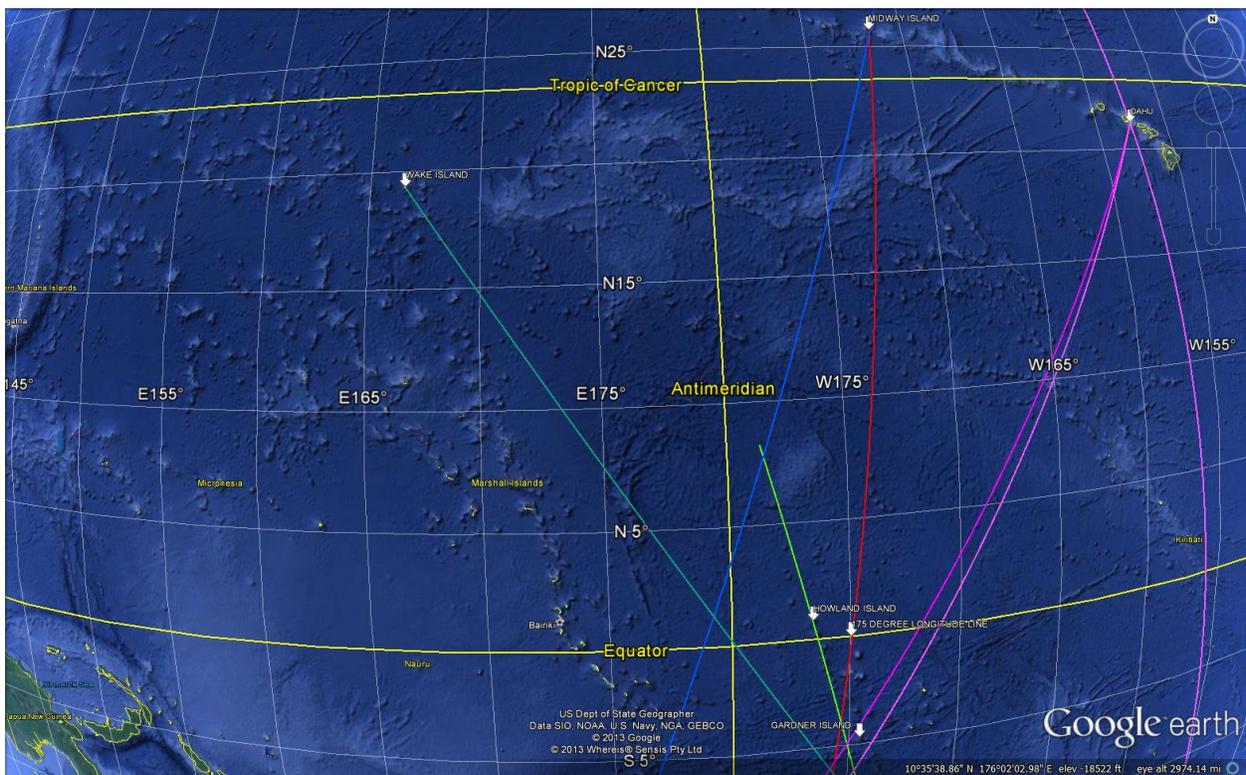


TIGHAR'S Bearings Questionable

This is a representation of the picture in TIGHAR's research paper titled *Analysis of Radio Direction Finder Bearings in search of Amelia Earhart* by Bob Brandenburg. It shows the bearings taken by the radio stations at Oahu, Midway, Wake and Howland Islands on July 4th and 5th, 1937. The report's author, Mr. Brandenburg, states, "In sum, the weight of available evidence strongly supports the TIGHAR hypothesis."

When we first looked at the drawing and article on TIGHAR's site we were duly impressed. It would seem that all the "evidence" points to the fact that the radio calls came from Gardner Island. Let's see what the evidence really supports!

