

Detailed C-54 Loss Reconstruction **Drift, Crew Actions, and Probable Site**

1. *Timeline & Cockpit Sequence*

After taking off from Elmendorf Air Force Base, the flight progressed normally as it passed Northway. The last reliable radio position report came when the aircraft checked in over Snag at 23:09 UTC on January 26th. At that time, the crew estimated they would reach Aishihik by 23:37, while cruising at an altitude of 10,000 feet.

Weather conditions at Snag were changeable but still clear enough for visual flight. However, both official forecasts for the next segment of their route and reports from other pilots in the air indicated that the weather was getting much worse to the southeast. In that area, the cloud cover quickly increased from partly cloudy to completely overcast between 9,000 and 12,000 feet, accompanied by snowfall and heavy ice forming on aircraft surfaces—creating hazardous conditions requiring instrument flying and exceptional caution.

2. *Crew Experience Post-Snag*

Soon after the C-54 passed Snag, the weather worsened rapidly. The crew likely flew into thick, unbroken clouds and snow, with ice starting to build up on the aircraft.

Other pilots flying in the same area—notably Military Air Transport Service (MATS) crews following the same route—noted in their reports that they experienced severe icing on their aircraft and had considerable difficulty maintaining their intended flight paths.

At cruising altitude, strong winds from the north-northwest (bearing 340–352°, speed 40–45 knots) were present.

The intended flight path was toward the southeast (bearing about 145–150°), so this wind would have struck the plane from its left, in some stretches almost directly from the side.

Without frequent and precise corrections for this crosswind, such a strong wind would have steadily pushed the aircraft well off course to the right—that is, toward the south and southeast—at a significant rate (with a crosswind effect of roughly 35–38 knots).

The crew was using standard 1950s navigation, relying mostly on dead reckoning and radio-based aids such as radio ranges and Automatic Direction Finders (ADF). These methods were known to be unreliable in these conditions, especially when ice formed on antennas, which was a documented problem that night.

The official radio logs show that the final position reports from the aircraft as it passed Snag and approached Aishihik were received very weakly or with interruptions, suggesting that their transmission equipment may have been impaired by ice buildup or antenna problems.

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3. Hypothetical Cockpit Behavior & Timeline

Not long after passing Snag, the aircraft most likely entered instrument meteorological conditions—meaning the crew could no longer see the ground or any visual landmarks due to heavy cloud and snow.

The pilots' attention would have shifted toward managing the dangerous buildup of ice on the aircraft, trying to hold their assigned altitude, and attempting to pinpoint their position using whatever radio navigation signals they could receive. It is likely the radio operator was reporting that radio beacons were weak, intermittent, or completely missing.

With the stressful workload and possible fatigue, the cockpit environment would have been tense—more discussions, higher stress levels, and the risk of the crew convincing themselves they were farther along the route than they actually were (for example, believing they were close to Aishihik simply because enough time had passed).

As time went on, the crew would expect to be approaching Aishihik, but in reality, they may have been drifting off course without realizing it. If they were unable to accurately identify Aishihik's radio beacon, or if they picked up the wrong signal, they might have continued flying under the mistaken impression they were on track.

Facing persistent icing, the crew may have decided to descend in hopes of finding warmer air, or simply to get out of the clouds—potentially dropping below the safe minimum altitude for the route in an effort to regain visual contact with the ground.

All the while, due to the strong crosswind, the airplane was likely being pushed much farther right of their intended course—toward the south or southeast—without the crew realizing they had left the airway's safety corridor. They almost certainly believed they were still flying along the designated route.

4. The Event

Because of the strong crosswind and limited navigation accuracy, it's very likely the aircraft was drifting steadily to the right of its intended flight path—possibly ending up 20 to 40 nautical miles south or southeast of where the crew believed they were, all within about half an hour after leaving Snag.

In these conditions—flying at night, through snow and thick clouds with no outside visibility—the crew would have had almost no warning of approaching terrain. Mountains or ridges could have appeared through the cockpit windows only moments before the crash, if at all, giving the pilots no real time to react, send a distress call, or prepare for emergency landing or evacuation.

During or immediately after the crash, any external antennas would likely be sheared off, and even before impact, the radios may have become unusable due to severe icing. This would have left the crew unable to send a Mayday or any post-crash signals, helping explain why no distress calls were ever received.

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5. *Search Area and Effectiveness*

The area where the C-54 most likely went down was divided into a series of grid squares, each scheduled to be flown over multiple times by search aircraft in a systematic pattern. According to the search reports, the most likely locations were each scanned three to five times by different aircrews.

