Proposal to simplify the Sporting Code

With the many possible changes to the Code presented over the past year, the committee is of the opinion that it would be difficult to proceed as usual with having a Year 1 vote for every recommended change. Therefore, although the simplification will not be as extensive as it could have been, this is an omnibus proposal that incorporates all changes having broad acceptance.

The attached draft Chapters 1 to 4 of a new Code illustrates how it *could* appear resulting from the year-long consultation that has taken place and given approval of these changes. Significant changes to the current Code are highlighted. Some text will be further modified by any other proposals approved at the plenary meeting (subject text is underlined). Also, given the mandate to rationalize the Code in light of current technology and practice, the committee has incorporated some changes that GPS flight recording has now made possible.

The Sporting Code Committee proposes that the Code be simplified by incorporating changes supported by extensive consultation and feedback from delegates. The major features are listed below:

- **Declared turn points** 92% of poll responders favoured a 500m radius cylinder OZ with the pilot having the option of flying behind the turn point and crossing the extended bisector of the task legs at any distance from the turn point with no OZ distance correction applied.

- **Declared start/finish points** 93% of poll responders favoured having only a start/ finish line. Additional comment suggested that the line length be longer than the 2 km selected by the committee to give the pilot more options. Safety, airspace or topography can be local factors, for example.

- **Silver distance / loss of height rules** There was 77% agreement that the LoH calculation be applied to the claimed leg, not the whole flight. There was 79% agreement that the claimed leg be the first or last leg of a task so that the pilot flies at least 50 km from the launch point.

- **Speed record loss-of-height rules** Opinion was fairly evenly divided (54/46%), so they are the subject of a separate proposal.

- **Mechanical barographs** Removing these devices from the Code was unanimous.

- **10 km TP separation rule** 86% of poll responders favoured dropping this restriction from the Pilot Option distance task.

- **Reduce the distance record set** There was no clear opinion on reducing the record set (6 for and 8 against having only free distance and no longer having declared distance). This goal needs a future broad discussion on what gliding records mean to the sport.

- **Separation of badge and record text** Comment has been unanimous that badge and record text be separated in order to make the Code more understandable. This has been done in the attached draft Chapters 1-4 of a new Code.

Ross Macintyre, chairman
IGC Sporting Code committee
7 November 2013

Chapter 1

GENERAL DEFINITIONS and RULES

The Sporting Code for gliders (the "Code") sets out the rules for verifying a soaring performance and to ensure that the level of proof achieved is consistent for all flights. When processing the evidence supplied, the National Airsport Control (NAC) and Official Observers (OOs) should ensure these rules are applied in the spirit of fair play and competition.

1.0 INTRODUCTION

1.0.1 The General Section of the Sporting Code (GS) contains general definitions and rules applying to all air sports. This section of the Code (SC3) gives specific rules that apply to FAI badge and record flights in gliders as defined in GS 2.2.14 as "Class D" aircraft.

1.0.2 Terms, rules, and requirements in SC3 are defined first in their most general sense. Where an exception to a general rule exists, it is described in the Code where the exception occurs. For example, the term "glider" includes "motor glider" unless the difference is relevant in the given text. Within the Code, "record" can apply to either or both World and Continental records according to the context. "Badge" applies to flights at FAI Silver, Gold, Diamond or Diploma achievement levels. Any reference to a flight recorder or position recorder implies all recorders if more than one are carried on a flight.

Rules relating only to badges are in Chapter 2 and rules relating only to records are in Chapter 3, even though this results in some duplication of text.

1.0.3 SC3 includes the following annexes:

a. Annex A Contains rules for World and other FAI-sanctioned gliding competitions.

b. Annex B Covers requirements for equipment used for flight validation.

c. Annex C Gives non-regulatory guidance, methods, and sample calculations to assist Official Observers and pilots in complying with SC3.

d. Annex D Contains the rules for the IGC Ranking list that gives the current World ranking position of pilots who have entered IGC competitions.

1.0.4 **National Airsport Control** A "NAC" has administrative responsibility for a nation's sport aviation activities, such as issuing Sporting Licences. The verification of national records and other responsibilities are often delegated to the national gliding body. In this Code and its Annex C, NAC refers to either body. See Annex C-1.3 and 1.4 for recommended practices by NACs.

a. *ORGANISING NAC* The organising NAC issues the FAI sporting licence to a person attempting a World or Continental record. This NAC is responsible for certifying the person's or the team's flight as a National record and for submitting the record claim dossier to the FAI, regardless of where the record attempt took place (GS 6.4.1 refers).

b. *CONTROLLING NAC* When a record flight both originates and terminates in a country other than that of the organising NAC, the local NAC is known as the controlling NAC, which shall control the flight by authorising the OOs involved. If necessary, and/or if so requested by the organising NAC, a controlling NAC shall also provide control of record flights either originating or terminating in its country. (GS 6.4.2 refers).

c. If a controlling NAC either does not exist in a country or is inactive, the organizing NAC may assume the responsibility for the control of a record or badge flight in that country.

1.0.5 **Related FAI documents** *"Technical Specifications for IGC-Approved GNSS Flight Recorders"* gives information for FR manufacturers. Section 6 covers gliding aerobatic competition, Section 7, hang gliders and paragliders (GS-2.2.1.13, class O), and Section 10, microlights (GS-2.2.1.15, class R). Gliding competition classes are defined in SC3-6.5.

1.1 GENERAL DEFINITIONS

Any capitalised word in this chapter indicates it has a distinct Code definition.

