



# 2023 Rules for US FAI Class National Championships

Overview for Competitors

# Overview

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FAI-Class Nationals will use the same rules as have been used under waiver in 2021 and 2022 with two changes:

- English units will be used
- Energy limited start procedures will be used with altitude and ground speed limit at the start point

Other rule features worth noting – as a review:

- Start line or ring may be used – line preferred
- Tag-up altitude may be used – useful for sites where top of lift is high
- No credit for distance in Racing Task turn areas
- No Modified Assigned Task types (MAT)

# Starts will have an energy limit for height and speed

Starts will have a maximum altitude limit at 500' below expected top of lift

- No start out of the top
- “Tag up” permitted for days with high top of lift (e.g. >7,000' AGL)
  - Requires a single fix below a pre-set altitude after gate opens
  - Sets a level playing field for late launches to reach gate height

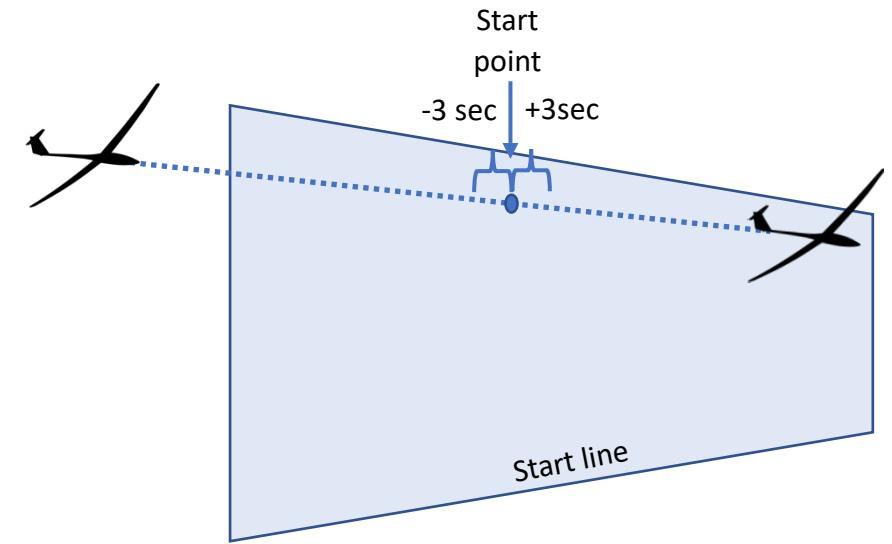
Start speed will be measured from -3 sec to +3 sec on either side of the start point

- **All loggers must be set to 1 second recording interval** – otherwise a 25 point daily penalty will be assessed
- Ground speed based on GPS position will be used to measure speed
- Pilots should set up their flight computers to show ground speed
- CDs should account for true air speed and expected wind at start altitude to ensure speed limit isn't at too low an indicated airspeed

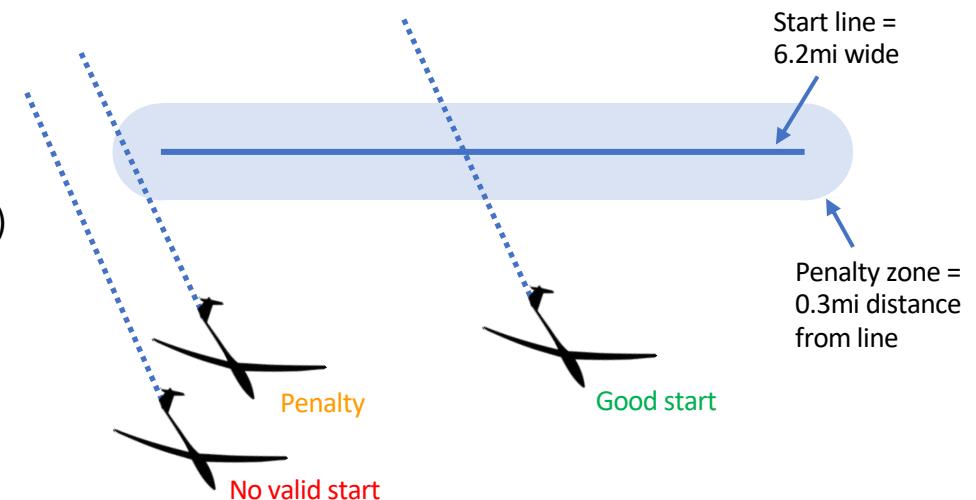
Being too high, too wide or too fast will incur a penalty. Penalties will be assessed from point of closest approach to the start line or ring

- Penalty zone is 0.3mi horizontally and 300 feet high.
- Outside penalty zone is no valid start

