☑ Fact-Checked Science

EVIDENCE REVIEW · POLE-SHIFT CLAIMS

Polar forests, yes. Pole shifts, no.

A popular claim says researchers drilling near the North Pole found alternating layers of plants and ice, proof that the poles shift in cycles, and that Einstein investigated it before he died. Here is what the cores, the fossils and the letters show.

By Fact-Checked Science · Published October 11, 2026

OUR ANALYSIS marks our own reasoning, and the verdicts are our assessment. Everything else comes from the numbered sources.

The claim, piece by piece

OUR ASSESSMENT

PARTLY TRUE

"Researchers drilling near the North Pole found alternating layers of plants and ice."

They found both, but near the Pole they don't alternate: 250 km from it, fern layers from a warm Arctic lie below the first debris dropped by ice [1][29]. The alternation is in Greenland, at 77°N, where sediment beneath the ice sheet holds plants from at least two ice-free spells, each followed by glaciation [4]. See sections 1 and 2.

FALSE

"The layers show that the poles shift in cycles."

Rock magnetism places the forests near the poles when they grew [8][25], Earth's orbit explains why ice sheets come and go [13][14], and Antarctic ice records run unbroken for at least 800,000 years [32]. See sections 2 to 5.

PARTLY TRUE

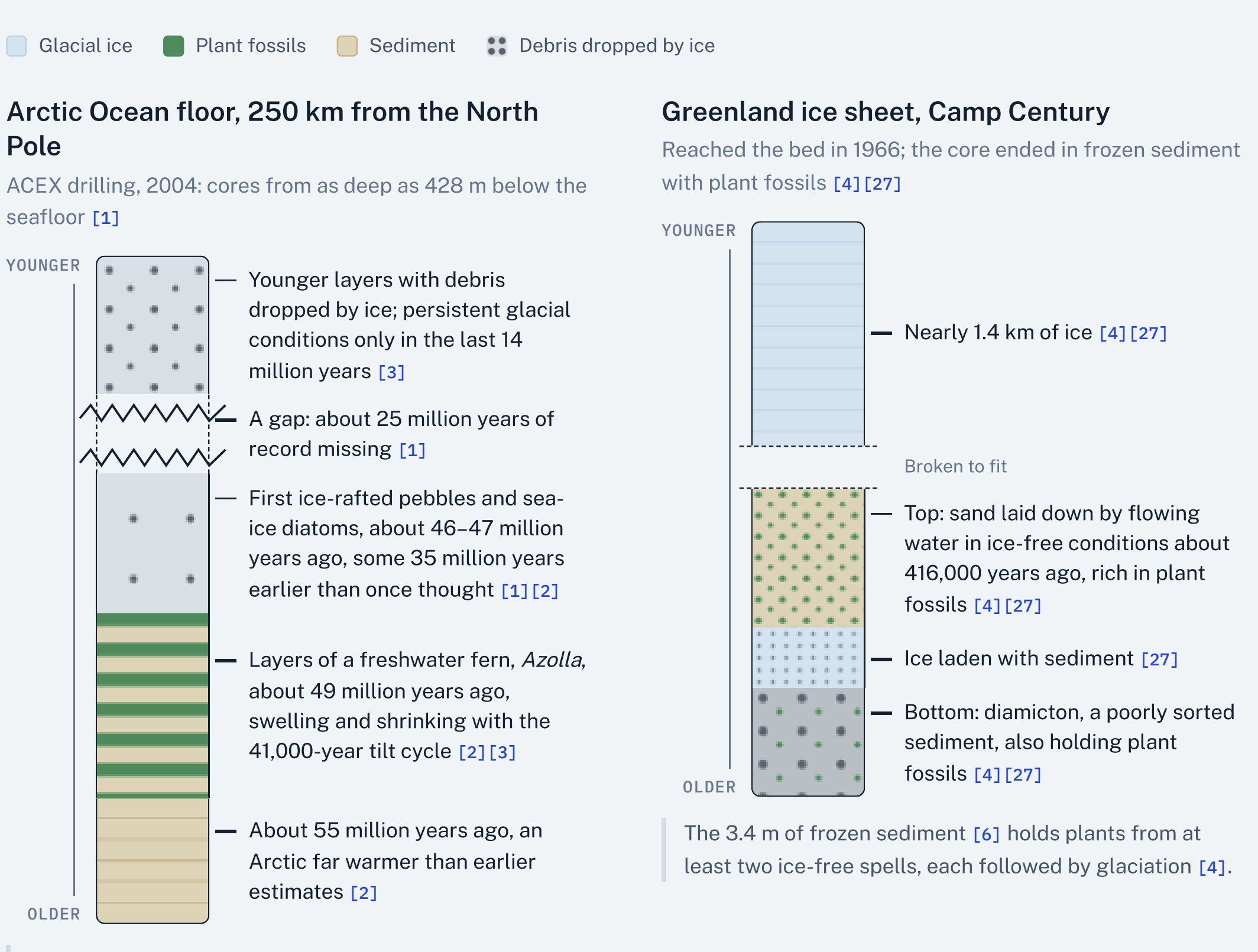
"Einstein investigated the idea before he died."