OFFICIAL OBSERVER 1.1.1 The person having control of a flight undertaken for an FAI badge or record attempt and of the data gathered to prove the SOARING PERFORMANCE (Chapter 4 refers).

DECLARATION 1.1.2 The official pre-flight data and description of an intended FAI badge or record attempt. (details in 2.3 for badges and 4.2 for records).

GNSS / GPS 1.1.3 A Global Navigation Satellite System such as the Global Positioning System (GPS) using multiple satellites operating to create position and time data.

FLIGHT RECORDER 1.1.4 An FR is an electronic device approved by the IGC to record GPS data, barographic altitude, and by many, MoP data. It is required for records and is optional for badge claims.

POSITION RECORDER 1.1.5 A PR is an electronic device approved by NACs to record GPS data for up to the Gold badge plus the Diamond Goal claims.

BAROGRAPH 1.1.6 A recording barometer incorporated in a FLIGHT RECORDER and sometimes a POSITION RECORDER. It is used to determine MSL altitude from pressure data. The output in graphical form is called a barogram.

MEANS of PROPULSION (MoP) RECORDER 1.1.7 A device that records noise level or other data indicating engine use by a motor glider.

1.2 DEFINITION of FLIGHT TERMS

SOARING PERFORMANCE 1.2.1 A badge or record achievement conducted in free flight between the START POINT and the FINISH POINT of the flight.

WAY POINT 1.2.2 A point on the surface of the earth specified by a set of coordinates or by a word description. A WAY POINT may be a START POINT, TURN POINT, or FINISH POINT.

LEG 1.2.3 The straight line between two successive WAY POINTS. The claimed length of a LEG may be reduced as specified in 1.3.7.

COURSE 1.2.4 All the LEGS of a SOARING PERFORMANCE.

CLOSED COURSE 1.2.5 A COURSE having the START and FINISH at the same WAY POINT.

FIX 1.2.6 A single data point selected from recorded flight data giving latitude, longitude, time, and pressure (from a FLIGHT RECORDER) or GPS altitude (from a POSITION RECORDER).

TURN POINT 1.2.7 The WAY POINT between any two LEGS of a flight. Depending on the task flown, a TURN POINT may be a FIX selected post-flight or declared. A declared TURN POINT is attained when the flight track is positioned as in 2.4.2c for badges or 3.5.2c for records.

OBSERVATION ZONE 1.2.8 A vertical cylinder of airspace centred on a declared TURN POINT having a radius of 500m.

RELEASE POINT 1.2.9 The point on the ground vertically below where the glider releases or ceases using a MoP.

START POINT 1.2.10 The WAY POINT at ground level marking the start of a SOARING PERFORMANCE. Depending on the task flown, this may be a declared point, the RELEASE POINT, a FIX established by stopping a MoP, or a FIX selected post-flight.

FINISH POINT 1.2.11 The WAY POINT at ground level marking the end of a SOARING PERFORMANCE. Depending on the task flown, this may be the START POINT, a FIX selected post-flight, the FIX where a MoP is started, or the point at which the glider stops on landing.

START/FINISH LINE 1.2.12 A 3 km line centred on the START or FINISH point, oriented at right angles to the LEG being or about to be flown.

1.3 DEFINITION of SOARING MEASUREMENT TERMS

START TIME and ALTITUDE

1.3.1 For a declared start, START TIME and ALTITUDE shall be taken at crossing the START LINE. For any other start, START TIME and ALTITUDE may be taken at any FIX recorded at or after release or on stopping a MoP.

FINISH TIME and ALTITUDE

1.3.2 For a declared finish, FINISH TIME and ALTITUDE shall be taken at crossing the FINISH LINE. For any other finish, FINISH TIME and ALTITUDE may be taken at any FIX selected as the FINISH POINT or on starting a MoP.

DURATION

1.3.3 The elapsed time between the START TIME and the FINISH TIME.

LOSS OF HEIGHT

1.3.4 The START ALTITUDE minus the FINISH ALTITUDE.

GAIN OF HEIGHT

1.3.5 The greatest altitude difference between a recorded high point and a previous low point during a SOARING PERFORMANCE.

OZ CORRECTION

1.3.6 Each time a LEG crosses an OZ boundary, 500 metres shall be subtracted from the length of that LEG. This correction shall not be applied if the flight track crosses the extended bisector of the inbound and outbound LEGS at the TURN POINT.

OFFICIAL DISTANCE

1.3.7 The COURSE distance, less any OZ CORRECTION where applicable and any LOSS OF HEIGHT adjustment as given in 2.4.4 for badges and in 3.4.3 for records.

1.4 COURSE TYPES and REQUIREMENTS

1.4.1 **General**

a. A SOARING PERFORMANCE may be claimed from any flight that meets the requirements of proof for that performance.

b. A DECLARATION and electronic flight data are required except where specifically exempt.

c. WAY POINTS must be declared and used in the sequence declared, except where specifically not required in these rules.

d. No more than three TURN POINTS may be declared and no more than four LEGS may be claimed for a SOARING PERFORMANCE.