Example:  
Start line  
(side view)



Penalty zone for  
start line  
(top view)

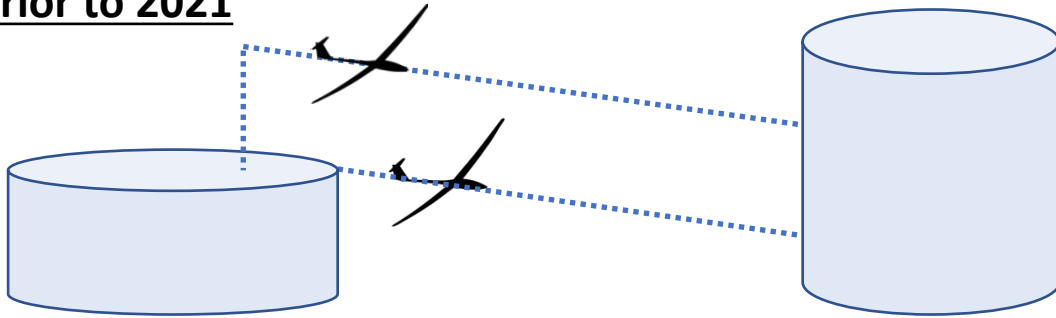




# Recap - 2023 FAI Nationals starts vs prior to 2021/ Regionals

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## Prior to 2021



## Tactics/Implications

Start cylinder with altitude limit and start out of the top permitted

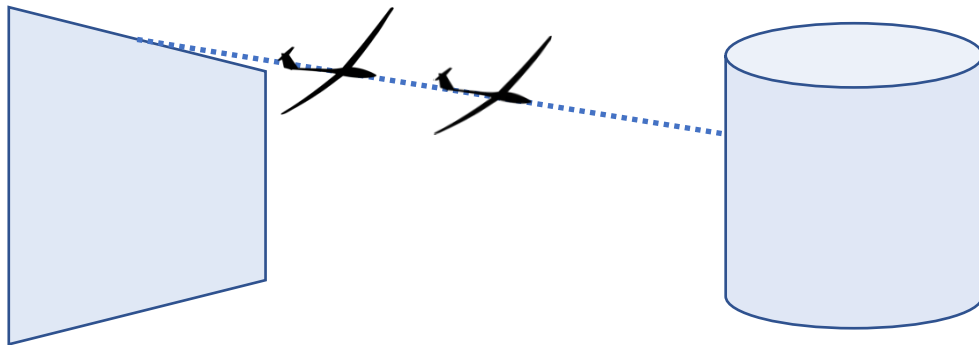
2-minute rule

- Wait below start altitude or timer resets
- Climb to top of lift post-start
- If thermal weakens above start height, look for climb on course

First leg distance varies based on start location

- Opportunity to "start behind the pack" to add distance

## 2023



Start line with altitude/speed limit

Start cylinder is an option but not typically used

"Tag up" fix allows pre-start climb to close to top of lift on days with high lift band

Speed limit in lieu of 2-min rule

- No need to thermal below altitude limit to avoid clock reset

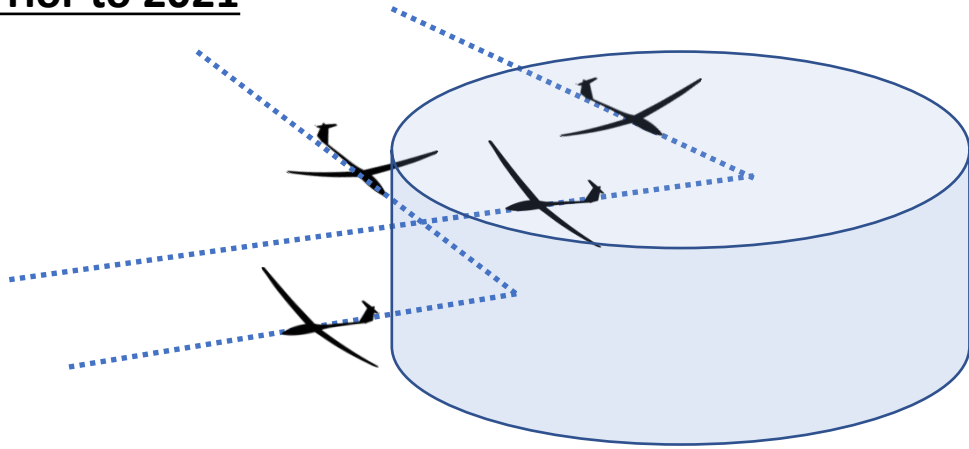
First leg distance is the same for all pilots

- No opportunity for starting "behind the pack"

