



WORLD  
ENVIRONMENTAL  
CONSERVANCY

# ENVIRONMENTAL MONITORING OF EMPEROR PENGUIN COLONIES



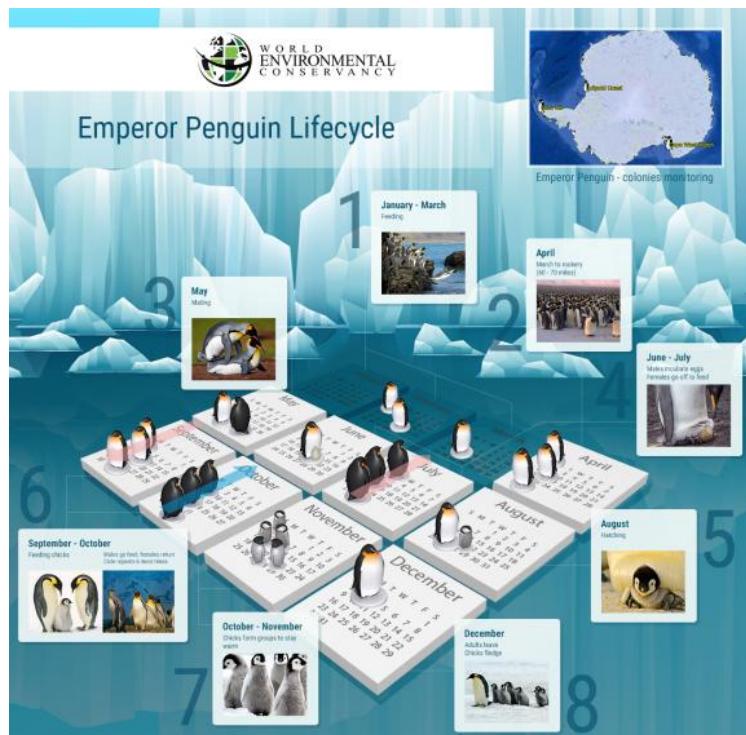
---

By Romao, M., Pires, L. B. M., and Masters, C.



## ENVIRONMENTAL MONITORING OF EMPEROR PENGUIN COLONIES

This newsletter monitors the climatic conditions of the Snow Hill emperor penguin colonies, located north of the Antarctic Peninsula and Cape Washington located in the Ross Sea. Emperor penguins are very susceptible to sudden variations in the climate, especially their young that cannot be exposed to rain and the sea before their feathers are fully formed on their entire body. The early breaking or breaking of the fast ice, where the eggs of these birds are hatched, can endanger the litter for an entire year, as well as the storms that can isolate the young from the group, especially during the winter. Monitoring the meteorological conditions of these colonies can show us how vulnerable these birds are to the climatic changes of this extremely sensitive and fragile environment.



The Emperor penguin endures one of the harshest breeding cycles of any animal. It breeds during winter (beginning in early April) in one of the coldest places on Earth. Once it leaves the frigid water, it hikes on the Antarctic fast ice for up to three days, traveling up to seventy miles (110 km) before it reaches its colony. Unlike other penguins, the Emperor does not nest and is not territorial. It will breed at the foot of an iceberg or a hill. The female chooses its mate, usually not the same one as the year before. The mates breed and the female lays one egg in early May. The egg is put in the care of the male, so the female can forage, breaking her 45 day fast. The male incubates the egg for about seventy days while enduring extremely harsh weather, huddling with the other males for survival. The male is present when the chick hatches, but as soon as the female returns, he leaves to forage, after enduring an unimaginable 110 day fast. The chick is brooded for up to fifty-days, sitting atop its parents' feet for protection and warmth. When brooding is over, the chick joins and remains in a crèche until it fledge in December at about one-hundred fifty days of age.

## MARCH 2020

---

In March, most of the emperor penguins are still feeding on the high seas, but by the end of the month they are already looking to return to their colonies to begin the formation of couples. This month we have the beginning of the southern autumn and the hours of sunshine are decreasing rapidly, as was the case of Cape Washington, which lost about 6 hours of sunshine between the first and the last day of the month.

