Flight Information Log and Analysis

November 17, 2026, at 05:28 UTC (last received spot), ALP40-K came down in the Atlantic Ocean about 900 miles (1445 km) Northeast of Georgetown, Guyana and 800 miles (1287 km) East of the Island of Guadeloupe. The balloon/payload status is DOWN. At about 22:58 UTC the balloon encountered clouds at its float altitude of 39,000' followed by rain and layers of clouds as it descended. The Infrared (IR) temperature sensor reading of the ocean below the balloon at the time of its last spot was 295 K (22 C). Windy.com satellite view showed that the ocean had a temperature of about 295 K (22 C). The Battery Compartment Temperature (BCT) at the time was 285 K (12 C, 54 F). This would indicate the balloon was approximately 5,000 – 7,000 feet above the water at the time of these readings. This reinforces the idea that having a float altitude below 40,000' (12,192 m) is courting danger, especially over the Atlantic Ocean off the coast of South America. The last Reverse Beacon Network (RBN) spot was at 03:57 UTC (~2 hours before going in the ocean) by KO4BHX at an amazing distance of 2300 miles (if in Durham, NC, QRZ) , when the balloon was at 16.85° N, -48.79° W. The snr of the signal was reported at 11 dB. The good news is that the balloon stayed up long enough to get all of the data that I needed (see the Info/Analysis link) for the design of the next one ALP40-L, yay!

Because this flight had a battery, I was able to watch in real time the loss of the balloon (very stressful). Without a battery, I would have woke up the next day not knowing what had happened. The question is, what is better, to know or not to know?

November 16, 2026, at 13:28 UTC, ALP40-K was over the Atlantic Ocean about 900 miles (1445 Km) North Northeast of Belem, Brazil. The balloon/payload status is nominal (continuous CPU operation and maintaining altitude), with a speed of 60 MPH (96 KPH) at an altitude of 39,436’ (12,020 m). The Infrared (IR) temperature sensor reading of the clouds below the balloon at the time was 250 K (-23 C). Windy.com satellite view showed that the cloud tops had a temperature of about 253 K (-20 C). The temperatures overnight at 40,000' was cold again with the Battery Compartment Temperature (BCT) going as low as 222 K (-51 C, -60 F). This caused the balloon to reduce its WSPR transmissions to only once an hour. Upper-level winds should keep the balloon in about the same area for the next 24 hours. There was a couple 2 hour period yesterday (day and night), when either the balloon didn’t transmit or no signals were received by ground stations. The UV Index at the time was 11.5, with a sun angle of 51°.

November 15, 2026, at 12:18 UTC, ALP40-K was over the Atlantic Ocean about halfway between South America and West Africa. The balloon/payload status is nominal (continuous CPU operation and maintaining altitude), with a speed of 43 MPH (70 KPH) at an altitude of 40,272’ (12,275 m). The Infrared (IR) temperature sensor reading of the clouds below the balloon at the time was 282 K (9 C). Windy.com satellite view showed that the cloud tops had a temperature of about 285 K (12 C). The temperatures overnight at 40,000' were very cold again with the Battery Compartment Temperature (BCT) going as low as 216 K (-57 C, -71 F). This caused the balloon to reduce its WSPR transmissions to only once an hour. Upper-level winds should keep the balloon in about the same area for the next 24 hours. There was a period overnight from sundown to midnight, when either the balloon didn't transmit or no signals were

received by ground stations. The UV Index had a maximum value of only 4.5, due to the low sun angle of 31° at the time.

