanidad	27.99	26.03	1.96	1	3%
555745302	Dorsal de Nasca	21.14	19.85	1.3	2	5%
555756442	Tainui Atea	26.49	26.12	0.37	4	10%
555759264_B	Christmas Island	27.84	27.7	0.14	15	38%
555759265_A	Cocos (Keeling) Islands	27.54	27.36	0.18	17	44%
555760583	Marine Mammal Reserve	26.34	25.83	0.51	1	3%
555786064	Rapa Nui	22.46	22.31	0.15	20	51%
555786068	Mar de Juan Fernandez	17.39	17	0.38	7	18%
555786069	Islas Diego Ramirez y Paso Drake	4.94	5.5	-0.55	31	79%
555790084	Motu Motiro Hiva	22.21	21.94	0.26	16	41%
555790085	Nazca-Desventuradas	19.68	18.88	0.81	1	3%
555790567	New England Seamount	22.32	21.54	0.78	13	33%
555790568	Fogo Seamount	17.68	17.13	0.55	23	59%
555790578	Courner Rise Seamount	22.3	21.45	0.85	7	18%