

Satellite poop trail leads way to Antarctic penguins

南極科學家靠衛星圖循糞找企鵝



Scientists have tracked down previously undiscovered colonies of Antarctic emperor penguins after spotting **trails** of their droppings on satellite pictures, a study said last week.

Zooming in on individual penguins is beyond current satellite imagery, but the tell-tale reddish-brown stains on the polar ice helped home in on large groups of the black and white flightless birds.

Mapping expert Peter Fretwell of the British Antarctic Survey (BAS) said the poop trail helps to track movements of the penguins, which in turn helps to monitor how they respond to climate change.

"We can't see actual penguins on the satellite maps because the **resolution** isn't good enough. But during the breeding season the birds stay at a colony for eight months," he said.

"The ice gets pretty dirty and it's the guano stains that we can see," he added.

The penguins spend much of their lives at sea, but return to their colonies to breed during the Antarctic winter. Scientists managed to identify 38 colonies, including 10 new ones, according to the research published in the journal *Global Ecology and Biogeography*.

"This is a very exciting development," said BAS penguin ecologist Phil Trathan. "Now we know exactly where the penguins are, the next step will be to count each colony so we can **get a much better picture** of population size."

"Using satellite images combined with counts of penguin numbers puts us in a much better position to monitor future population changes over time."

(AFP)

Above left: This undated photo provided by the British Antarctic Survey shows emperor penguin guano stains near the research center at Halley Bay, Antarctica.
Above: This undated satellite image shows white Antarctic ice stained brown by emperor penguins.

PHOTO: AP/NASA

左上圖：這張英國南極觀測站所提供的未註明日期照片中，在南極哈雷灣研究中心附近可見國王企鵝的糞便。

上圖：從這張未註明日期的衛星圖中可見南極白色的冰層上有國王企鵝留下的棕色糞痕。

照片：美聯社 / 美國航太總署

TODAY'S WORDS 今日單字

1. **trail** /treɪ/ n.

蹤跡 (zong1 ji1) · 小道 (xiao3 dao4)

例：There's a great hiking trail near here.
(這附近有一條很棒的步道。)

2. **resolution** /ˌrezəˈluʃən/ n.

解析度 (jie3 xi1 du4)

例：We found some high-resolution images of the mountains.

(我們找到一些那座山脈的高解析度圖片。)

IDIOM POINT 重要片語

get the picture

逐漸了解情況

You **get a picture** of something if you develop an understanding of it.

Example: "Thanks for your explanation. I think I **get the picture**."

若說你「get the picture of」某事，就表示你逐漸了解它的情況。

例如：「謝謝你解釋給我聽，我想我大概了解了」。

上週有一項研究指出，科學家從衛星空照圖中發現南極國王企鵝的糞痕，並進而追蹤到先前未曾發現的企鵝棲息地。

目前衛星圖像科技仍無法放大觀看個別的企鵝，不過這些出現在極地冰上可供辨認的紅棕色污點，有助於找出這群黑白毛色又不會飛的鳥類。

英國南極觀測站的地圖製圖專家彼得·弗雷威爾說，追蹤糞便有助於他們了解這些企鵝的行動，並進而監控牠們對氣候變遷的反應。

他說：「因為衛星圖的解析度不夠，所以我們無法真正觀測到企鵝。但在繁殖季節，這些企鵝會在棲息地停留八個月。」

他還說：「冰面會變得很髒，那就是我們看到的鳥糞。」

南極國王企鵝多生活在海上，但冬天時會回到棲息地繁殖。《全球生態暨生物地理學》期刊刊載的研究指出，科學家找出三十八個牠們的棲息地，其中有十個新發現的地點。

英國南極觀測站的企鵝生態學者菲爾·崔森說：「這是一項很令人興奮的發現。現在我們確知企鵝的位置，下一步就是計算出每個棲息地的企鵝數量，如此一來，我們就能對企鵝族群的大小有更清楚的概念。」

「利用衛星圖結合企鵝數量，更有助於我們未來觀測企鵝數量的變遷。」

(法新社 / 翻譯：袁星塵)