November 14, 2026, at 13:18 UTC, ALP40-K was over the Atlantic Ocean about halfway between the USA and Europe. The balloon/payload status is nominal (continuous CPU operation and maintaining altitude), with a speed of 156 MPH (251 KPH) at an altitude of 39,115' (11,922m). The Infrared (IR) temperature sensor reading of the ocean surface below the balloon at the time was 278 K (5 C). **Windy.com** satellite view showed that the ocean surface had a temperature of about 281 K (8 C). The temperatures overnight at 39,000' were very cold again with the Battery Compartment Temperature (BCT) going as low as 219 K (-54 C, -65 F). This caused the balloon to reduce its WSPR transmissions to only once an hour. Upper-level winds should take the balloon toward Spain. For an unknown reason WSPRTV quit plotting the balloon's position from about 0158 UTC until 1258 UTC. The **Traquito Tracking Site,** however continued plotting the balloon's position over the same time. There was a period overnight, when either the balloon didn't transmit or no signals were received by ground stations.

November 13, 2026, at 12:48 UTC, ALP40-K was over the Gulf of America about halfway between Louisiana and the Yucatan Peninsula. The balloon/payload status is nominal (continuous operation and maintaining altitude), with a speed of 76 MPH (122 KPH) at an altitude of 38,840' (11,838m). The Infrared (IR) temperature sensor reading of clouds below the balloon at the time was 264 K. **Windy.com** satellite view showed that the cloud tops had a temperature of about 263 K (-10 C). The temperatures overnight at 39,000' were brutal with the Battery Compartment Temperature (BCT) going as low as 213 K (-60 C, -76 F). This caused the balloon to reduce its WSPR transmissions to only once an hour. Upper-level winds should take the balloon over the Southern tip of Florida before heading across the Atlantic.

ALP40-K was launched November 11, 2026, from Boulder City Dry Lakebed at 0749 PST, with clear skies and calm winds. It achieved a float altitude of 39,000' +/-. The balloon transmitted continuously overnight (30 minute interval) indicated by the fact that the CPU reset flag was not set. The most recent report has the balloon over Northern Mexico moving at a speed of 81 KPH.

Analysis

As of November 15, 2026, the ballon is performing well. What follows are comments on the various systems:

Battery

- The reported battery voltage has been somewhere between 2.95 – 4.05 V.
- The Battery Compartment Temperature (BCT) was reported as low as 213 K (-60 C, -76 F) and as high as 300 K (27 C, 81 F).
- The battery began its flight fully charged at 4.00 V (100%). The second day the battery only reached 3.85 V (75%). The third day the battery only reached 3.80 V (70%). It would seem from looking at

the data that the battery will continue to be charged to about 3.80 V (70%) +/-. I had planned on the battery getting charged to at least 90% every day to ensure overnight operation and extended battery life. On future flights, there will need to be either an increase in solar panel output (slightly larger solar panels), a longer period between transmissions (software change) or reduction in transmissions (no CW, software change – add 45 seconds of charging per transmission).

MPPT Solar Battery Charger

- The MPPT charger is working as expected
- Nighttime reports of 2.80 V of the Solar Panel Voltage (SPV) indicate 0 V, no sunshine.
- Daytime reports of 4.2 V (maximum charging voltage for battery), Solar Panel Voltage (SPV) indicate that the solar panels are putting out approximately 65 mA, sunshine.

CPU

- The U4B is performing well considering the battery voltage levels reported.
- So far, no CPU resets reported.

IR Sensor

- Performing as expected
- Readings are in line with past flights
- Reminder – At 40,000' the sensor sees an area of about a half of a square mile, so it is a average of what it sees. There could be a mix of any of the following: clouds, water and land, which would skew the reading.

UV Sensor

- Performing as expected
- The UV Index reported depends on the elevation of the sun.
- The sensor has a Field of View (FOV) of 130°, so sun angles outside of the FOV will report 0.
- Adjustment in the calculation of the UV Index is still in progress, but it is close to the correct value at the present time.

Balloon

- Performing as expected
- Maintaining a predicted altitude of 40,000' +/-

Transmitter

- Performing as expected
- For the most part WSPR signals are being received, however there are periods of time with no receiving stations.
- CW signals are occasionally being received (38 receptions to date), with the most distant reception being VE6WZ, who's station received the balloon in Calgary, Canada when the balloon was near Hermosillo, Mexico.