MEMORANDUM #2

To: Earhart Research Community
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Wind Study Reveals Earhart Had Light Winds—a Wake-up Call for Most Hypotheses

Overview: A four-year study of actual winds during June and July at 10,000' from Amelia Earhart's last known position (0718z) to Howland Island, reveals the average headwind component to be just 5.1 knots and never more than 13 knots. Crosswind component for the route was never more than 4 knots from the left (north) and never more than 5 knots from the right (south). These findings should come as no surprise since this part of the world near the equator is, after all, the doldrums, where winds are notoriously calm.

Consequences: These light wind findings undermine all three major Earhart disappearance hypotheses. 1) Blown off course to the south and accidentally found Gardner Island and arrived there in time to land on a reef before the tide covered it, 2) Ran out of fuel due to strong headwinds and crash-and-sank near Howland Island, and 1) Blown off course to the north and captured by the Japanese.

Likewise, derivative theories like the Taraia Object—which depend on a reef landing (#1 above) actually occurring—are now flawed and need another explanation for how the plane got into the lagoon.

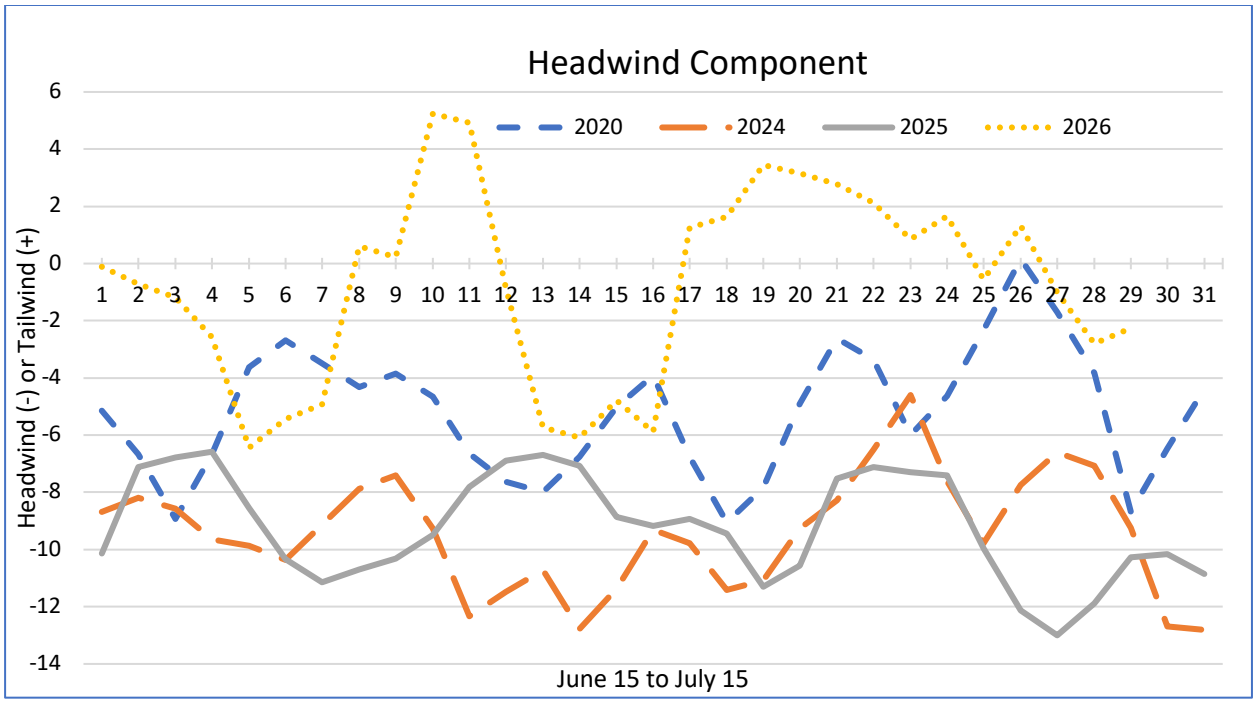
Methodology: NOAA GFS model data (GRIB) was obtained for June 15 to July 15 for four different years. Data for 10,000' was used, which would have been the eventual cruise altitude of the Electra. The study uses initialization data (analysis time) rather than forecast data; therefore it can be considered real-time data and accurate based on all available data sources such as satellites, etc.