He corresponded with its author from 1952 to 1955 and wrote a foreword in 1954 [23][24], but did no experiments, fieldwork or data analysis of his own, and the author later conceded Einstein's point that polar ice is too weak to move the crust [21][28]. See section 6.

1 · THE LAYERS

Polar cores really do record both plants and ice

Drilling near the North Pole recovered fern layers from a warm Arctic, with debris dropped by ice only in younger layers above them [1][29]. Drilling through the Greenland ice sheet recovered plant-bearing sediment from at least two ice-free spells, each followed by glaciation [4].


Glacial ice
Plant fossils
Sediment
Debris dropped by ice
YOUNGER
OLDER
Younger layers with debris dropped by ice; persistent glacial conditions only in the last 14 million years [3]
A gap: about 25 million years of record missing [1]
First ice-rafted pebbles and sea-ice diatoms, about 46–47 million years ago, some 35 million years earlier than once thought [1][2]
Layers of a freshwater fern, Azolla, about 49 million years ago, swelling and shrinking with the 41,000-year tilt cycle [2][3]
About 55 million years ago, an Arctic far warmer than earlier estimates [2]
YOUNGER
Nearly 1.4 km of ice [4][27]
Broken to fit
Top: sand laid down by flowing water in ice-free conditions about 416,000 years ago, rich in plant fossils [4][27]
Ice laden with sediment [27]
Bottom: diamicton, a poorly sorted sediment, also holding plant fossils [4][27]
OLDER

Arctic Ocean floor, 250 km from the North Pole

ACEX drilling, 2004: cores from as deep as 428 m below the seafloor [1]

> Ferns first, ice later: the fern layers lie about 67 m below the deepest ice-rafted pebble [1], and fresh surface water was present "before the onset of ice-rafted debris" [29].

Greenland ice sheet, Camp Century

Reached the bed in 1966; the core ended in frozen sediment with plant fossils [4][27]

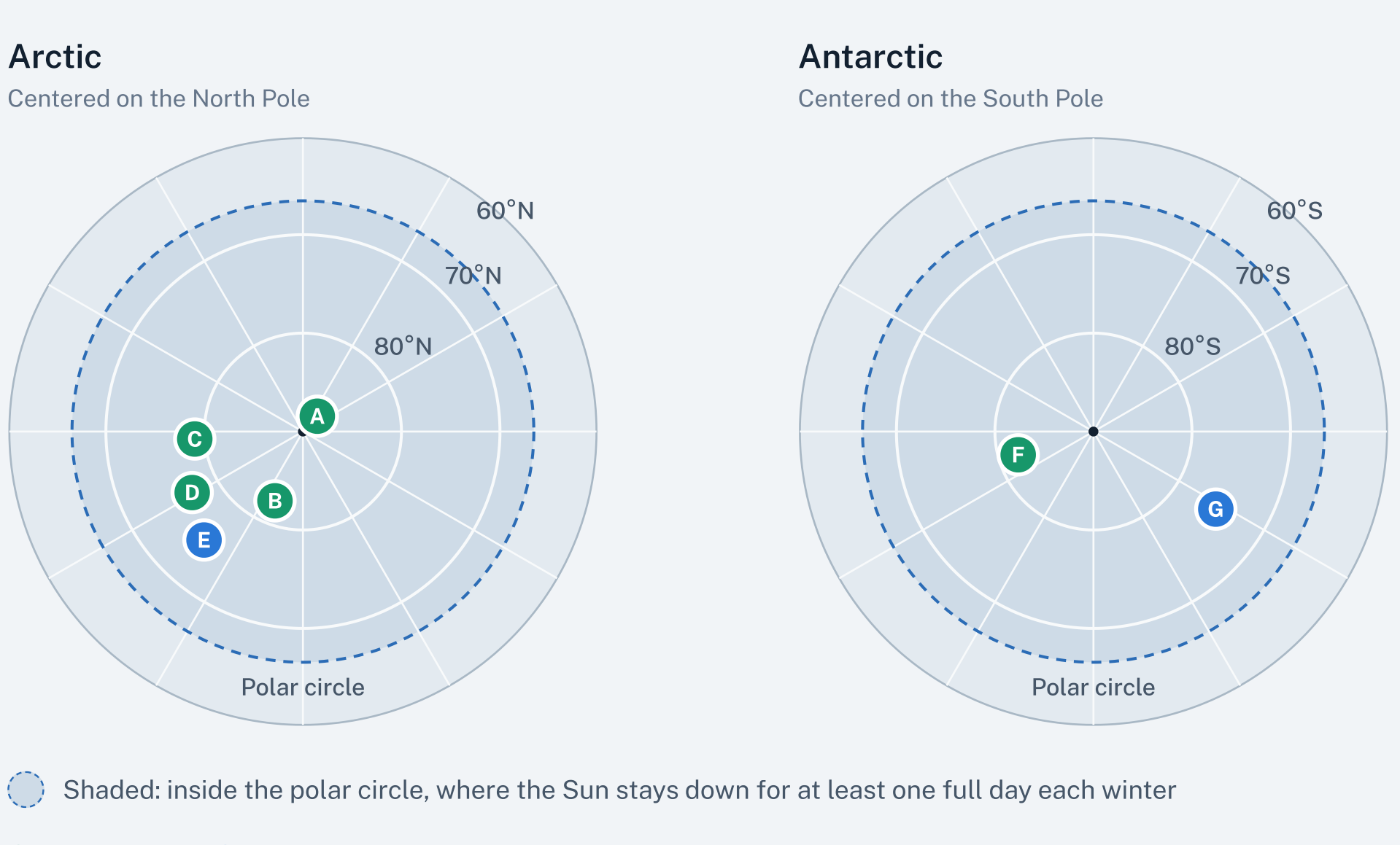
> The 3.4 m of frozen sediment [6] holds plants from at least two ice-free spells, each followed by glaciation [4].