1.4.2 **Soaring performance types** There are four COURSES for records or badges, based on the number of TURN POINTS permitted, two SOARING PERFORMANCES based on altitude, and one on duration. Further limitations to COURSES are defined in 2.2 for badges and 3.1.6 for records.

a. *STRAIGHT DISTANCE* — A COURSE having no TURN POINTS.

b. *DISTANCE to a GOAL* — A STRAIGHT DISTANCE COURSE with a declared FINISH POINT.

c. *OUT & RETURN* — A CLOSED COURSE having one declared TURN POINT

d. *FREE OUT & RETURN* — An OUT & RETURN COURSE in which the TURN POINT is a FIX or it may have been declared. This COURSE may be claimed using the first TURN POINT of a PILOT OPTION task.

e. *PILOT OPTION* — A distance COURSE via at least one and no more than three declared TURN POINTS.

f. *FREE PILOT OPTION* — A PILOT OPTION COURSE in which the TURN POINTS may be FIXES or any of them may have been declared.

g. *TRIANGLE* — A CLOSED COURSE via two or three declared TURN POINTS. If three TURN POINTS independent of the START/ FINISH POINT are used, the distance is the sum of the legs between the TURN POINTS.

h. *FREE TRIANGLE* — A TRIANGLE COURSE in which the TURN POINTS may be FIXES or any of them may have been declared

i. *GAIN OF HEIGHT* A SOARING PERFORMANCE for the maximum height attained above a previous low point.

j. *ABSOLUTE ALTITUDE* A SOARING PERFORMANCE for the maximum altitude attained after a gain of height of at least 5000 metres.

k. *DURATION* A badge SOARING PERFORMANCE at least five hours in length.

1.4.3 **Triangle flight geometry** For a Diamond Goal task or record flights of 750 km or less, the minimum leg length must be 28% of the OFFICIAL DISTANCE. For flights greater than 750 km, each leg must be 25% to 45% of the OFFICIAL DISTANCE.

Table of distance and speed requirements

SOARING PERFOR-MANCE	***Cita-tion***	***REQUIREMENTS***			***START CHOICES***			***FINISH CHOICES***		
		Declar-ation items	***Max # of TPs declared / claimed***	***Course Legs to claim***	***FR Fix***	***Release or MoP stop***	***Start Line or declared Start Point***	***By Landing***	***Finish Line or declared Finish Point***	***Using a Finish Fix***
Straight Dist.	1.4.2a	2.3.2 or 3.2.2 as appropriate	3 / 0	1	No	OK	OK	OK anywhere	OK	OK anywhere
Pilot Option Dist.	1.4.2e		3 / 3	2 to 4						
Distance to a Goal	1.4.2b		3 / 0	1		Allowed if declared as the START POINT	Re-quired	Cross FINISH LINE	Required	Cross FINISH LINE
Out & Return flight	1.4.6c		1 / 1	2				Only at declared START POINT	Same as declared START POINT	Only at declared START POINT
Triangle flight (2 TPs)	1.4.2g		2 / 2	3						
Triangle flight (3 TPs)			3 / 3							
Pilot Option free dist.	1.4.2f 3.1.6f	3.2.2	3 / 3	2 to 4	OK	OK	OK	OK anywhere	OK	OK anywhere
O & R free Distance	1.4.2d 3.1.6d		1 / 1	2				OK at claimed START POINT	OK at declared START POINT	OK at claimed START POINT
Free Triangle Dist. (2 TPs)	1.4.2h 3.1.6i 3.1.6j		3 / 2	3						
Free Triangle Dist. (3 TPs)			3 / 3							

Chapter 2
FAI BADGES

See Annex C for examples of ways and means by which badges may be verified, such as the calculation of distances, and FR or PR data analysis methods.

2.0 GENERAL

a. Awarded by each NAC, the FAI badges are a set of international standards of soaring achievement that do not need to be renewed.

b. Each NAC should maintain a register of badge flights it has validated, retaining the pilot's name, nationality, and the dates and details of each flight performance.

c. The distance requirement for each badge shall be the official distance.

d. The pilot must be alone in the glider.

2.1 BADGE DESIGN (reproduced approximately twice real size):

Silver Badge

Gold Badge

Three Diamonds
(1 & 2 Diamonds similar)

750 km and more Badges
(1000 km illustrated, others and with
1 or 2 Diamonds similar)

2.2 BADGE REQUIREMENTS

2.2.1 Silver Badge

The Silver badge is achieved on completing the following soaring performances:

a. SILVER DISTANCE — one leg of a distance flight of at least 50 km with a turn point or finish point at least 50 km from the start. Any loss of height is calculated using the claimed leg.

Note: the Silver distance flight should be flown without navigational or other assistance given over the radio (other than permission to land on an airfield) or help or guidance from another aircraft.

b. SILVER DURATION — a duration flight of at least 5 hours (see 2.4.4c).

c. SILVER HEIGHT — a gain of height of at least 1000 metres.

2.2.2 Gold Badge

The Gold badge is achieved on completing the following soaring performances:

a. GOLD DISTANCE — a declared or straight distance flight of at least 300 kilometres.

b. GOLD DURATION — a duration flight of at least 5 hours (see 2.4.4c).

c. GOLD HEIGHT — a gain of height of at least 3000 metres.

2.2.3 **Diamonds** There are three Diamonds, each of which may be worn on the Silver or Gold badge, and the badges for flights of 750 kilometres or more. A Diamond is achieved by completing one of the soaring performances below:

a. DIAMOND DISTANCE a declared or straight distance flight of at least 500 kilometres.

b. DIAMOND GOAL a flight of at least 300 kilometres over an out-and-return (1.4.2c) or triangle (1.4.2g) course. The way points must be declared and flown in the declared sequence.

c. DIAMOND HEIGHT a gain of height of at least 5000 metres.