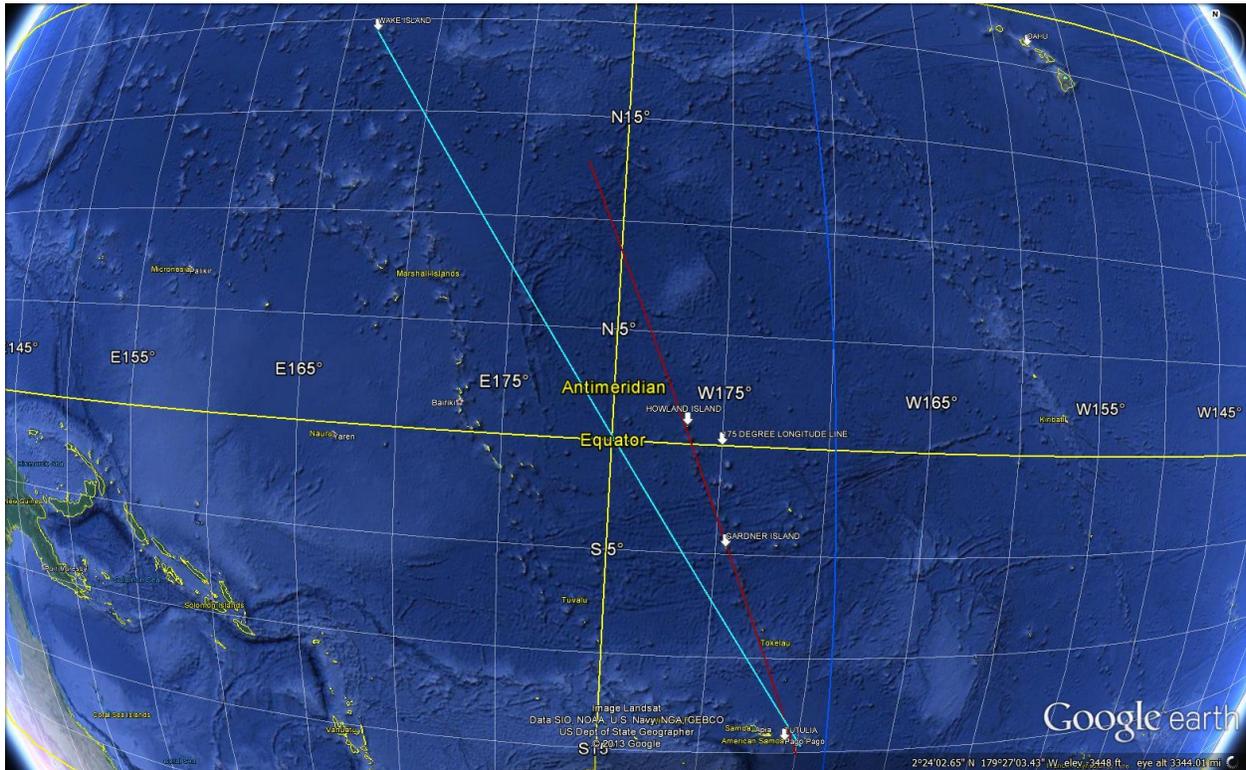


Firstly, we must correct Mr. Brandenburg's misplaced 175 degree bearing (Red Line) from Midway Island. He depicts the line passing about 67 miles west of Gardner. Actually, if he had drawn the line correctly it would pass 360 miles east of Gardner.

We show the bearing (blue line) in the picture below in its correct position. He states, "On balance, there is no clear weight of evidence for or against the signal originating at Gardner Island." If drawn correctly it shows the most likely place for the broadcasts origin was Tutuila Radio on American Samoa.

American Samoa is very probably the point of origin for the radio calls monitored by Midway Island's 175 degree bearing (Blue Line) 142 miles east of Samoa, Wake Island's 144 degree bearing (Aqua Line)

38 miles east of Tutuila and Baker Island's NNW/SSE bearing (Red Line) 21 miles east of Tutuila as shown in the picture below.