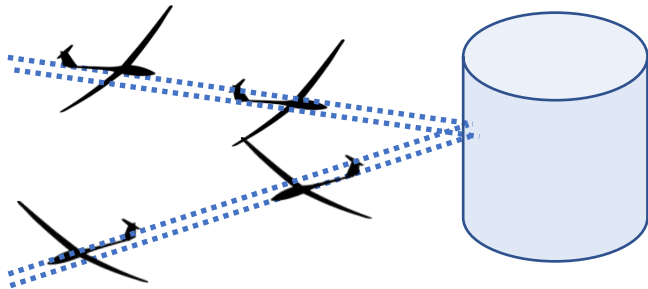
# Recap – 2023 Assigned (racing)task turnpoints vs prior to 2021

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## Prior to 2021



## 2023



## Tactics/Implications

### 1-mile radius turn cylinder with distance credit inside the cylinder

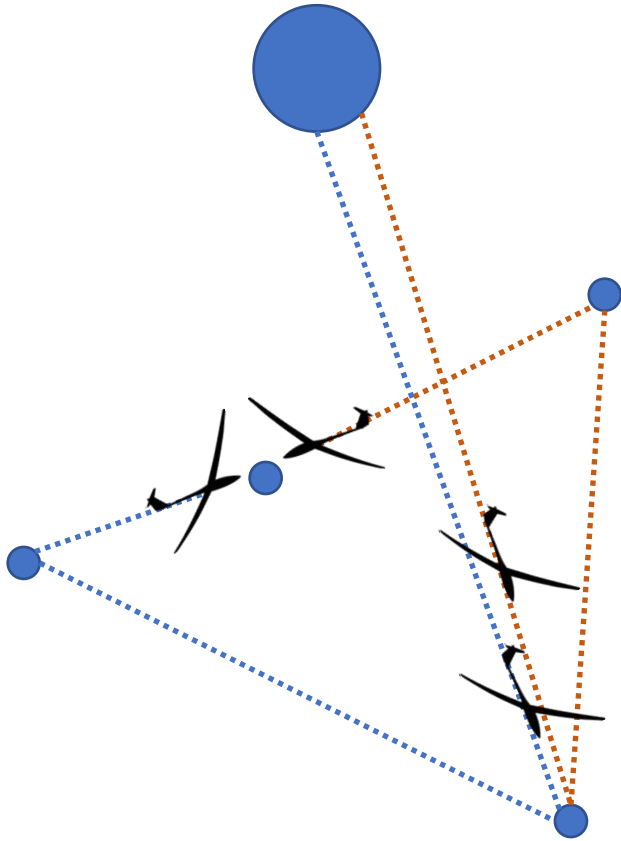
- “Big sky / little glider” method of traffic separation
- Potential for steeply converging flight tracks at the turn
  - Watch for perpendicular traffic
- Opportunity for “tactical following”
  - Follower turns early to re-connect with faster gaggle
  - Follower extends into turn to use glider(s) ahead as thermal markers and catch up to increase average speed

### 0.3-mile radius turn cylinder with no distance credit inside cylinder

- “Single-file” method of traffic separation
  - Single point is optimal turn location
- Low potential for steeply converging flight paths at the turn
  - Mostly parallel flight paths, predictable turning locations
  - Follow traffic ahead of you from directly behind or shallow echelon formation to the outside of the turn direction
- No opportunity for “tactical following” or gaggle re-consolidation
  - All Racing Tasks are the same distance - you can’t win by tacking on extra distance at the turns

# Recap – Modified Assigned Task (MAT) no longer included

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As of 2021, MATs are **not** an included task type under rules for US FAI Class Nationals

Modified Assigned Task (MAT) allows pilots to pick their own turnpoints on the fly after some number of assigned turnpoints (can be between 0 and 11)

Some CDs use MAT as a way to “get a day in” in unpredictable weather. Assigned Area tasks can cover many of these situations while avoiding some of the known pitfalls of MATs

- “Mozer TAT” - a series of 1-mi turn areas with a large turn area near the airport at the end in place of “Long MAT”
- Multiple Large Turn Areas clustered close to the home airport in place of “No-Turn MAT”)

# Recap – Most penalties remain unchanged

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Penalties and bonuses from legacy US Rules that continue to apply:

- 25-point airport bonus - retained
- Class A altitude buffer - retained
- No overflight of Class B/C - retained
- Finish penalties and procedures – retained

# PEV may be used on a trial basis in 2023

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## Context

Pilot Event Marker (PEV) is an optional start procedure for reducing tactical following (“leeching”) at WGC events

- This is less an issue at US contests, but PEV may prove to be useful under certain conditions and so it is being tested

