A (Bigger) Slice of π:

Success! Launchpad Crew Aims High, Outsmarts Floods: 86,000-Foot Test Flight Paves the Way for Summer Program

In response to the devastating floods that have swept through regional sleepaway camps this past summer, our **Weather Balloon Wednesdays** crew is engaged in a multi-year Weather Balloon Project to design a scalable, real-time weather monitoring system that sleepaway campers in Hill Country can deploy easily. This first test launch—an 800g high-altitude balloon that **successfully** traveled to its 86,000-foot burst altitude—was the ambitious, high-cost trial run that will inform the design of the 15-20 pilot units we plan to send to a handful of camps for deployment in Summer 2026.

The Science and the Chase

To track this initial flight, the payload probe was meticulously prepared. Some of the crucial pre-flight checks were led by our "Helium Guy," who ensured every piece of technology was charged and functioning. Our dedicated Payload Specialist then secured all the tech, including necessary **handwarmers**, and tightly sealed the probe—executing the delicate task one-handed with a broken arm! (He broke it during soccer, not at Launchpad🙂)

The flight was a technical success, and the recovery was our inaugural Launchpad road trip. After driving due east from Rockwall, we tracked the payload and parachute as it landed on a private property near Avinger, Texas during hunting season. A resourceful crewmember in our chase car used an app (his grandpa's hunting tool) to identify the property owner. We are coordinating the recovery of the valuable data, the reusable tracker, and, yes, the candy bar the kids threw in for good measure.

Designing for Deployability and Data Integrity: The R&D Phase

The crew is now focused on engineering solutions that make the pilot units simple for campers to launch and guaranteed to transmit reliable data. This R&D includes:

1. **Tracker Upgrade for Reliability:** Replacing the expensive satellite subscription with a student-led build of the Automatic Packet Recording System (APRS), spearheaded by one of our HAM-radio certified 7th graders.
2. **Payload Simplification for Ease-of-Use:** Replacing the data-logger with custom, crewmember-coded microprocessors and sensors. This work is building toward the design of a customized Printed Circuit Board (PCB)—a prerequisite for the Summer 2027 full-scale rollout of 1–2 balloons deployed daily for 50 days.

Background for our Weather Balloon Project

Launchpad's Weather Balloon Project

We currently have 5-7 middle-school-aged crewmembers on a mission to design, build, and deploy 15-20 flat-packed weather balloon kits to sleepaway camps across Texas next summer, with an ultimate goal of deploying over 100 balloons each summer. These kits, designed and built by Launchpad crewmembers, will enable sleepaway campers to collect real-time atmospheric data.

The pilot program will give our crewmembers an opportunity to tackle real world problems and help others by generating hyperlocal, atmospheric data to support early-warning systems and improve extreme weather forecasting. The urgent need for this work was made clear by the catastrophic flash flooding on July 4th, which revealed gaps in current data coverage.

We see three concrete impacts of this project: (1) Our Launchpad crewmembers will learn how pilot projects are part of efficient long-term problem solving; (2) Empower sleepaway campers and their counselors throughout Texas with agency and some peace of mind at camp; and (3) Kids and adults throughout Texas will see what kids are capable of doing when they have the time, tools, and team to do it.

So far, we have:

- Researched A LOT about existing weather balloons and weather balloon kits;
- Built out a GitHub repository with a project plan;
- Recruited knowledgeable mentors to support the team including someone who designs severe weather warning systems for other planets(!) and a local meteorologist to help analyze the data. ***Always looking for more local mentors!***
- LAUNCHED our StratoflightMini 800g balloon and tracked it with the SpotTrace.
- Received 2 free 600g weather balloons from Scientific Sales in support of our mission;
- Wrote a grant for $7,500 and then received $10,000 in response to that request(!)

In the coming weeks, we will:

- Debrief and assess the data from our first launch and retrieval to determine our next steps with our pilot project.
- Identify and prepare the telemetry units for launch (likely including coding and building the APRS);
- Design a custom PCB for our Launchpad weather balloons to minimize the size of the balloons and the amount of helium required;
- Source industry-grade helium and accessories (tanks and helium pressure reducer) throughout Hill Country;
- Tour the Ft. Worth NWS coupled with a weather balloon launch tag-along;