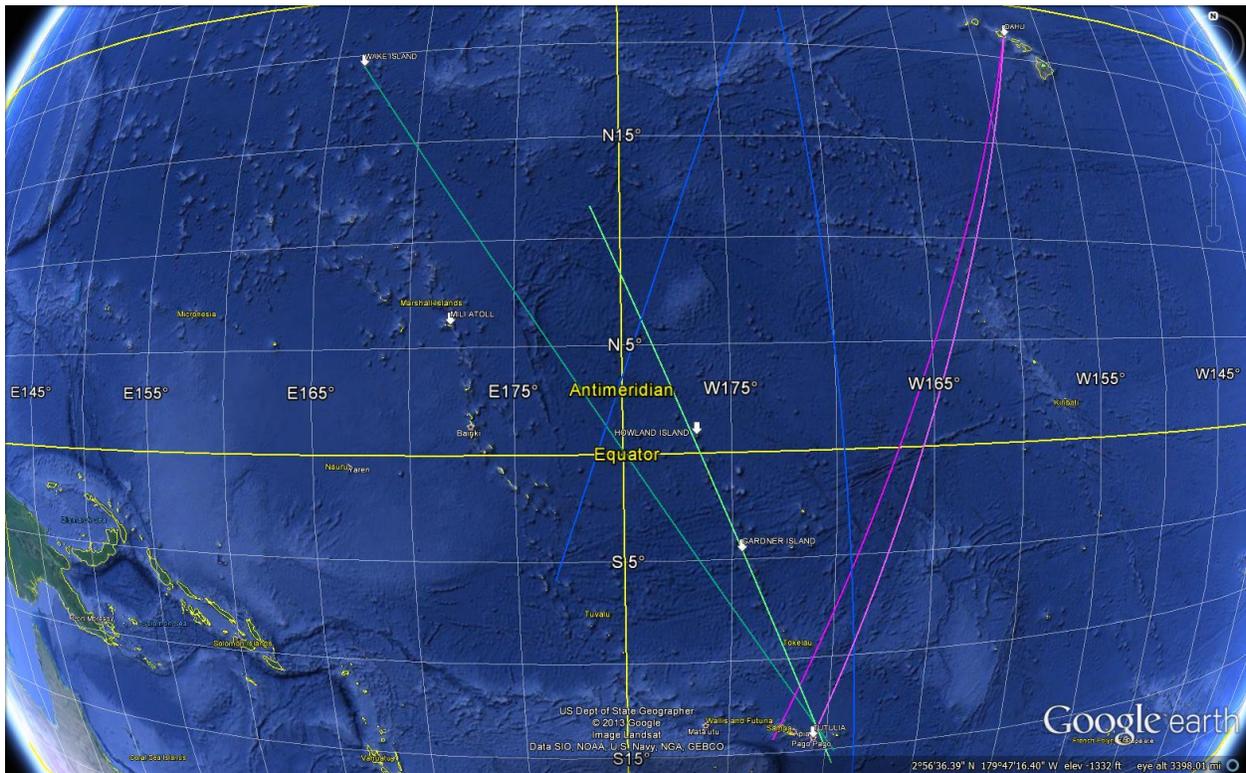
At this point we must acknowledge that the 144 degree bearing from Wake Island (Aqua Line) is the only bearing taken in those two days that the operator was certain came from Earhart (even though it was a man's voice he heard). So we feel comfortable in eliminating the 175 bearing from Midway (Blue Line) and the NNW/SSE bearing from Baker Island (Red Line). We also feel that the 175 bearing from Oahu (Pink Line running south of Oahu) must also be eliminated because in Mr. Brandenburg's words: *"Notwithstanding the probability argument in favor of Gardner, the possibility, however remote, that one of the Soviet stations near the reciprocal was the source, cannot be ruled out on the basis of the available evidence."*

Lastly, also using Mr. Brandenburg's quote of *"The elevation angle for a signal from Gardner at this time was 2 degrees, which was below the Koolau Ridge line elevation angle, which could explain the signal weakness and hence the difficulty in getting the bearing."* We can eliminate the 215 degree bearing (the northernmost pink line) from Mokapu Point on Oahu. The statement by K.C. Ambler the Mokapu supervisor cinches it: *"Close to 3105 but the signal is so weak that it is impossible to obtain even a fair check. Average seems to be around 215 degrees-very doubtful bearing."*