2.2.4 **Badges for flights of 750 kilometres and more** These badges are awarded for completing a straight or declared distance flight of 750 km or more, in increments of 250 km (ie. 750 km, 1000 km, 1250 km, etc.). Badges are awarded once for each incremental distance immediately less than the distance flown.

2.2.5 **FAI register of Diamond and greater badges** On completion of the Diamond badge or a 1000 km or greater badge flight, the NAC shall provide the FAI with the flight data contained in its national register per 2.0b. In turn, the FAI will enter the name of the pilot in an international register, and award the pilot a special Diploma to recognise these flights.

2.3 DECLARATION REQUIREMENTS

2.3.1 **Declaration handling** All badge flights require a pre-flight declaration except for a duration, height gain, or straight distance performance. The last declaration made prior to the flight, written or recorded, is the valid one.

a. The declaration may be input to a FR or be written. If a PR is used, a written declaration is required. When written, it shall be on a single sheet of paper or be transmitted either to the OO as an e-mail or input to a NAC-approved website. The declaration time is the time the e-mail is received by the OO or the website. *See Annex C-3.5 on internet-based declarations.*

b. A paper declaration shall be photographed and the photo included with the claim evidence. A printout of a written internet declaration shall also be included.

c. For any straight distance flight claimed from release to the landing or to a finish fix, the relevant details of 2.3.2 below shall be certified by the OO.

d. If the pilot or glider information is omitted or incorrect in the FR declaration for flights up to the Gold badge plus the Diamond Goal level, the OO certificate required by 4.3.3c shall take precedence.

See Annex C-3.4 for general notes on declarations and 6.4 on the format of a declaration as it appears in an .igc file. Consult the FR manufacturer's user manual to determine which method a FR uses to record declaration date and time.

As an aid to pilots and OOs, Annex C will contain a detailed checklist for each badge leg.

2.3.2 **Declaration content**

a. Date of flight.

b. Pilot name.

c. Glider type, and its registration or serial number or unique NAC-assigned contest number.

d. The make, model and serial number of the FR as recorded in the .igc file of the flight. If a PR is used, the make, model, and serial number as verified by the OO before flight.

e. For a Diamond Goal task, all way points in the sequence to be flown. The coordinates of a declared way point is definitive. If only a word description, abbreviation, or code is used to declare a way point, its coordinates must be taken from a published source designated by the NAC.

f. On a paper declaration if completed, the pilot and OO signature(s) with date and time.

2.4 FLIGHT EVIDENCE REQUIREMENTS

The OO certifying the claim shall follow 4.2.4. For any required detail not verified by the OO, the appropriate verification certificate is required as given in 4.3.3.

2.4.1 **Time evidence** GPS time data shall be used, substantiated by independent evidence confirming take-off and landing times and locations. When a 5-hour duration task is flown with no FR/PR, it must be under the continual attention of an OO, who shall control the task as given in 4.3.3e.

2.4.2 **Position evidence** For flights up to the Gold badge plus the Diamond Goal level, position data may be recorded by a PR or FR. For the other badges, position data must be recorded by a FR. Position evidence shall be gathered as follows:

a. POINT OF RELEASE Point of release shall be taken from the recorded flight data, or certified by an OO or tow pilot / ground launch operator for a straight distance flight. As soon as possible after release, the pilot should make a steep turn so the GPS data clearly indicates the release point. The release point shall be taken at the start of this turn.

b. START/FINISH LINE ACHIEVED If a start and/or finish line is used, GPS evidence must show proof that the glider crossed it.

c. TURN POINTS ACHIEVED GPS evidence must show that a fix was recorded within the OZ, or a straight line drawn between two consecutive valid fixes the OZ boundary of the TURN POINT, or the flight track crosses at any distance the extended bisector of the in-bound and outbound LEGS of the TURN POINT.

d. FINISH The finish position shall be taken from the GPS data.

e. STRAIGHT DISTANCE FLIGHT When no FR/PR is carried on the flight, the position details in a declaration shall be certified by the OO per 4.3.3.

2.4.3 **Altitude evidence**

a. The altitude at which a glider crosses the boundary of a start or finish OZ are determined by linear interpolation between the altitudes at the last fix before crossing and the first fix after crossing.

b. FR barograph data shall be used, or PR GPS evidence per 2.6.1 provided that the margin given in the 2.6.4 is applied.

c. For alternate release height evidence for duration flights, see 4.2.3.

2.4.4 **Loss of height adjustment for badge flights**

a. For distance flights of more than 100 kilometres, the achieved distance shall be reduced by 50 times the excess over a 1000 metres loss of height to give the official distance.

b. For distance flights of 100 kilometres or less, the achieved distance shall be reduced by 50 times the loss of height exceeding 1% of the length of the course to give the official distance.

c. For duration flights, either a loss of height over 1000m using barographic data or 900m using PR data will invalidate the soaring performance (2.6.4 refers).

2.5 FLIGHT DATA CALCULATIONS, CALIBRATIONS and VERIFICATION

2.5.1 **Flight continuity** The data must show that the glider did not land and that a MoP was not used during the soaring performance. An interruption in barographic data will not compromise proof of flight continuity provided that the OO and NAC are convinced that no critical data is missing and the evidence remains indisputable. Evidence of flight continuity may also be assessed from a time plot of the FR height data.

2.5.2 **Barograph calibration time limits** The barograph of a GPS unit must be calibrated within 5 years prior to the flight *or* within two months after the flight.