Use of PEV is optional and at organizers’ discretion. The RC is recommending trial use only on practice days only

To use PEV on official contest days, it must first be trialed successfully on practice days

- Contest organizers must announce intention to use PEV for official contest days ten days prior to preferential entry deadline
- As of April 27, 2023 **all Nationals organizers have indicated they DO NOT intend to implement PEV** on official contest days
- Pilots are welcome to experiment with the mechanics of setting up and using PEV – the RC will solicit pilot feedback in the fall poll

## Implementation for pilots

PEV requires the pilot wishing to start to press the PEV button on their flight computer to initiate the start process

- The pilot must then wait prior to starting for a period of time specified by the CD (a whole number of minutes between 5 and 10)
- After the start waiting period expires the pilot **MUST** start within a start time window specified by the CD (also a whole number of minutes between 5 and 10)

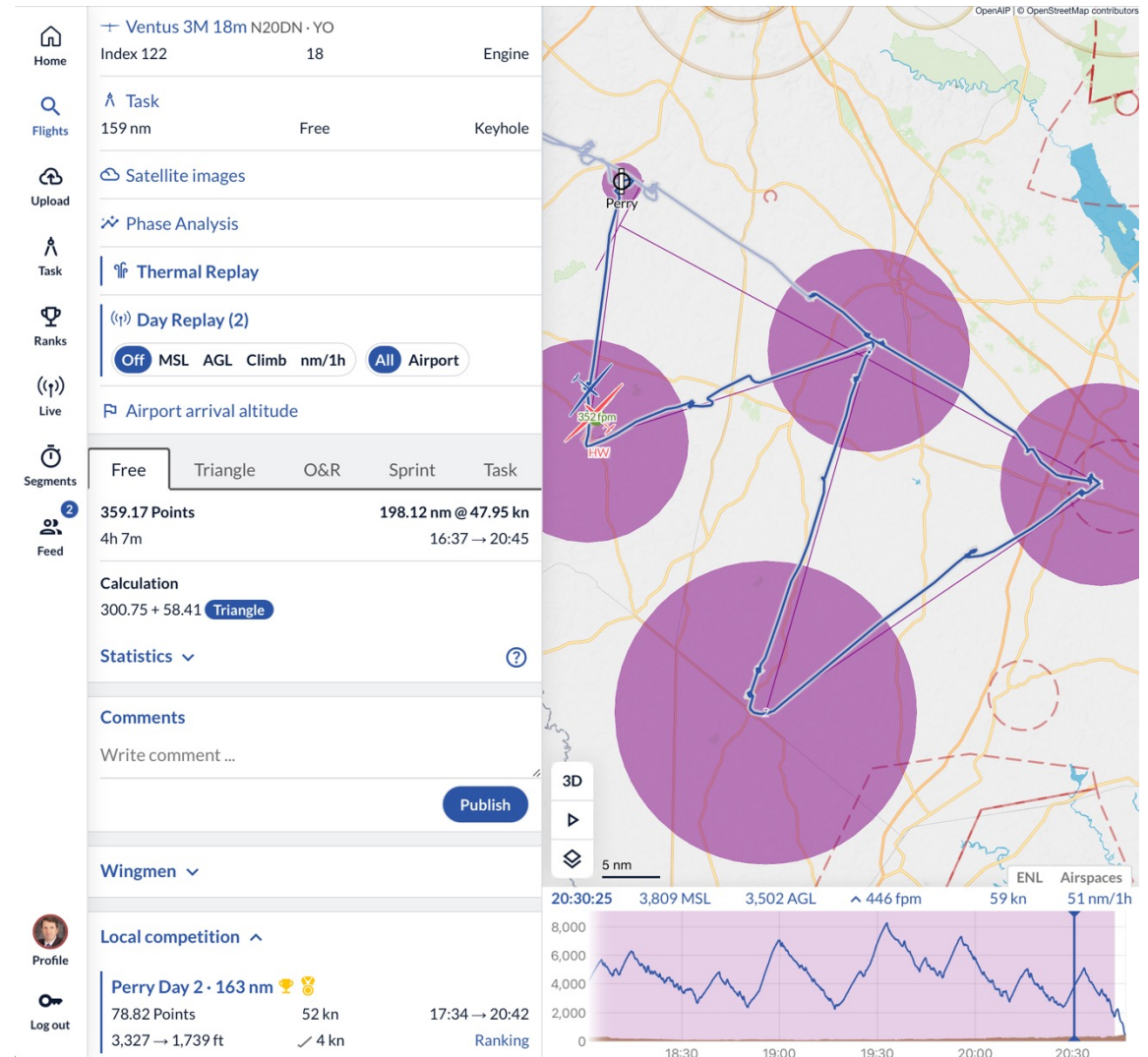
Pilots should familiarize themselves with the process for configuring and activating PEV on their flight computers.