Core sections are schematic and not to scale. The Arctic Ocean drilling recovered about two-thirds of the interval it cored [1]; the Greenland core is broken to fit.

2 · WHERE THE PLANTS GREW

The rocks place the forests near the poles

Every fossil site lies inside today's polar circle. Rock magnetism places the Eocene forests of Arctic Canada at 74–80°N, close to where they are now [25].



Arctic

Centered on the North Pole

Antarctic

Centered on the South Pole

Shaded: inside the polar circle, where the Sun stays down for at least one full day each winter

● Plant fossils ● Ice-core record

- A **Arctic Ocean floor, 88°N.** Fern layers, then ice-rafted debris [1][2]
- B **Kap København, North Greenland, 82°N.** Boreal forest with mastodons and reindeer about 2 million years ago, from ancient DNA [7]
- C **Ellesmere and Axel Heiberg islands, 78–80°N.** Eocene forests [10][11][12]
- D **Camp Century, Greenland, 77°N.** Plant fossils beneath the ice sheet [4][5]
- E **NGRIP, Greenland, 75°N.** Undisturbed ice back 123,000 years [16]
- F **West Antarctica, then about 82°S.** Rainforest 92–83 million years ago [8]
- G **Little Dome C, East Antarctica, 75°S.** Ice more than 1.2 million years old; preliminary analyses point to a continuous record that far back [15]

Sites are shown at today's positions, except the Antarctic forest, shown at about where it was 90 million years ago [8]. The Arctic Canada forests grew a few degrees south of where they are now [12][25], and the Arctic Ocean site at about 75°N, still inside the polar circle [25]. Positions are approximate.

WHERE THE FORESTS GREW

74–80°N

where rock magnetism places the Eocene forests of Ellesmere and Axel Heiberg islands when they grew [25]

POLAR NIGHT AT 77°N

OUR ANALYSIS

~3½ months

with the Sun below the horizon all day, at about 77°N, where Ellesmere's forests grew [25]. A study of the nearby Axel Heiberg forest says three months [11].

POLAR NIGHT AT 82°S

OUR ANALYSIS

~4½ months

at about 82°S, where Antarctica's rainforest grew; its discoverers say more than four months [8]. A climate model needs 1,120–1,680 ppm of CO_2, plant-covered land and no major ice sheet to produce its temperate climate [8][9].

Darkness comes from the latitude, not the fossils

The months of polar night are inferred from where the forests grew [25]. Their wood shows seasonal growth rings [12]. One idea was that these trees shed their leaves to save carbon through the dark winter; tested on living relatives under simulated polar light at 69°N, shedding gave no carbon advantage [25][26].