2.5.3 **FR and PR recording procedures** FR approvals are specifed in Annex B Chapter 1. The OO should be familiar with the applicable terms of approval, and:

a. BEFORE FLIGHT The OO shall note the type and serial number of the FR/ PR unit(s) carried on the flight, verify any declaration input, and any required sealing.

b. TAKE-OFF and LANDING Use evidence independent of the FR/PR(s) to verify the times and points of take-off and landing, pilot name(s), glider type and registration.

c. AFTER FLIGHT After landing, the OO shall check any seals applied to each FR or PR before the flight. The OO shall perform or supervise the transfer of flight data from each unit. When more than one unit contains a declaration, the pilot input data must be identical or the OO must explain the difference as part of the claim certification.

The OO shall review flight data for completeness, and achieved way point fixes shall be determined from the evidence and specified in the badge claim. The .igc file analysis may to be done for the OO by any knowledgeable person. Analysis guidance is in Annex C.

If the landing was not witnessed, the OO shall complete a landing certificate per 4.3.3f.

2.5.4 **Earth model and distance calculations** The WGS84 earth model shall be used for all lat/long data recorded for badge flight. For flights exceeding 1000 km, the distance shall be calculated as in 3.4.2.

2.6 THE USE OF POSITION RECORDERS

2.6.1 **General**

a. Many GPS devices can record the coordinates of their position at intervals. If this data can be downloaded in the same format as an .igc file, NACs may allow these “position recorders” (PRs) to be used to validate the horizontal position of the glider for flights up to the Gold badge plus the Diamond Goal. Altitude evidence may also be certified subject to the restriction given in 2.6.4 below.

b. Each NAC is to approve the specific PRs for use within their area of responsibility and to maintain a current list of them. Guidance on PR operation and the approval process is given in Annex C-6.1 and 6.2, but NACs should consult GFAC for advice prior to beginning the approval process for a given PR as there may be known problems with it or it may have been found to not comply with IGC rules and procedures.

c. Units that have lost their approval as IGC FRs may be suitable to use as PRs if all other requirements for them are met.

2.6.2 **Averaging and predicted positions** The PR must not produce estimated fixes produced through averaging or predicting based on past fixes.

2.6.3 **Downloading and verification** Downloaded data from the PR must be converted as closely as possible to the .igc format. Any download and conversion program should be approved by the NAC and include a validation system that will identify any changes to the .igc file made after the initial download.

2.6.4 **Altitude** GPS altitude evidence may be used 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) and it can be shown that the GPS altitude figures are reliable to be used for measurement purposes. *See Annex C-2.4 and 6.2c.*

Chapter 3

WORLD and CONTINENTAL GLIDING RECORDS

This chapter defines the record types and the evidence, measurements and calculations required to verify record soaring performances. Annex C gives examples of means by which this may be done, such as the calculation of distances, and GPS flight recorder data analysis methods.

3.0 GENERAL

No advance notice for a record attempt is required provided that arrangements have been made for controlling the flight. The following rules covering World and Continental records must be met:

a. The pilot must possess a valid FAI Sporting Licence.

b. The flight data must be from a flight recorder approved at the "all flights" level.

c. With the exception of a flight having a crew as defined in 3.1.3b, a World record claim must first be approved as a National record – a Continental record does not.

d. National records are controlled by their own NACs and can differ from or be additional to World or Continental records. To be claimed as a World or Continental record, a national record must satisfy the requirements of this chapter.

e. The continental regions defined in GS-3.4.5 will be used, with the exception that the part of the Russian Federation east of the 61° meridian will be assigned to Asia. A flight that crosses the border between continental regions will be credited to the region in which the start occurs.

3.1 RECORD CATEGORIES, CLASSES, and TYPES

Record categories relate to the pilot, record classes to the glider, and record types to the soaring performance.

3.1.1 **Pilot categories** The general category includes any pilot. In the feminine category, each person aboard the glider must be female.

3.1.2 **Record classes** FAI Class D records are in the following classes:

a. OPEN any FAI Class D aircraft.
b. 15 METRE any FAI Class D aircraft with a wingspan not exceeding 15,000 mm.
c. 13.5 METRE any FAI Class D aircraft with a wingspan not exceeding 13,500 mm.
d. ULTRALIGHT an FAI Class D aircraft with a takeoff mass not exceeding 220 kg. (A MICROLIFT glider is an ULTRALIGHT with a wing loading not exceeding 18 kg/m^2. It does not have separate records).

3.1.3 **Multiplace gliders and motor gliders** These gliders are included in the 3.1.2 record classes where applicable.

a. When a multiplace glider is being flown, all flight crew must be identified on the FR declaration but be named in full on the claim form, and be at least 14 years old. Only flight crew possessing a valid Sporting Licence will be named in the FAI records register.

b. When the pilot and flight crew claim a World record using a multiplace glider, they may be categorised as a team. In this case, each crew member must hold a Sporting Licence, and the claim will be registered to the declared pilot-in-command.

c. Absolute altitude and gain of height records are restricted to the Open record class.

3.1.4 **Record achievement margins**

a. A new record claim must exceed the current value by 1 km for distance, 1 km/h for speed, and 1% for altitude using pressure data or 150m when 3.5.3 applies.

b. When a new record category, class, or type is created, a minimum performance level may be set by the IGC and published on the FAI web site.

3.1.5 **Designation of records** Glider records are designated by code letters starting with the FAI code letter for gliders (D), then adding the glider class, and finally the pilot category (general or female):

Open Class glider records	designated by adding the letter O.
15m Class glider records	designated by adding the number 15.
13.5m Class glider records	designated by adding the letter 13.
Ultralight glider records	designated by adding the letter U.
General pilot category	designated by the letter G.
Female pilot category	designated by the letter F.

