A GPS Triangle Primer

A basic introduction to this increasingly popular competition.

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Some of the pilots and sailplanes present and, of course, the towplanes and towpilots — without them, there would be no aerotow!

I have flown sailplanes for the last 30 years, and have especially enjoyed flying scale models, as much on the slope as on flat land. Without a doubt staying up on a flat land area is more challenging than on a slope. Finding lift and being able to stay up in the air brings you a feeling of joy and happiness that is difficult to explain. In essence, that is what inspires me about it!

When the lift is good you enjoy jumping from one thermal to another exploring the flying site; when the lift is weak, flying is usually more

conservative, trying to not take too much risk to lose precious altitude. The approach is usually to stay in lift you have found and to do not dare go anywhere else as, for sure, sink with bring you down in no time. I have been happy with this for about 25 years, but five years ago things changed!

A small group of addicted cross-country guys in the west of the US (John E., Dean G. and Rick S.) started using GPS equipment to do some GPS Triangle racing, and were extremely enthusiastic about it. They brought that idea to the Midwest, lending their equipment during some of the JR Aerotow events for anyone who wanted to try. We were not ready to embrace it yet — go fast, losing altitude, turning laps — what was the point? For me it was "Racing? What for? I just enjoy flying and most of the time I am alone!"

Photo 2: Rick S., one of the promoters of GPS Triangle racing in USA.

Well, folks, I was wrong. In 2019 Peter G. went flying with these guys in Montague, California and was just so enthusiastic about it that we had to try it again! I would say that he found the right words to convince us, not on the

racing part, but in forcing ourselves to improve, alone, by not staying in the same area and exploring the entire field; to prove yourself that you can do better, with the best competition being against yourself.

So, what is GPS Triangle? It consists of a task that is defined by a triangle where the turn points are located 500m 90 degrees to the right (referred to as TP1) of where the pilots stand, 500m in front of the pilots (TP2) and 500m to the left (TP3). The starting gate is an imaginary line between TP2 and the pilots. Racers must cross the start gate lower than 500m altitude and less than 120km/h, then do as many laps as possible in 30 minutes. Energy management is key between being conservative and keeping altitude and being audacious (‘push it’ as Dany A. describes in his videos) to optimize the number of laps while still looking for thermals. During a competition, ‘work time’ (generally speaking 15 minutes) is defined as time in which you have to be towed up and cross the start gate.

There are other less formal formats: for example a ‘Cup Challenge’ where, during a meet, you can fly when you want, make as many attempts as you want, and keep your six best flights. This past year with COVID, some virtual cups have been organized: not at the same field but during the same weekend, just for fun, across the globe, so no pressure from shoulder-to-shoulder competition.