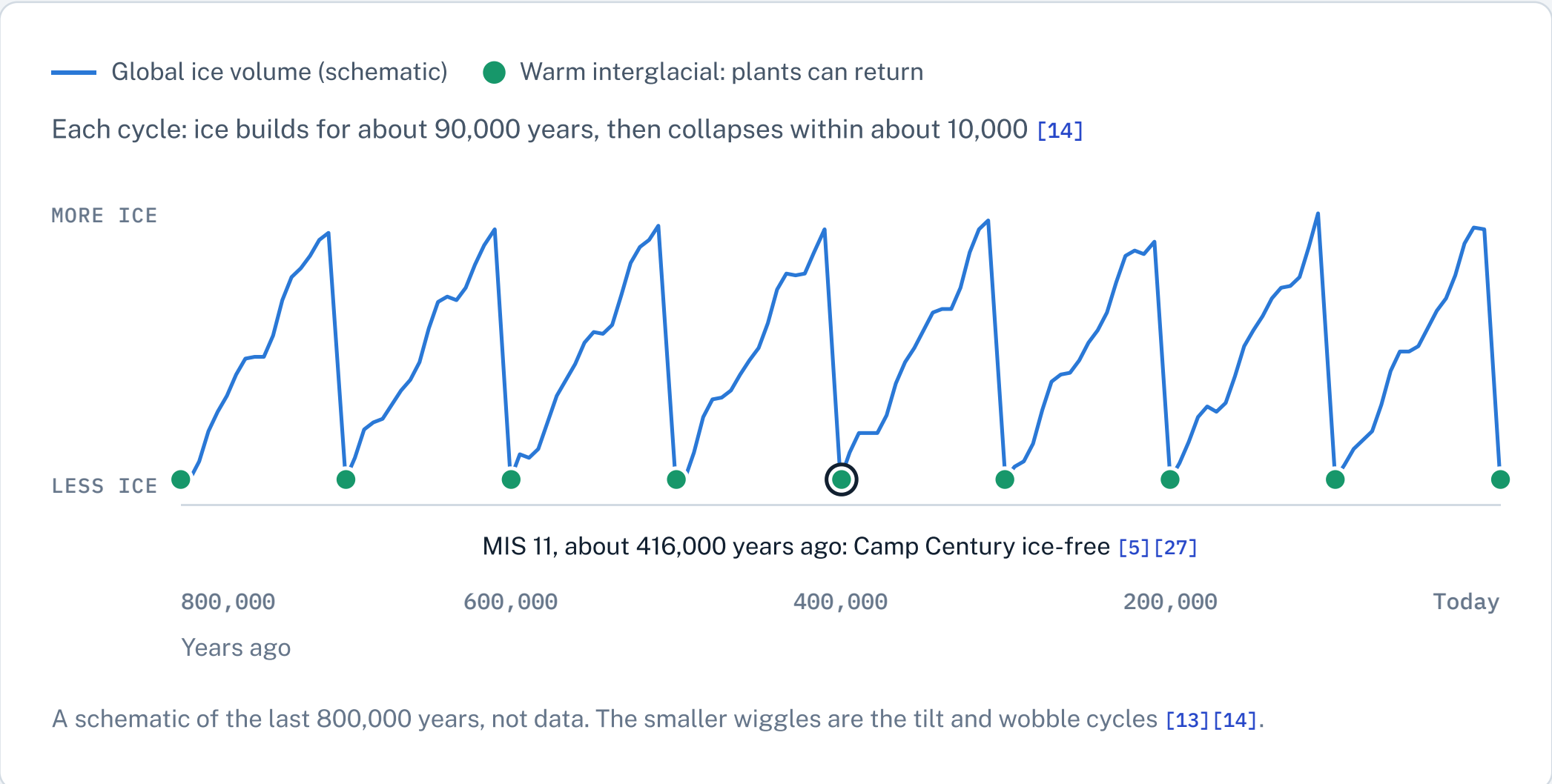
OUR ANALYSIS

Had the poles shifted, the rocks would record it: forests that grew near the equator and were later carried to the poles would show a low latitude in their magnetism. These point to 74–80°N.

3 · WHY THE ICE COMES AND GOES

Earth's orbit paces the ice. The poles stay put.

Slow, regular changes in Earth's orbit alter how much summer sunlight reaches high latitudes. Ice sheets grow and shrink in step [13][14]; when they shrink, plants can return, as they did at Camp Century [4].



Each cycle: ice builds for about 90,000 years, then collapses within about 10,000 [14]

A schematic of the last 800,000 years, not data. The smaller wiggles are the tilt and wobble cycles [13][14].

