

## Glider Accident Rates – What’s the real number?

By Richard Carlson – SSF Chairman

For the past decade the Soaring Safety Foundation trustees have been trying, with some success, to capture glider utilization data. During this time the SSF has looked at the FAA survey data that is posted on-line to get flight time and launch data. It has never been clear how statistically significant this data is as the number of respondents is not given. The SSF has also looked for proxies, On-Line Contest (OLC) data and U.S. contest data, to compare with the FAA data. For the past 7 years the SSF has been sending stamped/self-addresses postcards to all clubs and commercial operators asking for some basic flight data. About 30% of these cards are returned.

What this data shows is that the number of launches and flight hours is declining. According to the FAA flight hours have declined 59% between 1999 and 2021 while launches declined 61%. It should also be noted that our European glider friends are also showing similar declines (56% decrease in the number of launches in Germany) over this same time period. This also tracks with the declining membership in the SSA and the declining number of gliders accidents over this time period.

What it does not show is how the glider accident rates have changed.

For the past 4 decades the SSF has reviewed the National Transportation Safety Board (NTSB) accident database to get the annual number of accidents. A summary of this data is reported annually in the April issue of SOARING and a full report is posted on the SSF’s web site <https://www.soaringsafety.org/accidentprev/ssfreports.html> every April.

While the FAA and SSF survey data can give us some idea of the accident rate, it is suspect. Are the responses representative? Is there a better more automated way to get utilization data?

To answer this last question the SSF began an experiment in 2024 to see if Online Glider Network (OGN) data could be used to gather reliable utilization data.

The OGN network consists of a global array of ground stations, based on low cost hardware, setup and operated by clubs and commercial operators. The data is supplied by gliders that are equipped with some kind of transmitter. Transmitters may be FLARM, OGN based, ADS-B out, satellite based emergency locators (i.e., Spot), and some Oudie devices. These devices broadcast their current position at regular time intervals.

The initial objective of the OGN was to allow on-line tracking of gliders, improving visibility of the sport. There are multiple tracking sites that share this real-time data with the soaring community and general public. Some sites allow historical data to be viewed as well. Some clubs have also used this system to obtain utilization data, eliminating or augmenting their manual collection process. See Andy Blackburn’s article in the January 2024 issue of SOARING for a description of the OGN system.

The OGN developers web site provides sample programs that can extract data from this network. The SSF used these samples to develop a program that worked with 2 clubs in the U.S. to compare OGN data with the manually collected paper data. The results are promising.

Club 1 has manual records showing flights by 4 club gliders, all equipped with FLARM, and 15 private gliders. Of those 15 private gliders, 14 of them (93%) have some kind of device that reports OGN flight data. The manual records report the number of aerotows provided and the number of hours the club

gliders fly. As of September 30, 2024 the OGN data show 102% of the flights and 101% of the hours as compared to the manual paper records. This over estimation is the result of 2 self-launching gliders operating out of this club. Looking at just the club gliders the data shows an under-estimation with 95% of the launches and 95% of the hours. A detailed review showed that the initial flights of all club gliders were not transmitted to the OGN based station. Either the FLARM devices were not powered on, or the database had not been updated since the beginning of the year.

Club 2 has manual records showing flights by 5 club gliders, 3 equipped with ADS-B out, and 26 private gliders, 14 of which have some kind of OGN transmitter. As of September 30, 2024 the OGN data shows 73% of the launches and 78% of the hours as compared to the manual paper records. This under-estimation is the result of multiple gliders not having OGN transmitters. Another factor is that the ADS-B data is inserted into the OGN datastream by a 3<sup>rd</sup> party and it relies on a ADS-B ground station picking up the data. In club 2's case, the gliders must be about 1,000 ft AGL before the ADS-B ground station receives their signal.

It was also interesting to note that the club 1 paper records do not include any flight time information, while club 2's records do have this data. Comparing club 2's private glider OGN data vs the paper records show 1.8 hours per flight and 2.3 hours per flight respectively. Club 1's OGN data shows 2.0 hours per flight.

It is important to recognize that none of the data presented here contains personally identifiable information. It simply shows the number of launches and flight hours. A version of this article was presented to the SSA membership at the October Convention (find the link on the <https://www.soaringsafety.org/presentations/presssa.html> page). Based on the feedback from that presentation, the SSF will expand this experiment to a larger geographic area. The experiment will compare the number of gliders the FAA data shows are in those geographic regions vs the number that have OGN transmitters. We will also compare this OGN data with survey data collected by the FAA and SSF.

Hopefully this will give the community a better understanding of the U.S. glider accident rate.