- Some computers can be configured to manage the time windows. In other cases, pilots may need to keep track of the time windows separately
- **IMPORTANT NOTE:** PEV may **ONLY** be recorded on the PRIMARY flight computer. Pilots must declare primary AND secondary flight computers prior to the beginning of the contest. Failure to produce a PEV start on a log from the primary logger may be penalized



# OGN live tracking & WeGlide

- The SSA is rolling out OGN ground stations/receivers at key contest sites for FAI Nationals
  - This will permit real-time viewing of the flight tracks of all gliders equipped with Flarm or ADS-B Out – in addition to the traditional satellite trackers at a lower update rate
- The SSA is also developing a relationship with WeGlide to implement real-time leaderboards for US contests
  - For 2023 we are focused on demonstrating this capability at Nationals and potentially some Regionals
  - Ultimately this will be integrated into the contest registration and scoring infrastructure. However, for 2023 it will require some manual intervention, specifically:
    - Scorers will need to upload competitor lists to create contest for each class as well as daily task .CUP files
    - Pilots are encouraged to register on WeGlide and upload .IGC files at the end of each day's flight to enable task replay
- There are additional WeGlide capabilities, such as posting of photos and comments on each day's flights – described in the following pages



# WeGlide is an integrated platform for soaring flights

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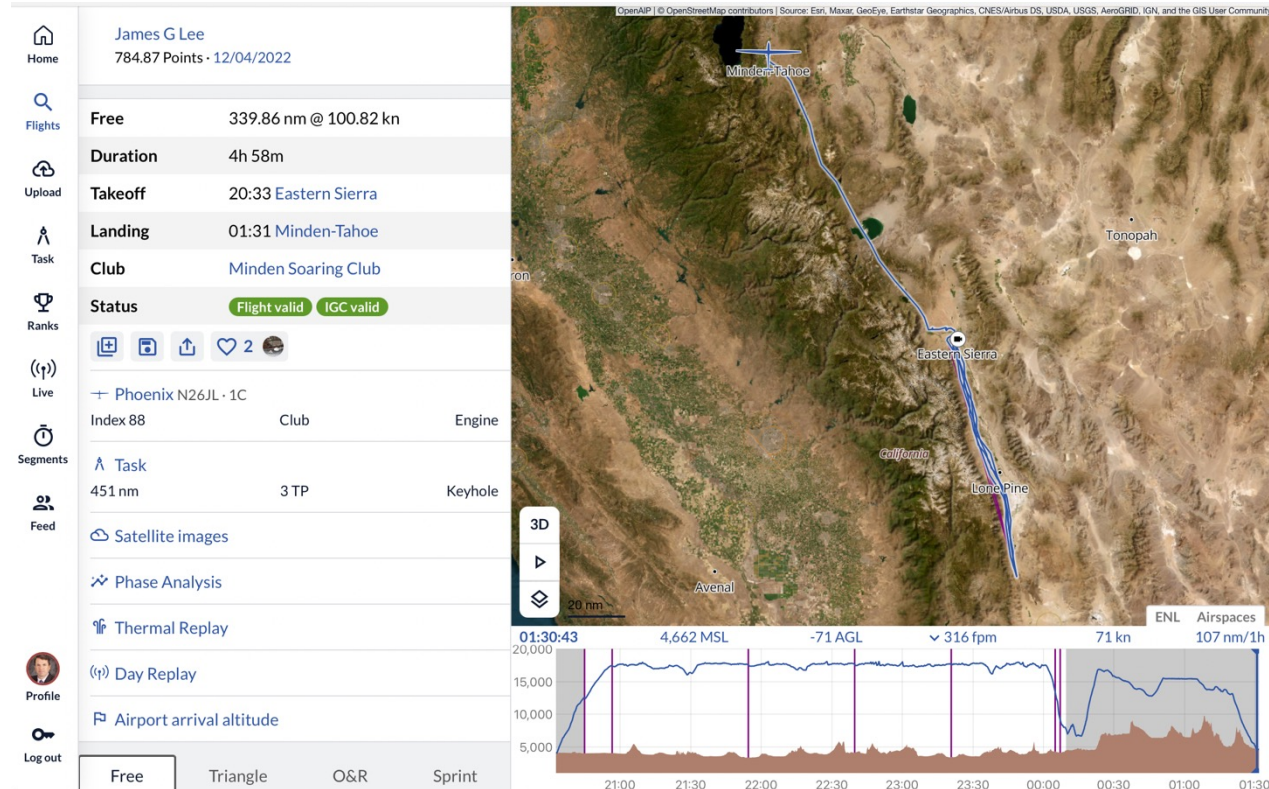
WeGlide combines multiple capabilities into a single, highly capable and sustainable commercial platform to serve all the SSA's member and organizational audiences