Tilt

The axis leans a little more, then a little less, over about 41,000 years [13][14]

Wobble

The axis slowly circles, and with the orbit's own slow turning this shifts the seasons over about 19,000–23,000 years [13][14]

Orbit shape

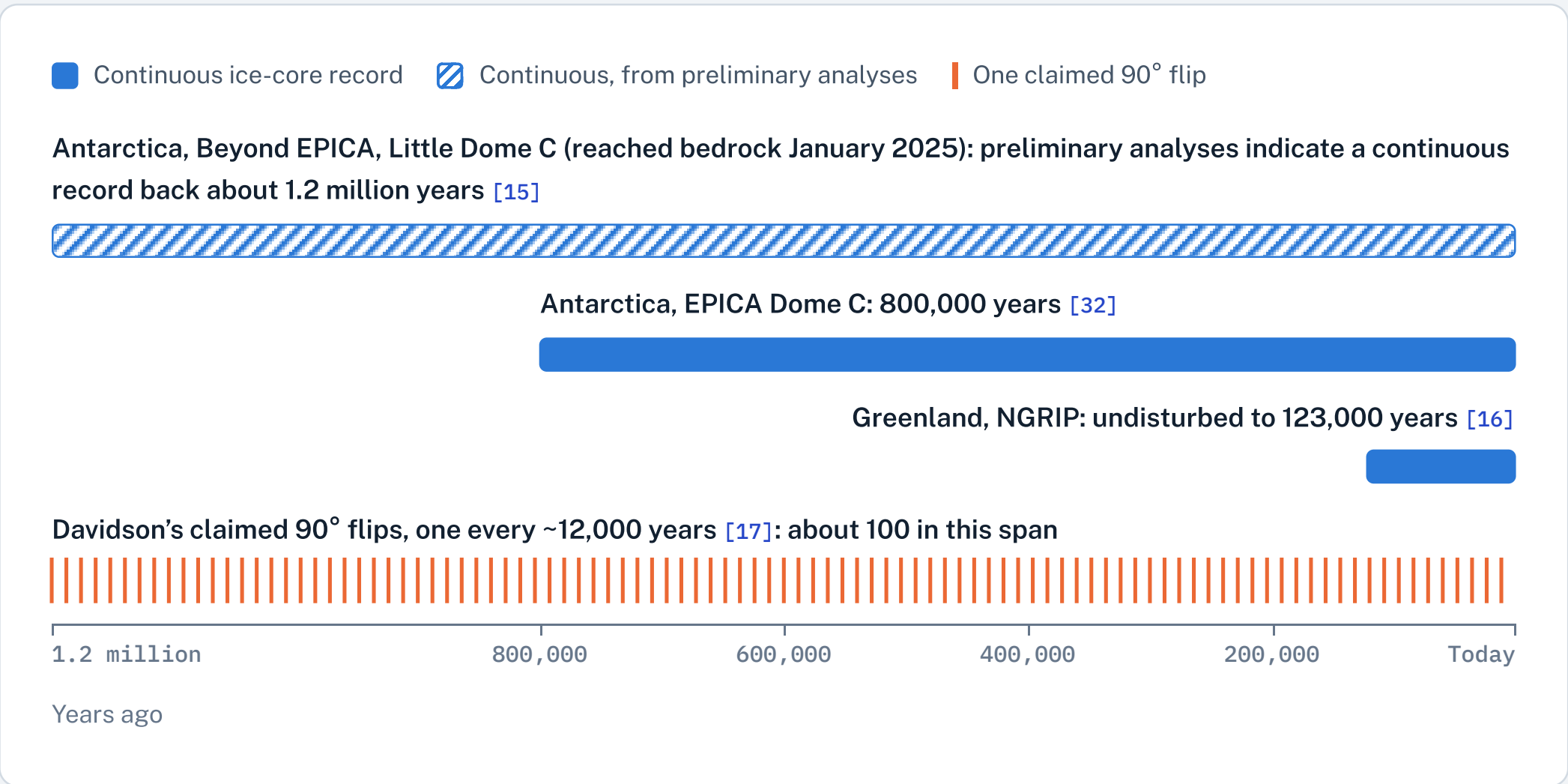
The orbit stretches and rounds out over about 100,000 years. Why that cycle dominates the recent ice ages is still debated [14]

None of these cycles moves the poles across Earth's surface. Each changes how sunlight is shared out by season and latitude [13].

4 · THE ICE RECORD

Unbroken ice rules out recent flips

Antarctic ice cores run continuously for 800,000 years [32], and preliminary results from a newer core suggest 1.2 million [15]. The pole-shift claim needs a 90° flip every 12,000 years or so [17].