## Colony: SNOW HILL ISLAND

---

In March 2020, the sea around the Snow Hill Island colony was thawed and with an amount of drift ice ranging from 4/10 to 5/10, but this did not represent an obstacle to the access of penguins to the open sea.

Temperatures were below average and the penguins were exposed to only 07 days of storms, this was also not a problem for penguins, as most of the time they were still at sea.

Latitude: [64.52 S](#) Longitude: [57.44 W](#) Antarctic region: [Antarctic Peninsula](#)

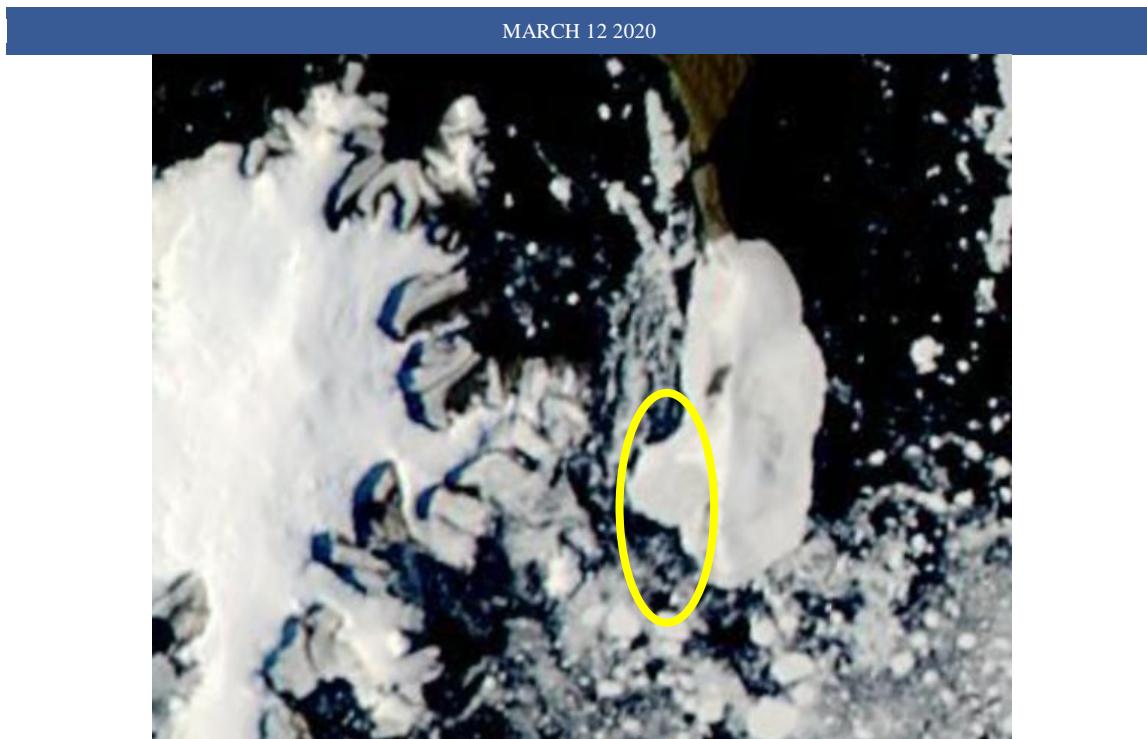
### DAYLENGTH

MARCH 01	MARCH 15	MARCH 31
14h 23m	12h 48m	11h 02m

### METEOROLOGICAL DATA

DATE	AVG. TEMP.	MAX. TEMP.	MIN. TEMP.	AVG. WIND	MAX. WIND	PREAV. WIND	DAYS GALE*	DAYS SNOW
2020 MAR	-4.4C (24.1F)	+12.5C (54.5F)	-17.2C (1.0F)	8.6 m/s (19 mph)	25.2 m/s (56 mph)	S & N	07	18
Climatology 2000-2020	-5.4C (22.3F)	+17.4C (63.3F)	-23.0 (-9.4F)	...	...	...	...	18

### ICE CONCENTRATION



## Colony: CAPE WASHINGTON

In March 2020, the sea around the colony of Cape Washington was thawed and with an amount of drifting ice that ranged from 3/10 to 4/10. This did not represent an obstacle to the access of the penguins to the sea. The temperatures were very close to the average and the penguins were exposed to 15 days of storms. Throughout the month, pancake ice began to appear, which is the phase prior to the formation of fast ice.