Examples: DOF Gliding, Open class, Female
D15G Gliding, 15 metre class, General

3.1.6 **Types of record flights**

		Flight Performance (see also 1.4.2)	*Flight Restrictions*
Distance records			
a.	Straight distance		No turn points
b.	Distance to a Goal		Declared finish point with no turn points
c.	Out-and-Return distance		1 declared turn point
d.	Out-and-Return free distance		May use first turn point of a Pilot Option distance
e.	Pilot Option distance		1 to 3 declared turn points
f.	Pilot Option free distance		1 to 3 turn points
g.	Triangle distance		2 or 3 declared turn points, see 1.4.3 on geometry
h.	Triangle free distance		See 1.4.3 on geometry
Speed records			
All way points must be declared in the sequence to be flown. See 3.4.3b on loss of height. A claim is made only for the incremental distance immediately less than the distance flown.			
i.	Speed over an Out & Return course of 500 km and multiples of 500 km	1.4.2c	one declared turn point
j.	Speed over a Triangle course of 100, 300, 500, 750, 1250 km, and all multiples of 500 km	1.4.2g	declared turn points, see 1.4.3 on geometry
Altitude records			
k.	Gain of Height	1.4.2i	see 3.5.3 on evidence
m.	Absolute altitude	1.4.2j	see 3.5.3 on evidence

3.2 DECLARATION REQUIREMENTS

3.2.1 **Declaration input** All record flights require a *pre-flight* declaration having the information listed in 3.2.2; however, the way points may be changed after launch but *before* the start of the task. The declaration must be input to each FR on board and appear in each .igc file.

See Annex C-3.4 for general notes on declarations and C-6.4 on the format of a declaration as it appears in an .igc file. Consult the FR manufacturer's user manual to determine which method a FR uses to record declaration date and time.

3.2.2 **Declaration content**

a. Date of flight.

b. Name of the pilot-in-command, and the flight crew if any.

c. Glider type, and its registration or serial number or unique NAC-assigned contest number.

d. The make, model and serial number of the FR.

e. Waypoints, when required. If a word description, abbreviation, or code is used to declare a way point, its coordinates are definitive and must be taken from a published source designated by the NAC.

3.2.3 **Declarations from more than one FR** Data files from each FR must be submitted. They must have identical task data input. If one FR fails, the other becomes the direct replacement. A difference in the declaration between the FRs will invalidate a record claim from that flight.

3.3 FLIGHT CONTINUITY VERIFICATION

a. The flight data must show there was no intermediate landing by the glider and an MoP was not used during the soaring performance.

b. An interruption in barographic data will not compromise proof of flight continuity provided that the OO and NAC are convinced that no critical data is missing and the evidence remains indisputable. Evidence of flight continuity may also be assessed from a time plot of the FR height data.

3.4 CALCULATIONS and CALIBRATIONS

Any measurement or calculation inaccuracy related to the flight data is to be interpreted to the maximum disadvantage of the pilot. The minimum data required for each type of soaring performance is given in the record application forms.

3.4.1 **Barograph calibration time limits** The barograph function of an FR must be calibrated within five years prior to the flight *or* within two months after the flight. Both calibrations are required for altitude and gain of height records, with the less favourable of the two used to make the calculations.

3.4.2 **Earth model and distance calculations** The WGS84 earth model shall be used for all lat/long data recorded for flight analysis. For distances between two points in excess of 1000 kilometres, and in any case of dispute over a distance, the distance flown is deemed to be the length of the geodesic line joining the start point and the finish point or, if there are turn points, the sum of the geodesic lines for each leg of the course.

3.4.3 **Loss of height (LoH) adjustment for record flights**

a. For distance records, the achieved distance shall be reduced by M(LoH – 1000m) km to give the official distance. M = 50 for gliders of under 15m wingspan, otherwise M = 100.

b. For speed records, a number of seconds equal to (LoH ÷ 2.5) shall be added to the duration of course for the calculation of the official speed.

3.5 FLIGHT EVIDENCE REQUIREMENTS

3.5.1 **Time evidence** GPS time data shall be used, substantiated by independent evidence confirming take-off and landing times and locations. The time at which a glider crosses the start or finish line is determined by linear interpolation between the last fix before crossing and the first fix after crossing.

3.5.2 **Position evidence**

a. POINT OF RELEASE The point of release shall be taken from the FR data. As soon as possible after release, the pilot should make a steep turn so the GPS data clearly indicate the release point. The release point shall be taken at the start of this turn.

b. START POINT The start position shall be taken from the FR data.

c. TURN POINTS ACHIEVED When a turn point is not required to be declared, a fix is selected post-flight. For declared turn points GPS evidence must show that a fix was recorded within the OZ, or a straight line drawn between two consecutive valid fixes crosses the OZ boundary of the TURN POINT, or the flight track crosses at any distance the extended bisector of the inbound and outbound LEGS of the TURN POINT.

d. FINISH POINT The finish position shall be taken from the FR data.

3.5.3 **Altitude evidence**

a. Up to 15,000 metres, pressure data recorded by an FR shall be used.

b. Above 15,000 metres, GPS altitude data from an FR approved for high altitude use (HAFR) shall be used. *See Annex B and the Technical Specifications for IGC FRs for HAFR procedures.*

c. For all altitude flights, both GPS and pressure altitudes shall be recorded. The resulting profiles of the GPS and pressure altitudes must correspond to ensure no anomaly is present in the altitude evidence.

d. Claims using altitude data from a HAFR must include evidence that there was no solar flux radiation during the flight exceeding the high of the 96 hours preceding the flight.

