

— ONE YEAR AFTER HALONG

Forecasts now run on AI. The map under them has holes.

KUSKOKWIM DELTA

ILLUSTRATION • BERING SEA, LOOKING NORTH

HOW NOAA'S AI MODEL LEARNED

An AI forecast starts from a map of measurements.

NOAA fine-tuned its AI model, AIGFS, on its own Global Data Assimilation System analyses. That system puts surface, balloon, aircraft, buoy, radar and satellite observations onto a three-dimensional grid.

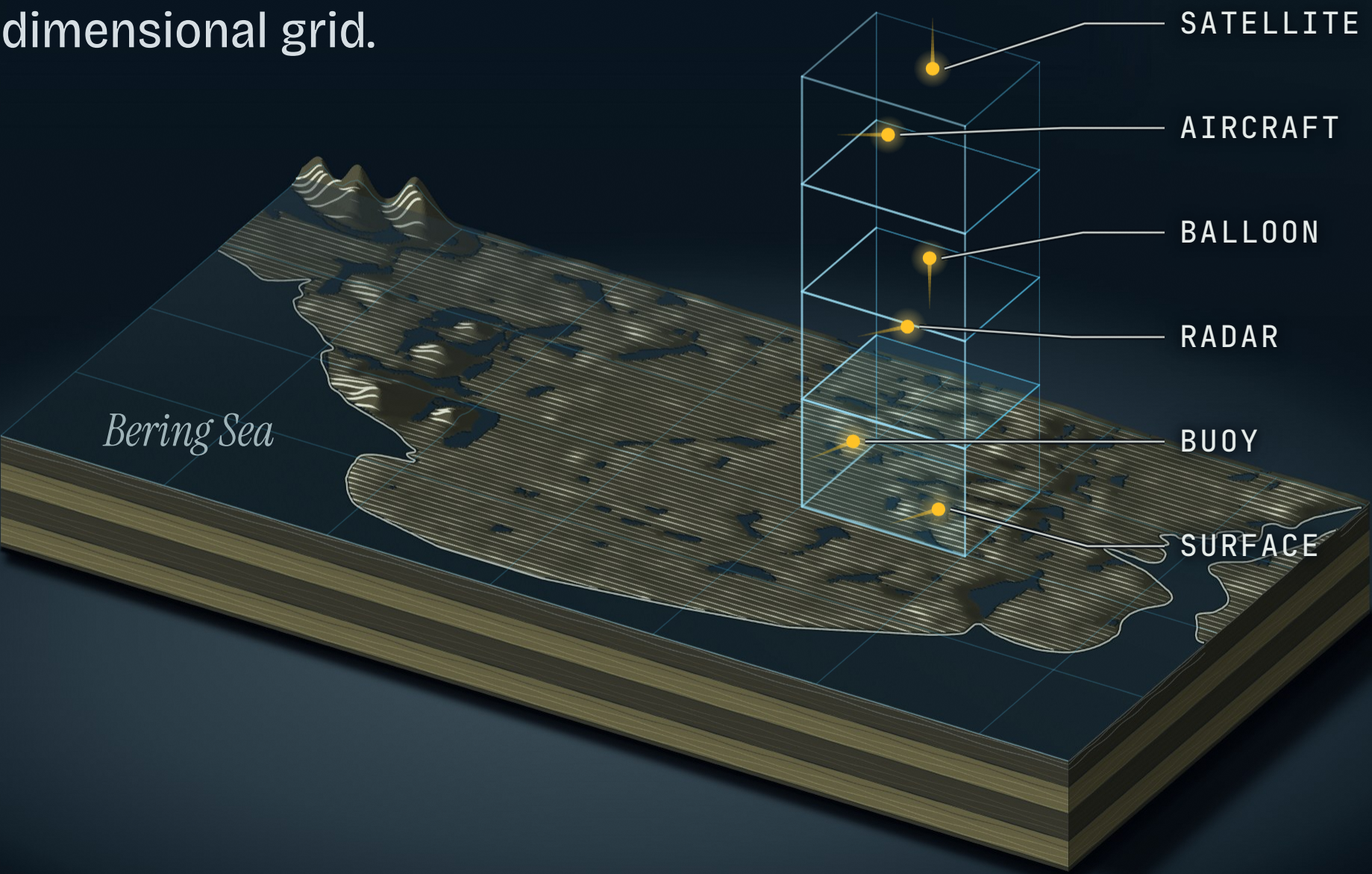


ILLUSTRATION • THE DELTA COAST NEAR KIPNUK • RELIEF 25X

WESTERN ALASKA, SINCE APRIL

Days or weeks with no observations.

KOTZEBUE • PAOT
BALLOON LAUNCHES SUSPENDED
INDEFINITELY, **FEBRUARY 2025**

Since April, every airport weather station in the Y-K Delta region has gone days or weeks without observations at times, climatologist Rick Thoman told KYUK.

10 TO 15 OF EVERY 100 ALASKA AVIATION STATIONS DOWN OR NOT FULLY WORKING ON A GIVEN DAY, EXPERTS SAID

Bering Sea

Norton Sound

Y-K DELTA REGION

Kuskokwim Bay

A YEAR AGO • OCTOBER 12TH, 2025

The models had the track. They missed the shift east.

Global models forecast Halong's track into the Bering Sea well but failed to forecast its eastward shift, Thoman said. A lack of balloon launches across Western Alaska may have played a role, KYUK reported.

FORECAST TRACK, SCHEMATIC

KUSKOKWIM DELTA COAST

NOAA'S AI MODELS WENT OPERATIONAL LATER, DECEMBER 17TH, 2025

— KUSKOKWIM DELTA COAST

Saltwater ran more than 15 miles onto the tundra.



MORE THAN 15 MI

NASA SATELLITE IMAGES, VIA KYUK

More than 1,500 people were forced from their homes. In Kipnuk, 90% of buildings were damaged or destroyed, KYUK reported.

SCHEMATIC EXTENT • ILLUSTRATION

THE YEAR SINCE HALONG, AS A MAP LEGEND

What got faster.

What went missing.

FASTER

-  16-DAY AI FORECAST IN ABOUT 40 MINUTES
-  0.3% OF THE OPERATIONAL GFS'S COMPUTING
-  NOAA SAYS V1.0 INTENSITY FORECASTS DEGRADED

MISSING

-  Y-K DELTA AIRPORT STATIONS, DAYS OR WEEKS WITH NO OBSERVATIONS SINCE APRIL
-  MORE THAN 160 FAA STATIONS PROMISED, NO SITES NAMED AS OF APRIL



1,000 CELLS = THE
GFS'S COMPUTING .
3 GOLD = AIGFS

"We need ocean observations."

RICK THOMAN, CLIMATOLOGIST, TO KYUK



AT BOTH POLES

"Speed and skill are not the same as trustworthiness."

AI sea ice forecast systems barely existed a decade ago and now number in the dozens, researchers wrote in Eos on October 9th. The observations needed to build and test them remain sparse across both poles.



PASSIVE MICROWAVE SEA ICE RECORD SINCE 1978 • SWATHS ILLUSTRATED

Thoman wants more than airport stations.

"I'm not just talking more
[FAA] weather stations."

Where should Alaska's next observation go?