Let's see what we have left. We have the 213 degree bearing (southernmost pink line) from Mokapu Point on Oahu. We also have the 201 degree bearing (the blue line) from Midway. The 213 bearing from Oahu looks pretty good in Mr. Brandenburg's words: *"Although not conclusive, the available evidence strongly suggests that Gardner Island was the most likely source of the signal."* Weighty words indeed. Mr. Paulson the Mokapu supervisor stated, *"Carrier again heard on 3105, rough bearing only possible due to weakness and swinging of signals. Get bearing from Mokapu of approximately 213 degrees."*

Advised Coast Guard". His boss, G.W. Angus, stated in his report, "Mr. Paulson stated that he heard signals in the vicinity of 3105 KC, although the frequency could not be accurately determined and on which he obtained an approximate bearing of 210 degrees."

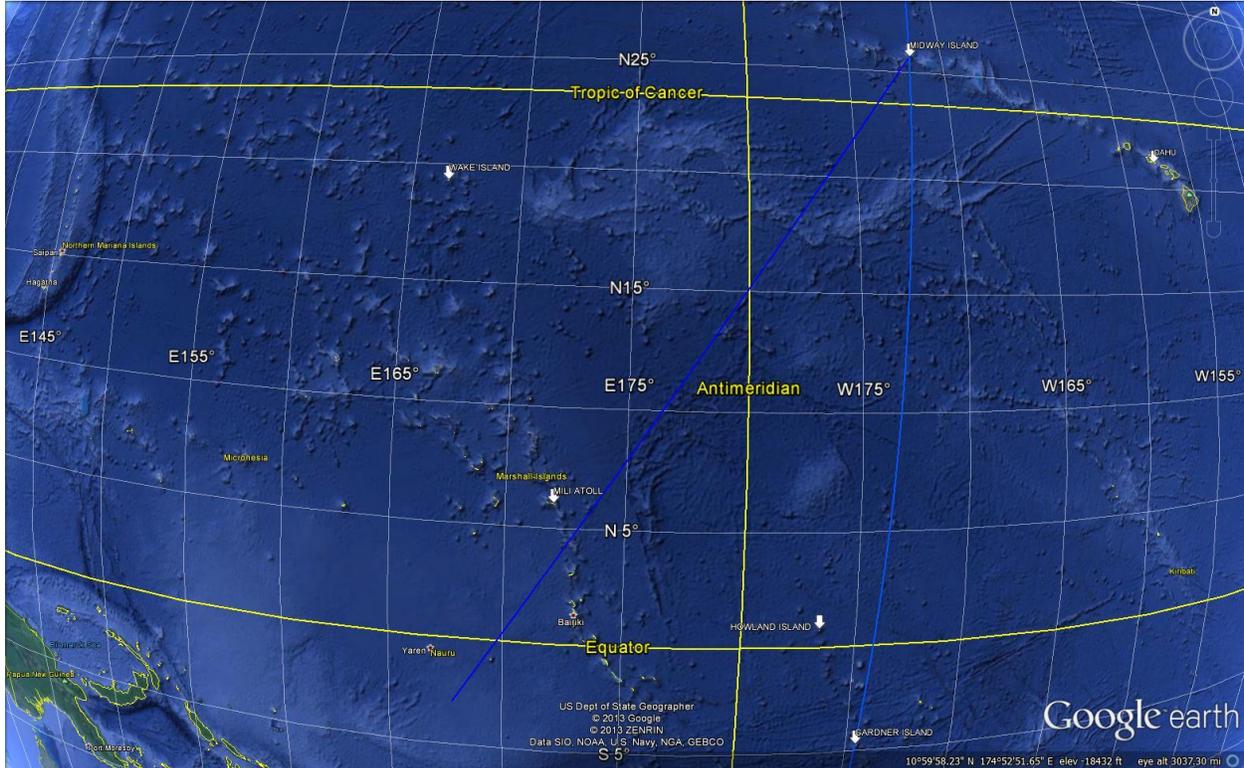
At this time in history it was not uncommon to figure an error in DF bearings, taken under better conditions, of plus or minus 10 degrees. Mr. Brandenburg states *"Other than Gardner Island, the only other potential source near the reported bearing was the AM broadcast station in Melbourne, which could not be heard at Mokapu"*. I fear that statement isn't quite accurate. Baker Island (thirty miles south of Howland) had a ham radio operator, there was Tutulia Radio on American Samoa and who knows how many ham operators lived on Samoa an island next door. As luck would have it American Samoa is 201 degrees from Oahu, 10 degrees from the much ballyhooed 210 degree (213 your choice) and Samoa (US didn't control) is 204 degrees from Oahu. So let's see what we have now; see picture below.