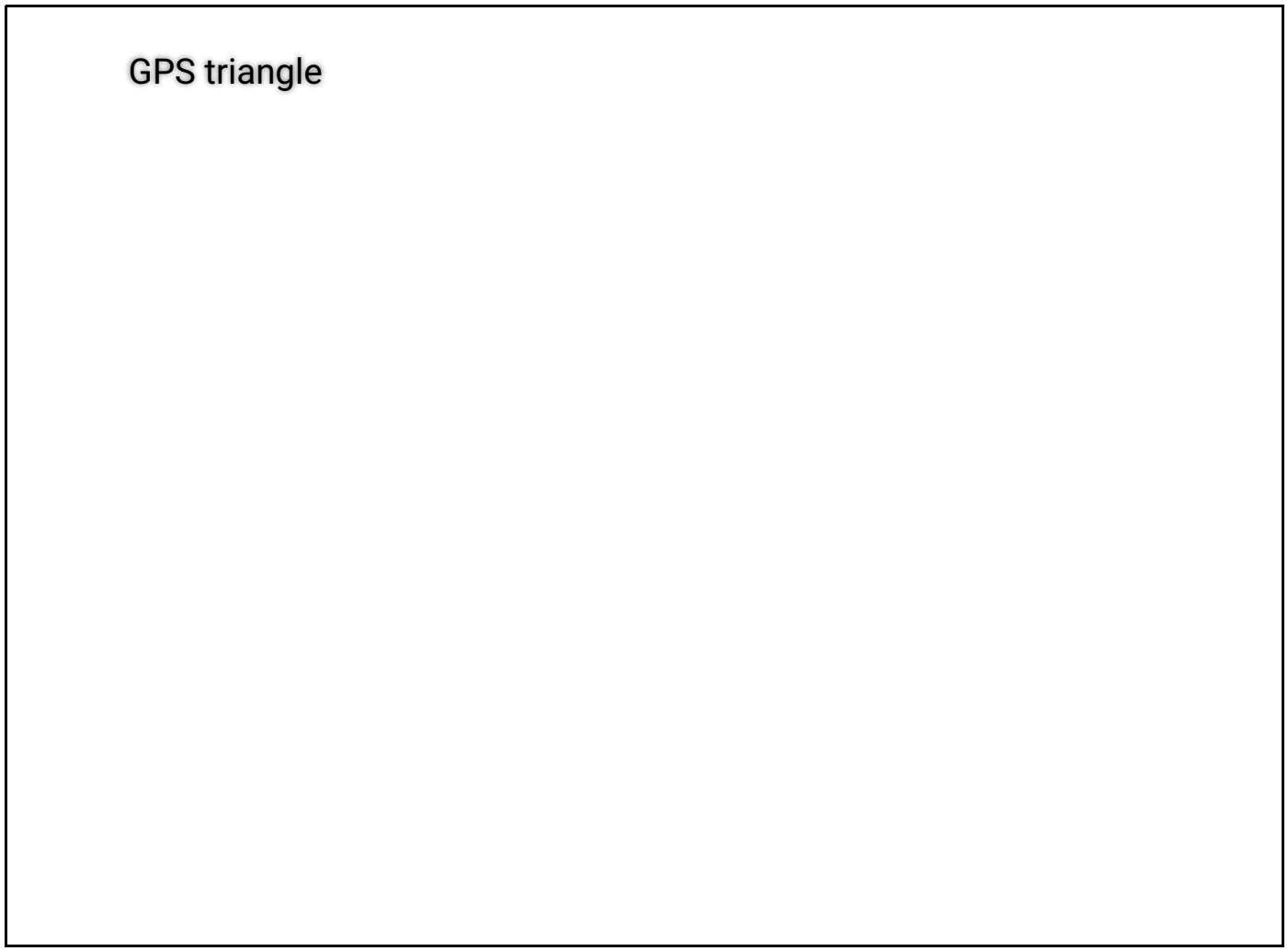

Figure 3: Visualization of the task at my home field.

Some new classes appeared in the last year to expand the range of gliders used: *Scale* (1/3 scale max), *SLS* (no limit of size), *Sport* (max 5m 7kg, 30mn, 350m course) and *Light* (F5J type, 20mn, 200m course).

Photo 4: Me and my trusty H9 ASH31, the perfect ship to practice.

I purchased a unit and started to play with it. The main information provided is GPS location, but it also provides additional information about your model to make you more aware of what it is doing: speed, altitude, compensated vario and heading, for example. Using my trusted Hangar 9 6.4m ASH31 I used that unit every time that I went out. I have been able to practice by

myself as my model was able to ROG.

I would say that I like a lot the idea of having feedback, and being forced outside my comfort zone, climb as best I can but also dare to prospect the area when the lift is not there and see how to optimize my flying skills.

In 2020 we were planning, with a couple of East Coast guys, to go to the cross country/GPS mecca in the US : the Montague Sailplane Festival located in Montague, California very close to Mount Shasta, and about one hour south of the Oregon border. But as everybody knows, 2020 was a bust. I got a rain check for my airline ticket as the sole prize!

Photo 5: The Siskiyou Mountains at sunset.

We decided with Peter G. to commit to 2021 despite the uncertainties, in the hope that things would get back to some form of normality. We have been blessed as the closer we got more restriction were lifted leaving us with the possibility of participating in the 2021 edition.

Peter drove from Illinois with both of our models, and I joined by air arriving Saturday, just before the training day. Competition was starting on Monday and was ending on Friday after five days of hard flying.

Photo 6: Peter G. bringing his ‘22 at the start gate.

First let me describe the venue. For me, coming from the Midwest, driving through Oregon and Northern California gave me some memories of my native Alps, just a pure joy ride even before starting to fly. The city of Montague is located on a plateau at 2500ft that is sandwiched in between a pass on the north enroute to Oregon and another one to the south to go to the San Francisco basin, making the scenery and climate quite unique. The vision of Mount Shasta at 14,000ft can justify by itself the entire trip!

Photo 7: My 8.8m ASW22 BL from Baudis in the foreground. That's Mount Shasta in the background.

Dean G., the organizer, hosted us in two full size hangars at the Siskiyou County Airport, an old US Air Force NORAD base, which was very convenient to gather the models and the pilots. The flying site is just two miles from the hangar, no grass like in the Midwest but a level dirt runway that is quite wide and long so you cannot miss it (except if you land down wind — see my video). The country is beautiful, very low density population, annd low density air traffic. A perfect recipe for a good flying site.

Photo 8: Here is the club house — a full size hangar with ASG-32 SLS on display!

It took me a couple of days to get a handle on the atmospheric conditions, which are very different from the place I usually fly. Lift was present, even early in the morning but spotty, inconsistent and weak. This is very unusual for this place as the week was way cooler that what they usually have for June. But after a couple of days I had a handle on it, especially after remembering to plug my compensation probe into my variometer!

Photo 9: The Pilot Stand.

Competition was fierce with lots of very good pilots enrolled, a perfect environment for learning from each other. The number of laps between heats varied between two for the poorest conditions and 16 for some monstrous lift coming through for half an hour! The highlight of the week was for me was deciding to start the task first, not always the best choice as there is no other sailplanes to mark thermals for you. However, conditions were good at the beginning of the heat and got weaker and weaker, giving me an advantage over other pilots during this heat.

Photo 10: Pilot and spotter reading trajectory, thermals, other planes. It's not unusal to request to yell out altitudes just to be sure that you are not flying at the same level in the same thermal!

I had to go back to Michigan early, on Friday, missing the last day of competition so I could watch my son's state water polo tournament. But I was left with some beautiful memories, some willingness to improve my task management, and the will to come back next year to another great event.

Photo 11: Pilots rehashing a great day's flying.

Finally, let me take you on a ride onboard my ASW22 for a lap session in Montague.

Baudis 8.8m ASW22BL @ 2021 US GPS Triangle Nationals

If you cross paths with people familiar with GPS Triangle competitions, ask them to give you their insight on it. I am pretty sure that they will be more than happy to share their experience, to have you try a task with your sailplane and possibly use their equipment. I have demonstrated GPS Triangle in the Cumberland, Maryland aerotow events and will be more than happy to demo it to you should we cross paths at some point in the future.

Resources

- Additional photos
- GPS Triangle equipment

- GPS Triangle rules
- USA GPS Triangle Facebook group
- ScaleSoaring.com forum

*All images by the author. Read the **next article** in this issue, return to the **previous article** in this issue or go to the **table of contents**. A PDF version of this article, or the entire issue, is available **upon request**.*