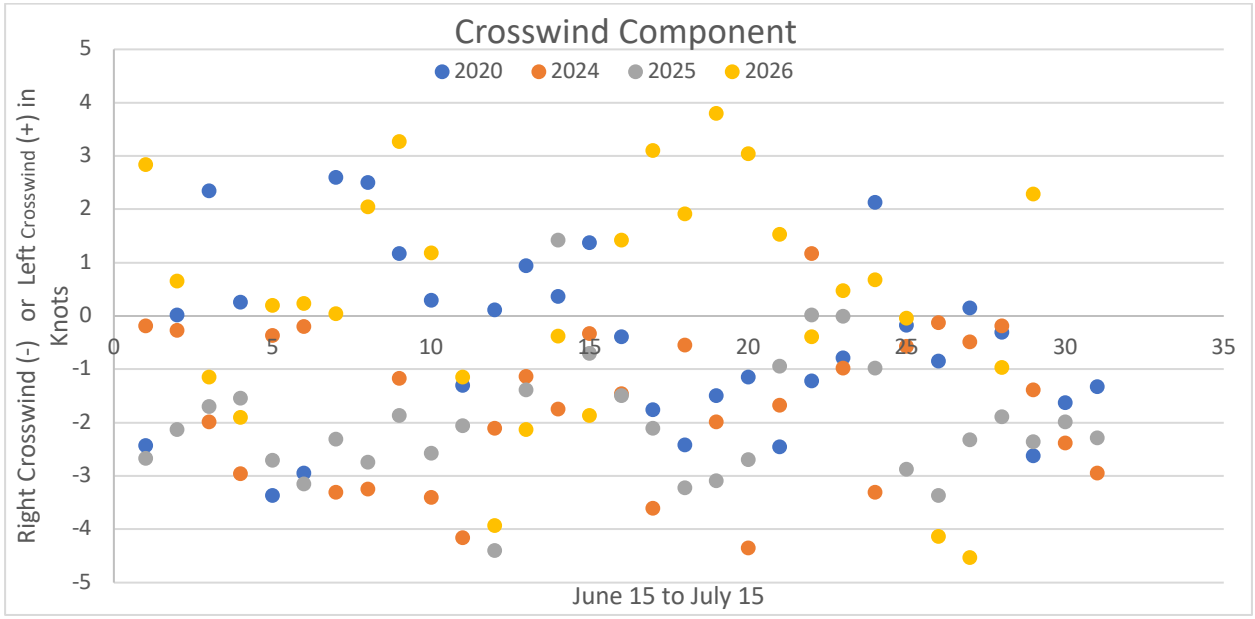
It is accepted that Earhart encountered strong headwinds early in her flight. Her position report at 0718z confirms that. This study examines the winds she faced during the final 11.9 hours—from her undisputed 0718z position report to Howland Island—where the competing theories diverge in their assumptions about wind effects.

A software program was written that extracted GRIB wind data in the form of UGRD (east-west) and VGRD (north-south) wind components and applied these to the route from the 0718z position to Howland Island at intervals of 0.5 degrees of longitude to obtain the headwind component and crosswind component for each point. Then all points (47) were averaged to obtain the average headwind and crosswind for the overall route.

The study used GRIB data for 2020, 2024, 2025, and 2026, because the author had already obtained data for those years. Various studies indicate that tropical winds have been trending stronger, so we may assume that in 1937 the winds were probably not stronger than those used in this study. To account for daily and seasonal variability, the average wind components were computed daily for 15 days +/- the date of Earhart's flight, July 2, 1937.

The following graphs show the headwind components or tailwind components for each year.





Sea Level vs. 10,000': The study also compared winds at sea level vs. 10,000' and found that at altitude headwinds were on average only about 3 knots stronger, and never more than 6 knots stronger. This is helpful to know when evaluating the reported ground winds by the ship *Itasca* on the day of her flight (east at 7-10 knots), which is generally in agreement with the above.

Conclusion: At this point, there simply isn't any support for strong winds of any kind. Remember, this is the doldrums we're talking about—the calmest zone of winds on earth. Everyone needs to go back to the drawing board, and rethink their theory without using wind as a crutch to make it work.

Note, the author does not claim that crash-and-sank or the landing on Gardner Island theories are no longer viable, but only if it can be explained by reasons other than the wind.

This memo and details of the study may be viewed online at www.Earhart2025.com/memo2