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Year 2 Proposal - Canada

The minutes of the 2011 IGC plenary meeting reported re this proposal from Canada*:*

That the Chapter 4 Annex of the Sporting Code be modified to allow the use of GPS height evidence for Silver and Gold badge flights.

That the Sporting Code committee, with GFAC, establishes an acceptable height error margin; for example, no more than 600m loss of height on a distance flight, and an excess of at least 400m over the required gain of height for an altitude flight.

This proposal led to several weeks work from the GFAC committee, specifically Tim Shirley of Australia, who developed a programme to compare Barometric and GPS height from FR records of many flights.

He reported, “I have re-run my analysis using around 460 files. These include files I received from Canada, US and Argentinian sources. The average absolute difference in this set is 88m with a median of 81m…. the Pressure altitude reads LOWER than GPS altitude in most cases (about 95% across the sample).”

The Sporting Code committee concluded that an acceptable height error margin would be 100 metres. Each height from the same flight is assumed to have the same margin of error and in all situations involved, the height measurement is the difference of two heights from the same record, the errors will be quite small. However, the committee came to the following resolution to go into the Appendix to Chapter 4 Para A7. (This appendix is restricted to GPS position recorder use for Silver and Gold badges.)

Annex C material may not be complete, but will be checked before publishing on the website.

A-7 Altitude

GPS altitude evidence alone is sufficient for a flight provided that a 100 metre error margin is applied to all pressure height requirements of the Code (example: the gain of height is at least 1100 metres for Silver altitude). See Annex C, para 2.3 for other examples.

If the required height is not met following the application of this margin, evidence must be provided by a pressure altitude record used in the normal way, conforming to IGC rules and procedures for barographs. For distance flights, the profile of GPS-derived altitudes from a position recorder must correspond to the profile of the pressure altitude record.

and in Annex C:

insert new 2.3 and renumber existing para to 2.4

2.3 Height measurement using GPS evidence The GPS height evidence from a position recorder is sufficient for Silver and Gold badge claims given a margin of 100 metres over the limits imposed for gain of height (SC3-2.1.1 and 2.1.2) for Silver and Gold altitude, and 100 metres under the loss of height for Silver and Gold distance claims (SC3-4.4.3). For example, a Gold altitude claim would require a height gain of at least 3100 metres, and a 65 km flight would require a loss of height of no more than ([65 km x 1%] - 100m) or 550 metres.

Some GPS units, for example the FLARM, can record both pressure and GPS altitude. In this case, pressure altitude shall be used for height evidence.

and new 5.3

5.3 Flights having no barogram The duration badge flight may be allowed without a complete or any barogram if SC3-5.2.3 on continual monitoring is satisfied. Although recorded height data is lacking, the OO may also certify the loss of height for the flight based on a tow pilot release height certificate provided that the loss of height was clearly less than 1000m. A release height certificate from a ground launch operator would also be acceptable provided that launch conditions clearly limited release height to under 1000m agl. If GPS height data is available, Silver/Gold badge flights do not require a barogram provided that A-7 of SC3 Chapter 4 is satisfied.