However, what happened with the crashes of AF1015 and AF1037—search aircraft that went down during the operation—demonstrated how difficult it is to spot a wreck. In both of those cases, searchers knew the approximate crash locations, but the aircraft were still nearly impossible to see from the air because they were hidden by dense forest and snow cover.

In the harsh Yukon winter, fresh snow repeatedly covered the ground, making wreckage even harder to see. Unless a crashed aircraft caught fire or survivors were able to make themselves visible right away, the odds of visually identifying the site from above were extremely slim.

6. *Why Not Further South/East?*

Various sightings reported to the south—such as flares, fires, or possible aircraft sightings—were all investigated, but every one turned out to have a mundane explanation, like bonfires set by civilians or other aircraft in the area. No physical evidence or debris related to the missing plane was ever found farther to the southeast or along any of the main highways.

Similarly, all the mysterious radio signals or distress calls that were picked up—sometimes rumored to be “SOS” messages—were thoroughly analyzed by search-and-rescue leaders and radio specialists. By February, they had concluded that none of these signals were genuine or useful for locating the missing aircraft.

7. Why This Specific Area?

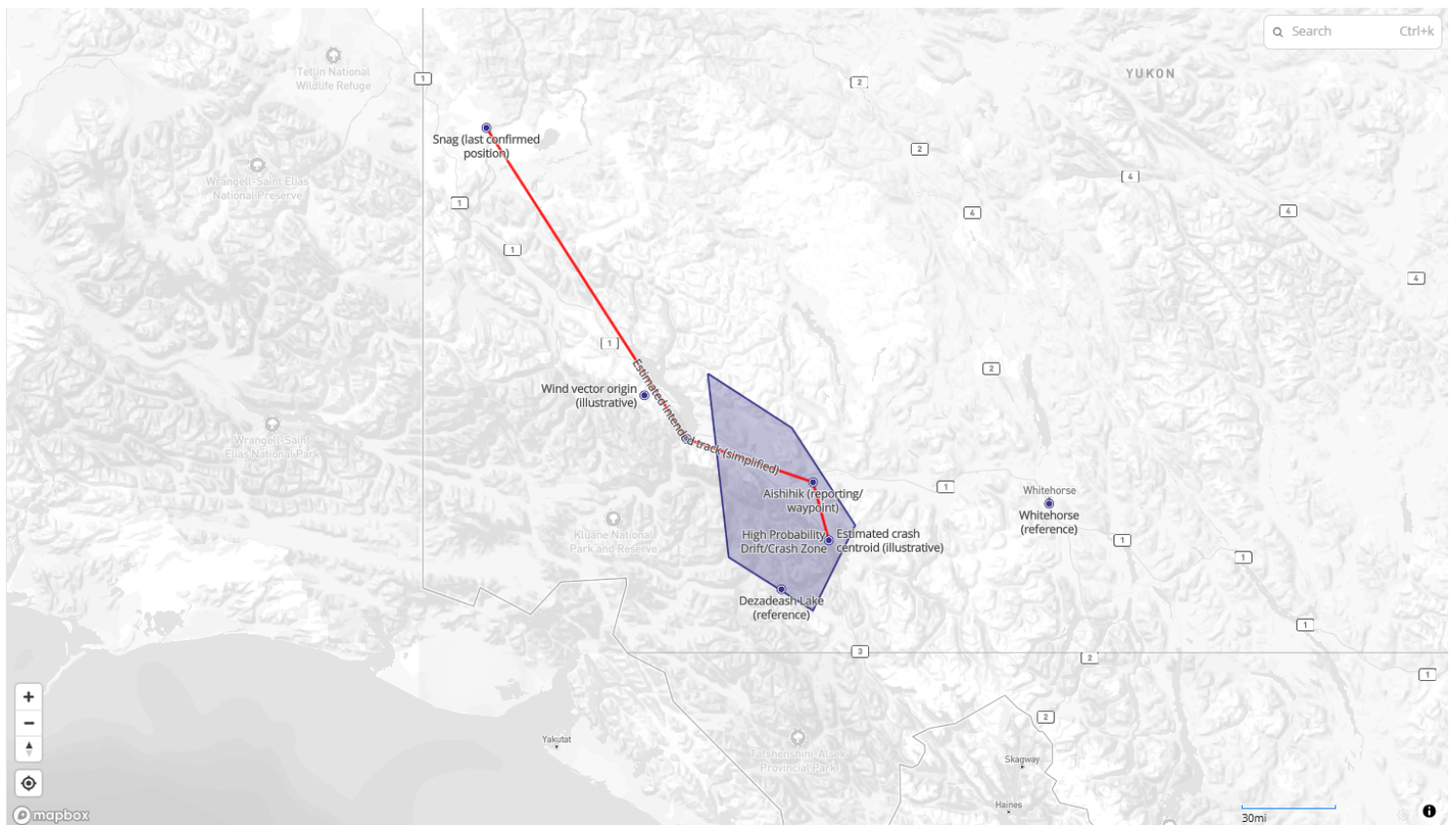
Taking into account the last confirmed position of the aircraft, the direction and strength of the winds that night, the intended flight path, and factoring in likely navigation errors and poor visibility due to clouds and icing, the most reasonable conclusion is that the plane crashed somewhere 20 to 50 nautical miles south or southeast of Aishihik. This area stretches between Kluane Lake, Dezadeash Lake, and the northern slopes of the St. Elias Mountains.