OUR ANALYSIS

A flip every 12,000 years would have broken the 800,000-year record about 67 times, and the 1.2-million-year record about 100 times. Ice sheets do shrink and regrow in place: Camp Century's ice melted about 416,000 years ago and later returned [5][27]. What the cores never show is a break every 12,000 years.

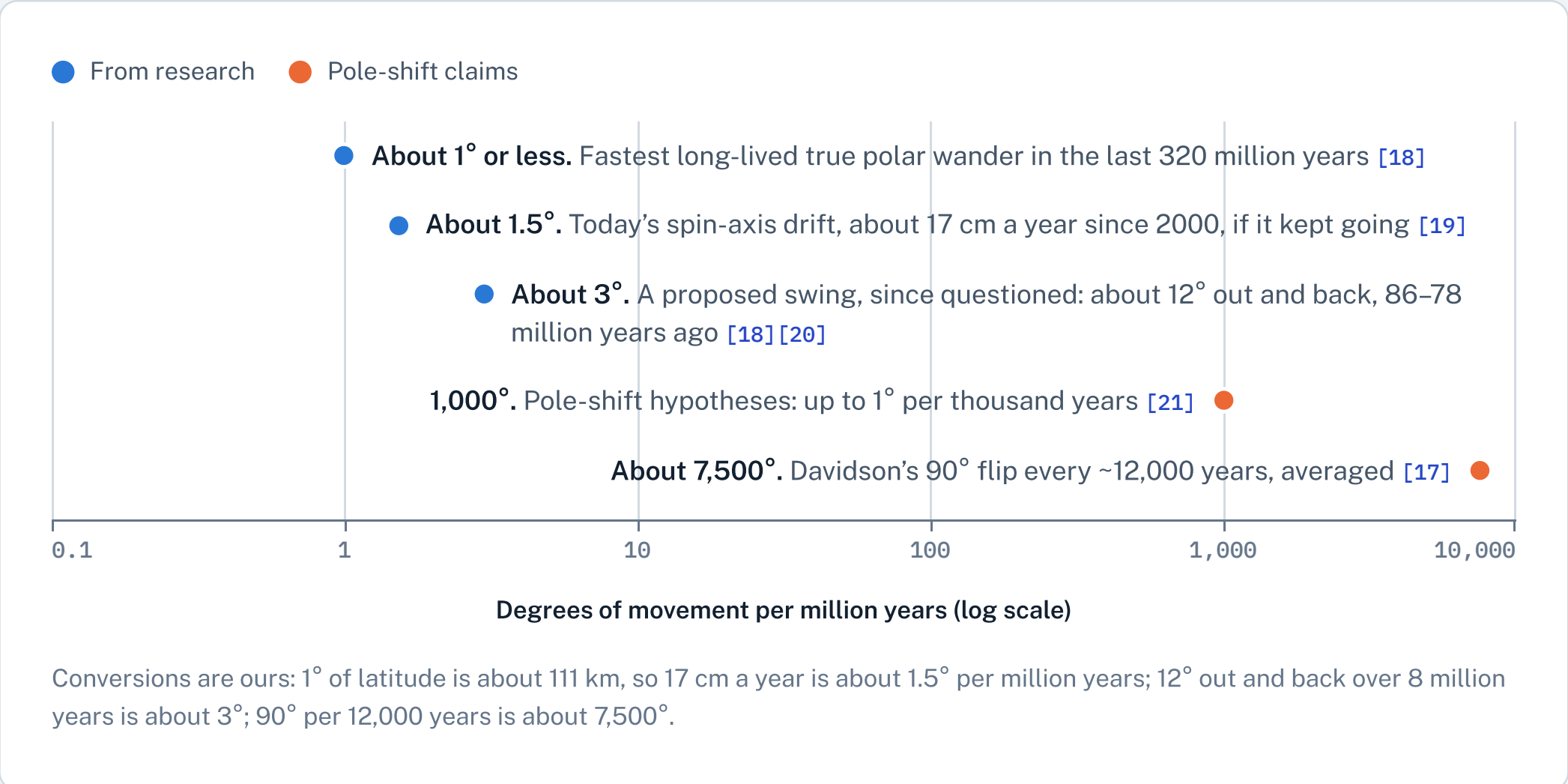
OUR ANALYSIS

Davidson also says the Arctic and Antarctica sat at the equator until about 12,000 years ago [17]. Ice more than 1.2 million years old sits at Little Dome C today [15]; it could not have survived a stay at the equator.

5 · HOW FAST POLES REALLY MOVE

Real pole motion is about a degree per million years

The solid Earth does slowly tip relative to its spin axis, a process called true polar wander [21]. The pole-shift claims need motion hundreds to thousands of times faster.