- Flight upload, replay and analysis (similar to OLC but more capable)
- Regional and national X-C competitions (similar to OLC but customized to SSA specifications)
- Live tracking of flights (similar to GlidePort.aero but with OGN and ADS-B traffic at 1-5 sec refresh)
- Ability to easily set up local contests on a daily basis or for a season (similar to Proving Grounds or WinScore/SeeYou, but easy online setup, real-time tracking of the race and immediate scoring based on .igc log upload)
- Live tracking and real-time leaderboard of Regional and National contests (similar to GlidePort.aero but much more capable)
- Social content for sharing flights, photos, stories and comments and enhancing human connections at the local, national and international level (similar to Facebook/Instagram)
- Advanced viewing options – 2D/3D with photo terrain and near real-time satellite weather overlays that apply to both replay and live tracking<sup>1</sup> (similar to SeeYou and SkySight)

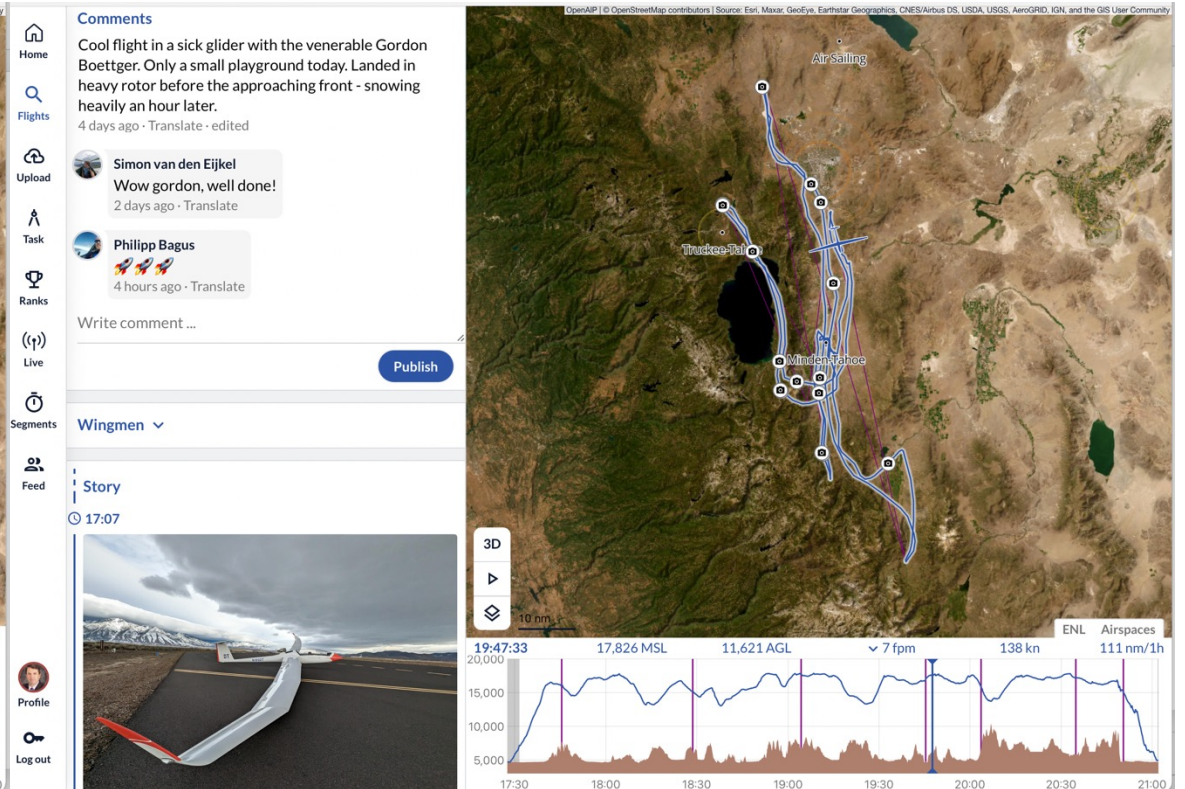
These capabilities also can be beneficial in generating interest and engagement from non-members as part of content-rich marketing strategy with high immediacy.