Latitude: [74.64 S](#) Longitude: [165.38 E](#) Antarctic region: [Ross Sea](#)

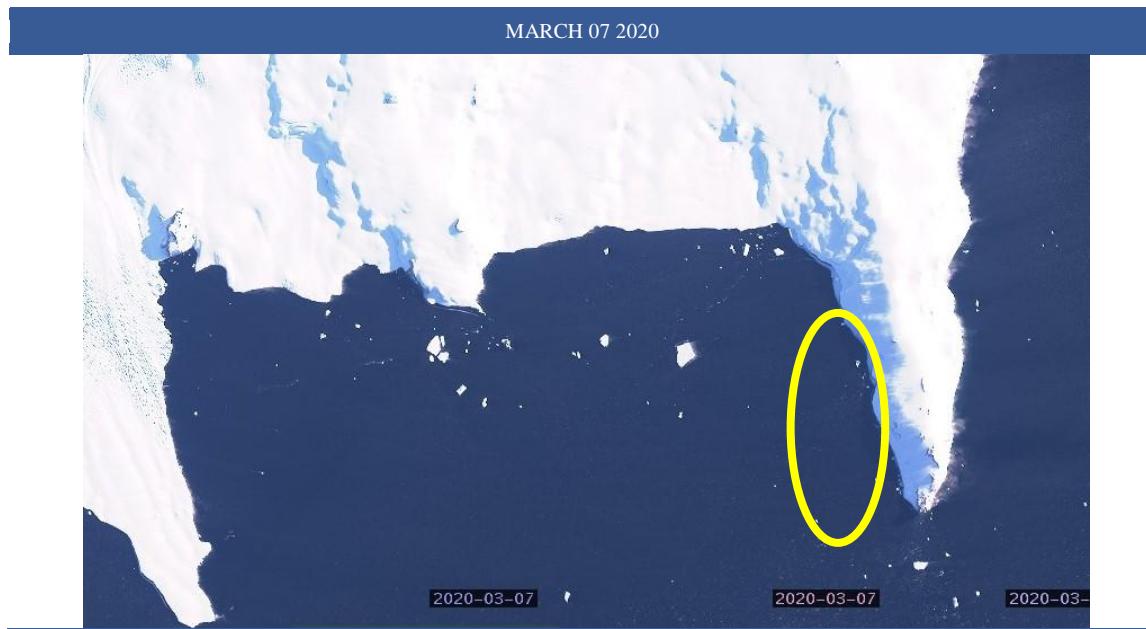
### DAYLENGTH

MARCH 01	MARCH 15	MARCH 31
16h 24m	13h 30m	10h 25m

### METEOROLOGICAL DATA

DATE	AVG. TEMP.	MAX. TEMP.	MIN. TEMP.	AVG. WIND	MAX. WIND	PRAEV. WIND	DAYS GALE*	DAYS SNOW
2020 MAR	-13.3C (8.1F)	-1.9C (28.6F)	-29.0C (-20.2F)	8.8 m/s (20 mph)	50.5 m/s (113 mph)	W & SW	15	17
Climatology 2000-2020	-13.7C (7.3F)	0.0C (32.0F)	-28.2C (-18.8F)	...	...	...	...	14

### ICE CONCENTRATION



## SOURCES

---

\* Winds > 15.5 m/s (35 mph or 56 km/h)

<https://seaice.uni-bremen.de>

<https://worldview.earthdata.nasa.gov/>

<https://apps.sentinel-hub.com/>