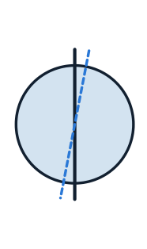
Conversions are ours: 1° of latitude is about 111 km, so 17 cm a year is about 1.5° per million years; 12° out and back over 8 million years is about 3°; 90° per 12,000 years is about 7,500°.

THE SPEED THE CLAIMS REQUIRE

OUR ANALYSIS

300–2,500×

faster than the 3° per million years that paleomagnetic data allow, at most, over the last 500 million years [31]



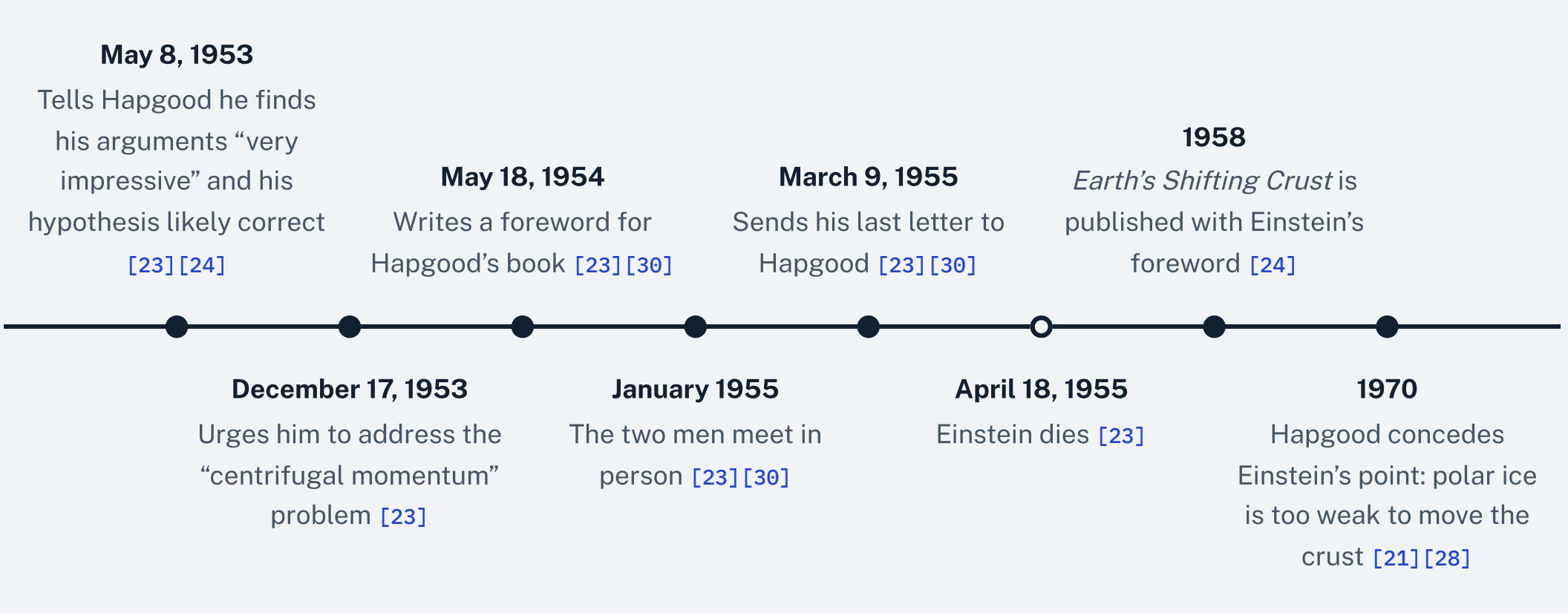
Compass poles are a different thing

Earth's magnetic field wanders and occasionally reverses, but a magnetic reversal is not a pole shift [21]. Over long spans the magnetic pole averages out to about the spin axis [22]. In the sketch, the solid line is the spin axis and the dashed line the magnetic axis.

6 · EINSTEIN'S ROLE

Einstein encouraged the idea but gathered no evidence of his own

In the last two and a half years of his life he corresponded with Charles Hapgood, the theory's author, and wrote a foreword to his book [23][24]. He was impressed, and he named the idea's weakest point.