It would seem to me that Mr. Brandenburg has shown that someone on American Samoa or Samoa could have been transmitting on 3105 kHz. It could have been an innocent mistake or someone having a little fun, who knows. We can't answer that question.

Notice the blue line on the picture above that goes off to the west. This is the 201 bearing from Midway Island. Let's examine that one. According to Mr. Brandenburg that bearing could also point to Gardner Island. What, you ask? From his own dissertation *"The fact that this bearing is well off the bearing of Gardner Island does not necessarily rule out Gardner as the signal source. The short duration and weakness of the signal could account for the difference. The PAA DF system was designed for strong signals of several minutes duration"*. He further states, *"As in the case of Bearing Number 3 (the 215 degree bearing from Mokapu, Oahu), the only voice-capable transmitter on 3105 kHz fitting the parameters of this case is KHAQQ on the Earhart aircraft"*. So with that said let's bend the line to

Gardner Island as Mr. Brandenburg would have us do. That would require us to subtract 16 degrees from the 201 degree bearing and get 285 degrees from Midway Island. If we can subtract 16 degrees we can also add 16 degrees to get 217 degrees. Now we create another problem not only have we nailed down Gardner as the possible source, but we have added **Mili Atoll** as another possibility (the magnetic bearing passes 99 miles east southeast of **Mili Atoll**). It would seem that Mr. Brandenburg wouldn't want the possibility of a **Mili Atoll** landing inferred from his work. See picture below.



Mr. Brandenburg states in his conclusions, *“Notwithstanding the lack of specific source identification, analysis of multidimensional circumstantial evidence has yielded important insights. The evidence associated with bearings 2(213 bearing from Oahu), 3(215 bearing from Oahu) and 7(144 bearing from Wake) strongly supports the TIGHAR hypothesis that Earhart landed at Gardner Island and transmitted radio signals from there. The evidence associated with bearings 1(175 bearing from Oahu), 4(201 bearing from Midway), 6(NNW/SSE bearing from Howland) moderately supports the hypothesis and the evidence associated with bearings 5(175 bearing from Midway) and 8 is inconclusive”.*

We see a different picture. To parallel his findings:

The evidence associated with bearings 2(213 bearing from Oahu), 3(215 bearing from Oahu), 5(175 bearing from Midway), 6(NNW/SSE bearing from Howland), 7(144 from Wake) strongly supports the hypothesis that someone on Samoa or American Samoa was transmitting signals on 3105kHz on the 4th and 5th of July, 1937.

The evidence associated with bearing 4(201 bearing from Midway) moderately supports the hypothesis that Earhart landed on Gardner Island **or Mili Atoll** and the evidence associated with bearing 8 is inconclusive. The Navy radio at Tutulia on American Samoa could very possibly be the source of the

radio transmissions. The station operators were monitoring 3105 kHz as part of the search and had more than enough capability to transmit on 3105 kHz, just like the *Itasca* did.

Mr. Brandenburg has not given any consideration to a great volume of evidence that the Earhart/Noonan crew could have landed at **Mili Atoll**. A real investigation would have presented pros and cons for each location to give a complete picture. Instead the staff at TIGHAR has chosen to ignore all other possibilities except their own. We were proponents of both scenarios until the cracking of the "281 message" which has made **Mili Atoll** the logical landing point. We will change our minds when TIGHAR comes up with their "*any idiot artifact*", but we fear they will have to go to **Mili Atoll or Saipan** to find it.