Note: A source of solar data is the NOAA Space Weather Prediction Center at <www.swpc.noaa.gov/today> or <www.n3kl.org/sun>.

e. For gain of height record claims having a high point above 15,000 metres, the evidence for the low point shall also come from GPS data.

f. The altitudes at which a glider crosses the boundary of a start or finish OZ are determined by linear interpolation between the altitudes at the last fix before crossing and the first fix after crossing.

3.5.4 **Means of propulsion evidence and MoP recorder procedures**
A MoP recorder incorporated within an FR is required for record attempts using a glider having a MoP. The OO must complete Record Form D and must certify the means used to determine that the MoP recorder functioned correctly.

3.5.5 **FR recording procedures** FR terms of approval are described in SC3B Chapter 1, the OO shall be familiar with the applicable approval. In order to maintain control of the FR and the recorded data (1.1.1 and 4.4.1a refer), the OO shall:

a. BEFORE FLIGHT Verify the installation, set-up, and sealing of all FRs used. A data sampling rate setting must be at least once per minute.

b. TAKE-OFF and LANDING Use evidence independent of the FR(s) to confirm the times and points of take-off and landing, pilot name(s), glider type and registration, and the make, model, and serial number of each FR used.

c. AFTER FLIGHT Check any seals applied to each FR before flight and either perform or supervise the transfer of flight data from each device. Perform a security check on each resulting data file using the appropriate validation program. Review the flight data for completeness, and if it is to be sent to another person for complete analysis, the following shall be forwarded:

- The original data on the memory device (the first copy) storing the flight data for each FR. This must include the data file in .igc format, and the file in its original format (if different) as transferred from each device immediately after landing.
- The appropriate claim form(s), including OO's evidence that manually recorded times and exact locations correspond to the equivalent flight recorder data.

e. DATA ANALYSIS With the exception of a member of the flight crew, analysis of the flight data shall be performed by a person approved by the NAC. The analyst shall ensure the appropriate evidence is present to verify the soaring performance. Achieved way point fixes shall be determined from the FR evidence and specified in the record claim. Analysis guidance is in Annex C.

3.6 FALSIFICATION of EVIDENCE

Should it be proven that any person involved in a record claim has altered, concealed, or in any other way misrepresented the evidence with the intent to deceive, the claim shall fail. The FAI will withdraw the Sporting Licences of those guilty of the fraud and may cancel permanently or for a

period of time any other award, record, title, etc. it has conferred. A NAC may be asked to cancel the appointment of the OO(s) involved where appropriate (see 4.1.6).

3.7 TIME LIMIT on RECORD CLAIMS

3.7.1 **Claim notice** Notice of a claim for a record must be submitted by the NAC or the OO controlling the attempt, and the FAI must receive the claim within seven days of the flight. In exceptional circumstances, the president of the IGC may grant an extension. Telephone, fax, e-mail, and similar types of notification are acceptable.

3.7.2 **Claim documentation** The NAC shall forward claim documentation to reach the FAI within 120 days of the date of the flight unless an extension of time has been authorised by the IGC President (GS-6.8.2 refers).

3.8 FAI RECORD CLAIM FORMS

For claims submitted to the FAI, the current IGC-approved FAI Official Claim must be used. For National records, the NAC may issue its own forms similar to the FAI versions.

Designation	Record type	Remarks
Form A	Absolute Altitude or Gain of Height	Open class records only
Form B	Distance	
Form C	Speed	
Form D	Motor Gliders	Form D is additional to other forms if appropriate to the claim.
Form E	Completed by all NACs involved.	Must be included with claim file.

The FAI forms are available from the IGC web site <http://www.fai.org/gliding>, and in hard copy from the FAI office and NACs.

Chapter 4

OFFICIAL OBSERVERS and CERTIFICATION

4.1 OFFICIAL OBSERVER AUTHORITY

4.1.1 **Appointment** OOs are appointed by a National Airsport Control (NAC) on behalf of the FAI and IGC. Directors of competitions sanctioned by FAI or a NAC may also act as OOs for badge or record flights undertaken during a contest.

4.1.2 **Duties** As representatives of FAI and IGC, OOs oversee FAI badge and record attempts, flights made in FAI sanctioned competition, and other soaring performances an NAC may define within its area of authority.

4.1.3 **Jurisdiction** OOs are entitled to serve as such within the jurisdiction of the appointing NAC. Elsewhere, an OO may also oversee flights made by glider pilots of any nationality if the controlling NAC so permits (1.0.4b and 1.0.4c refer).

4.1.4 **Definition of certification terms**

a. CONTROL Refers to OO actions taken to ensure the integrity of evidence supporting a badge or record performance, and the required evidence gathering and evaluation functions performed in relation to a given flight.

b. VERIFICATION Refers to confirmation of the aircraft flown, the name(s) of the crew, and take-off and landing times and locations.

c. CERTIFICATE Refers to a written statement signed ("certified") by a person who has first-hand knowledge that the statement is true.