May 8, 1953
Tells Hapgood he finds his arguments "very impressive" and his hypothesis likely correct [23][24]

December 17, 1953
Urges him to address the "centrifugal momentum" problem [23]

May 18, 1954
Writes a foreword for Hapgood's book [23][30]

January 1955
The two men meet in person [23][30]

March 9, 1955
Sends his last letter to Hapgood [23][30]

April 18, 1955
Einstein dies [23]

1958
Earth's Shifting Crust is published with Einstein's foreword [24]

1970
Hapgood concedes Einstein's point: polar ice is too weak to move the crust [21][28]

> *"The only doubtful assumption is that the earth's crust can be moved easily enough over the inner layers."*
>
> Einstein's foreword to *Earth's Shifting Crust* (1958) [24 p. 1]

What he did

- Read Hapgood's evidence and wrote back from 1952 to 1955 [23][24]
- Wrote a foreword calling the idea important, if it continued to prove itself [24 p. 1]
- Suggested a way to check one of its assumptions [24]

What he didn't do

- Run experiments, fieldwork or data analysis of his own
- Endorse the idea without conditions [24]
- See Camp Century's core reach the bed in 1966, 11 years after his death [4][27]

What would change this verdict

01
Eocene rocks from these sites whose magnetism records a low latitude

02
Breaks in long ice cores on a 12,000-year rhythm

03
Rocks recording 90° swings within thousands of years, not millions

Related checks

- MISLEADING "Tropical fossils" under the Canadian Arctic The Disaster Cycle, Fact-Checked
- UNVERIFIED Major White and Project Nanook The Disaster Cycle, Fact-Checked
- FALSE Ringless trees and frozen mammoths The Disaster Cycle, Fact-Checked
- FALSE Einstein and the 90° flip The Disaster Cycle, Fact-Checked
- MISLEADING Ice dating and tropical glaciers The Disaster Cycle, Fact-Checked

Sources

Bracketed numbers refer to this list; "p." gives a page of the cited book. Links checked October 11, 2026.

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23 Physics Forums (2006). The Einstein–Hapgood papers. A forum post copying the account of crust-displacement author Rand Flem-Ath, who obtained the letters (1952–1955) from the Einstein Archives.

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METHOD

How this was checked

On October 11, 2026, we checked every statement, number, quotation and citation on this page against its source, about 75 items in all. The check led to corrections: how the plant and ice layers sit in each core, the length of polar night at the two forest sites, the name and status of the oldest Antarctic ice core, the description of a proposed 3° polar-wander swing, the dates of Einstein's letters, and several citations. The change log has the details.

The verdicts, the items tagged "Our analysis," the rate conversions, the count of claimed flips and the lengths of polar night are our own work, built on the cited figures. They aren't findings of the sources. We counted polar night as the days when the Sun doesn't rise above the horizon even at noon; the same method gives Svalbard's observed polar night at 78°N. Drawings marked schematic are not to scale.

The popular claim this page checks circulates in several versions. Its parts about 90° flips, polar forests and Einstein also come up in the Disaster Cycle video, which we check separately; see Related checks.

This page was researched and written with Claude, an AI assistant made by Anthropic, and then re-checked against its sources in a separate verification pass.

The verdicts on this page

FALSE	The evidence contradicts the claim.
PARTLY TRUE	Part of the claim holds up and part doesn't.

All ten verdicts, and how we check

CORRECTIONS

Corrections and changes

If we get something wrong, we fix it and record the change below with the date. If a correction changes a verdict, the log says what the old verdict was.

Change log

Oct 11, 2026	Published on factchecked.science after a full check against the sources. Corrections: the Arctic Ocean core doesn't show plant layers between glacial deposits (its fern layers lie below the first debris dropped by ice), and at Camp Century the plants lie in sediment separated by ice, so section 1 now describes each core as it is; polar night near 77°N lasts about 3½ months, not 6, and near 82°S about 4½; the oldest-ice site is Little Dome C, and its record beyond 800,000 years is preliminary; the 3° swing is a proposal that has since been questioned, not the fastest documented; the rate of 1° per thousand years belongs to pole-shift hypotheses generally, not to Hapgood; Einstein's letters began in 1952; the foreword quotation is now complete. Replaced a preprint with the published paper, a link that now leads to an unrelated site, and a news repost, and added sources for the 800,000-year ice record and the dates of the letters. Restated the verdicts on our standard scale. The first part, rated as the claim is usually worded ("alternating layers"), is now Partly true (was "Supported"): the layers alternate in Greenland but not at the site near the North Pole. "The poles shift in cycles" is False (was "Not supported"), because the evidence contradicts it. The Einstein part stays Partly true.
Oct 7, 2026	Compiled, then revised the same day after a reader pointed out that polar darkness is inferred from latitude, not recorded in the fossils: section 2 now rests on paleomagnetic latitudes, and the Camp Century label says only what the 2023 dating shows.

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Last updated Oct 11, 2026