# WeGlide Capabilities

## Flight Upload and Replay/Analysis



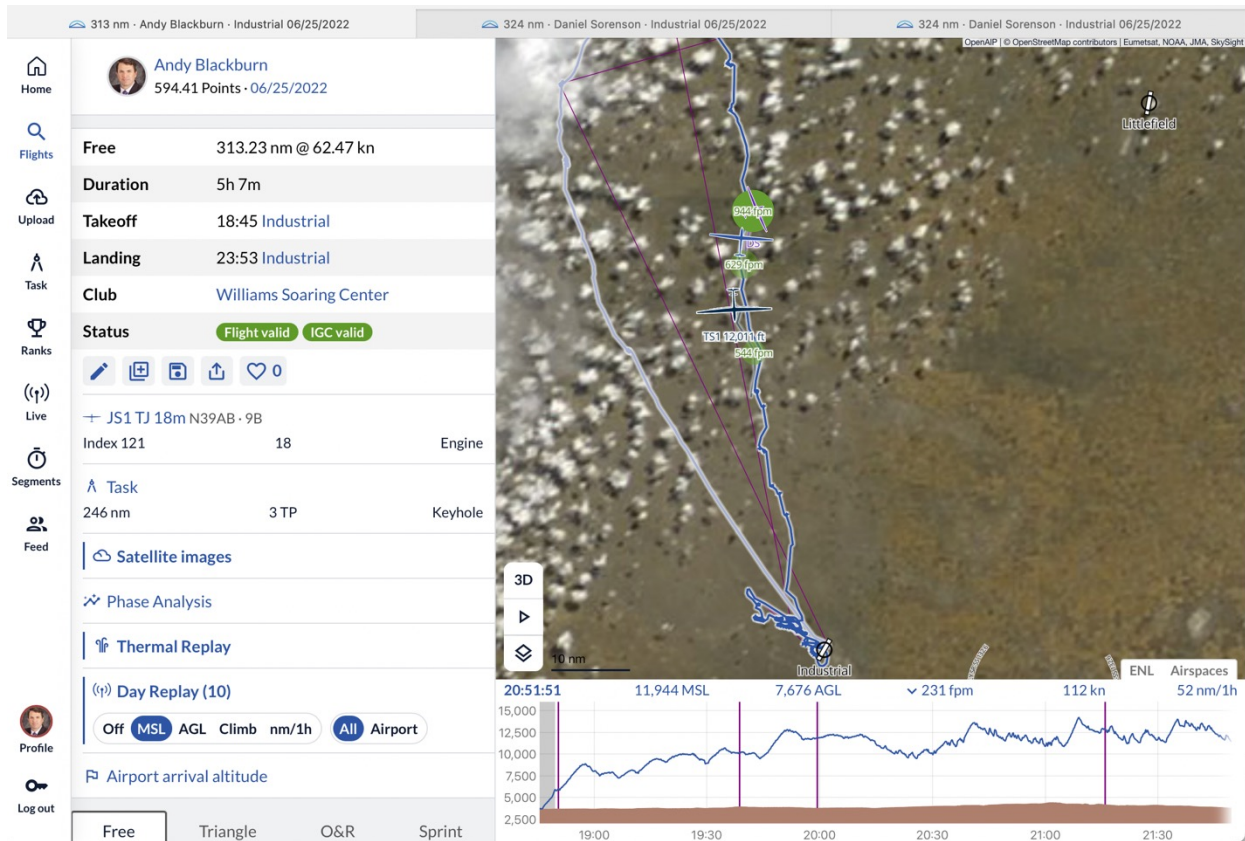
## Social Content



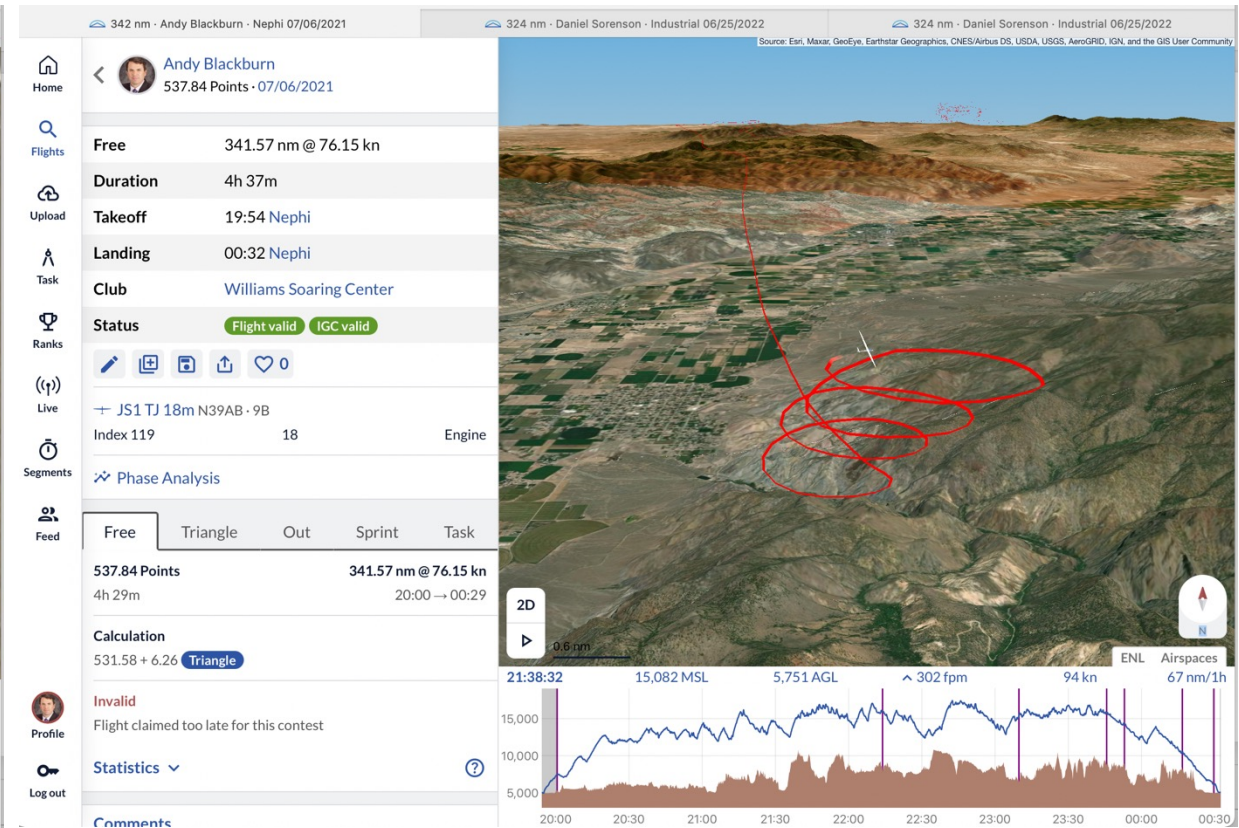


# WeGlide Capabilities

## Contest replay with thermals and weather satellite imagery



## 3D live and replay for flights and contests



# FAQs for Pilots flying 2023 FAI-Class Nationals

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1. If I'm flying the **regional contest**, how does my start change? Are there any other changes from last year?
  - Your start will not change. Read the rules change summary at [members.ssa.org](https://members.ssa.org) for other changes, particularly if you have a motorglider
2. If I'm flying the **national contest**, in simple terms, what do I need to do differently?
  - 1) Set your logger to one second logging interval
  - 2) Set your flight computer or variometer to display GPS ground speed
  - 3) Correctly program the start geometry - start line or ring
  - 4) If a start ring only start out the side of the ring, not the top
  - 5) Cross start line below maximum height
  - 6) Cross start line below maximum ground speed
  - 7) Read the rules change summary for other changes, particularly if you have a motor glider
3. How long is the start line?
  - The start line is twice the start radius. Most flight computers use the idea of radius whether for a start ring or a start line. Check your computer manual to avoid entering the wrong number
4. What do I need to do to get a valid start?
  - 1) Set your logger to one second logging interval
  - 2) Correctly program the start geometry - start line or ring
  - 3) If CD is using a start line, cross the start line within the defined length (severe penalty or "no valid start" for missing the line and buffer)
  - 4) If CD is using a start ring, no starts out the top
  - 5) Cross start line/ring below maximum height
  - 6) Cross start line/ring below maximum ground speed



# FAQs for Pilots flying 2023 FAI-Class Nationals

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5. What if I take a second start, do I need to recalculate the maximum ground speed to account for prevailing conditions?
  - No. You don't need to calculate anything if you are displaying ground speed on your flight computer.
  - CDs are instructed to set the Ground Speed limit such that flying best L/D Indicated Airspeed at the start will be below the maximum start speed, with a buffer.
6. What if my logger does not allow for one second intervals?
  - To the RC's knowledge all loggers currently in use can record at 1 sec intervals – please check your product manual and/or contact the company that makes your logger and/or check with other pilots – well in advance of heading to the contest site
  - There is a 25 point penalty for each day your logger is not set to one second
7. How can I find out the maximum ground speed?
  - It should be on the task sheet each day - in both knots and mph
8. How can I find out the maximum start height?
  - It should be on the task sheet each day
9. Will the contest be using PEV?
  - Some contests will be using it on practice days but not during contest. Please check communications from your contest's organizers and CD