4.1.5 **Competence**

a. OOs must be familiar with the Code and have the integrity, skill, and competence necessary to control and certify glider flights. An OO should be briefed or given training appropriate to the duties of an OO prior to being approved by a NAC. *Annex C-1.3 gives recommended practices for administering OOs.*

b. The OO shall be familiar with the operation and limitations of all evidence-gathering equipment used on a given flight. See also Annex C, App 5 paragraph 1.3.

c. For World and Continental records, the OO must be approved for this role, in writing, by the controlling NAC. Previous satisfactory experience as an OO for FAI badges or national records should be a requirement. Where more than one OO is involved, an OO with the controlling NAC shall oversee and certify that the work of other OOs is correct.

4.1.6 **Conflict of interest** Ref: <*http://www.fai.org/documents/otherdocs/code_ethics*>
All persons involved in data verification and claim approval must conform to the FAI Code of Ethics, evaluating the claim objectively according to the rules and procedures of the Code. As such, no one involved in ratifying a World or Continental record claim may have a special personal interest in the outcome of that claim, and OOs may not act for any record or badge attempt in which they have any financial interest or in which they are the pilot or passenger.

Ownership of the glider shall not be considered "financial interest". In essence, monetary or other substantial gain shall not depend on the successful certification of the claim by the OO or other individuals concerned.

4.1.7 **Violation of duty** In case of violation of duty by an OO, the appointment of the OO shall be withdrawn. In addition, negligent certifications or willful misrepresentations are grounds for disciplinary action by the NAC concerned. See also 3.6.

4.2 FLIGHT CONTROL and VERIFICATION

4.2.1 **Pre-flight control actions**
For each FR or PR, an OO must perform the actions required by 2.5.3a for badge flights or 3.5.5a for records and, if used:

a. certify a written declaration before flight by signing it and adding the date and time (2.3.2f refers),

b. perform installation and operational checks of any MoP recorder not incorporated into a flight recorder and seal the MoP (3.5.4 refers),

4.2.2 **Post-flight control actions**
For each FR or PR, an OO must perform the actions required by 2.5.3c for badge flights or 3.5.5c for record flights. For a flight using a motor glider, perform a post-flight check of any attached MoP seal. Complete FAI Claim Form D or NAC equivalent for a record flight.

4.2.3 **Control of a duration flight made under an OO's continual attention**
The OO must witness both take-off and landing and verify release time and altitude MSL based on a tow release certificate from the tow pilot or ground launch operator for the flight, supplemented if necessary by the written flight logs maintained at the take-off and landing site. (2.4.1 refers).

4.2.4 **Verification**
The OO certifying the claim shall verify the aircraft flown, crew name(s), and the times and locations of take-off and landing based on personal observation, supplemented if necessary by the written flight logs maintained at the take-off and landing site(s). In the latter case, the OO shall attach to the claim form legible photocopies of the pertinent flight logs. If any required detail is not verified as above, the appropriate verification certificate is required (4.3.3 refers).

4.3 CLAIM CERTIFICATION

4.3.1 **General** Whether part of a pre-printed claim form or provided as an attachment, any required certificate must clearly relate to the flight, contain the information required, and be signed by the appropriate person(s). Except as provided by 4.3.2g for calibration certificates, any person signing a certificate shall also provide his or her name, address and, if possible, contact phone number or e-mail address.

4.3.2 **Claim certification** Individual certificates pertaining to portions of flight evidence may be signed by the OO involved. The OO(s) who certify a claim must be satisfied the flight meets the soaring performance standards and the flight was done in compliance with SC3 rules. The overall claim shall be certified by the OO who completes and verifies the information in the applicable FAI record claim form(s) or NAC-specified badge claim form(s). At a minimum, an OO shall:

a. review and evaluate any recorded flight data and the pre-flight declaration.

b. confirm that all applicable OO control actions were performed (4.2.1 through 4.2.3 refer)

c. verify the aircraft flown, each occupant's name, and the times and locations of take-off and landing, countersigning photocopied flight logs if applicable (4.2.4 refers).

d. obtain required certificates listed in 4.3.3 and countersign those that are complete and consistent with the claim.

4.3.3 **Certificates required**

a. PILOT CERTIFICATE OF REGULATORY COMPLIANCE For all claims the pilot must certify that the soaring performance was conducted in accordance with the Code, was flown in compliance with all the glider manufacturer's and national operating limitations, and in accordance with national flight regulations (airspace use, night flight, etc.). *For records, this certification is on the IGC Record Forms A, B, and C.*

b. OO CERTIFICATE For all claims this certificate shall list applicable control actions and, for each one, the date it was performed and the signature and OO number of the OO who performed it. Certificates may come more than one OO in a given claim.

c. PHYSICAL DATA This certificate shall identify the glider and each person aboard. It must be signed by one OO who witnessed the take-off.

d. TAKE-OFF This certificate shall list the time and location of take-off and be signed by an OO.

e. START FROM RELEASE This certificate shall indicate the location of release and be signed by the OO and the tow pilot or ground launch operator.

For a duration badge flight done under an OO's continual attention, the certificate shall also include release time and altitude msl, and be signed by the tow pilot or ground launch operator for the flight.

f. LANDING This certificate shall list the time and location of landing and be signed by an OO or an air traffic controller who witnessed the landing. When no one has witnessed the landing, this certificate must be signed by an OO or two independent witnesses who arrive soon afterward and certify the precise location of the glider and the time and date of that observation.

g. CALIBRATION CERTIFICATE Instrument errors shall be listed on a current calibration certificate that includes the laboratory's logo or name. This certificate shall include:

- type, serial number, and altitude range of barograph
- date of calibration
- calibration trace, graph or table
- date, name, and signature of calibration laboratory official