This zone was also the main focus of the original grid search, and if a search were to be conducted today—especially using advanced methods like aerial LIDAR scanning or carefully coordinated ground teams—this is the area where discovering the wreckage would be most likely.

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Summary Table:

Time/Phase	Crew Actions / Environment	Key Evidence
Snag– Aishihik	Flight by instruments, weather deteriorating	Weather charts, last contact
Post-Snag	Icing, entered clouds (IMC), radio fade, drift	Pilot weather reports, analysis
SE of Airway	Drifted off course, lost terrain/altitude awareness	Wind calculations, drift math
Impact	Flew into terrain, no time to react or signal	Lack of distress call, search data
Post-crash	Wreck hidden by forest/snow, remains undiscovered	Search record, photo/documentation



Snag (last confirmed position) — lon/lat: (-140.400, 62.400)

Last reliable radio fix at 1950-01-26T23:09Z. Use as origin for drift modeling.
Kluane Lake (reference) — lon/lat: (-138.500, 61.000)

Landmark inside the reported search region.
Aishihik (planned waypoint) — lon/lat: (-137.300, 60.800)

The crew expected to reach this fix shortly after Snag; primary navigation reference.
Whitehorse (reference) — lon/lat: (-135.060, 60.700)

Regional reference / search coordination centre.
Dezadeash Lake (reference) — lon/lat: (-137.600, 60.300)

Southern reference near the suspected crash band.
Polygon (High Probability Drift / Crash Zone)

Vertices (clockwise as given):
(-138.300, 61.300)
(-137.500, 61.050)
(-136.900, 60.600)
(-137.300, 60.200)
(-138.100, 60.450)
closed back to (-138.300, 61.300)

Description:

This polygon is the mapped “high probability” area derived from your synopsis (20–50 nm S/SE of Aishihik, overlapping Kluane/Dezadeash and the northern slopes of the St. Elias).

Approximate extents: east–west span $\approx 1.4^\circ$ lon (~ 40 nm at $\sim 61^\circ$ N); north–south span $\approx 1.1^\circ$ lat (~ 66 nm). (Use these as coarse search-box dimensions; terrain and snow cover make visual detection difficult.)

Use this polygon as the primary LIDAR search priority, then expand along the SSE band described in the report.

LineString (Estimated intended track / red line)

Coordinates (sampled):

Start: Snag (-140.400, 62.400)
Mid: Kluane reference (-138.500, 61.000)
Mid: Aishihik (-137.300, 60.800)
End (terminates inside polygon): (-137.150, 60.530)

Description:

Straight-line simplification of Amber-2 airway from Snag toward Aishihik and continuing into the high-probability polygon. Render as a red stroke on maps to show intended route + likely final track into the search zone.

Estimated crash centroid and uncertainty

Centroid (illustrative): (-137.150, 60.530)

Representative point located inside the polygon.

Uncertainty: radial band 20–50 nautical miles from Aishihik (per synopsis).

20 nm ≈ 37 km; 50 nm ≈ 93 km. Treat the centroid as an illustrative focus point but plan searches to cover the full 20–50 nm SSE band.

Wind / drift note (illustrative point)

Wind vector origin shown at (-138.900, 61.200) with reported conditions:

Winds aloft ~ 340 – 352° at 40–45 kt (from NNW). This would push the aircraft to the right of an intended SE heading, producing significant drift toward S/SE (report estimate of ~ 35 – 38 kt cross-track effect).