AN EVALUATION OF COMPETITION PILOTS AND GLIDING COMPETITION SCORING SYSTEMS

by Karl Osen, MIKI S.A. Geneva

Presented at the XXI OSTIV Congress, Wiener-Neustadt, Austria (1989)

1. INTRODUCTION

Evaluating the qualities of gliding competitions, scoring systems and competition pilots, is a difficult task but, nevertheless, an important one for anyone involved in competition gliding. The most important reason for these dificulties is the complexity of the scoring system.

This report precisely defines and quantifies several (until now) obscure aspects of competition pilots and scoring systems. The aim is to provide the reader with a deeper understanding of the mechanisms of the system, and to hint what it takes to win a medal in an international gliding championships.

A proposal for a new and simplified scoring system is also presented, including a comparison with the current system.

The report mathematically evaluates competitions and competitors on the basis of official scoring tables. Only the day scores of the pilots are used as input, and the analysis is, therefore, kept on a rather macroscopic level.

The complete investigation covered the results for the World Gliding Championships (WGC) in 1983, 1985 and 1987, as well as for the European Gliding Championships (EGC) in 1984, 1986 and 1988. Because of the different tasks and other conditions, each class (standard, 15-meter and open) is treated as a separate competition. The study thus comprises a total of 18 competitions.

The author would like to thank Catherine and Yves Dugerdil for numerous constructive proposals which have helped to improve this report as well as the Gliding competition Analysis Program.

2. DESCRIPTION OF TABLES

This chapter described the output from the Gliding competition Analysis Program, version 88.09.04 01:30:14. The results for each competition are presented in tables.

Description of Page 1

Page 1 starts with a list of general statistics of the competition. The items listed have the following meanings:

Number of Days gives the number of competition days for the class.

Number of Pilots gives the number of pilots in the class. In parenthesis is given the number of pilots that scored points on all days.

Mean Total Score gives the average total score of the competitors. In parenthesis is given the mean total score divided by the number of days.

Mean Day Score gives the average score of all flights with more than zero points. The number following the +/- symbol indicates the average deviation of the day scores from the mean day score.

Mean Day Factor is the average of the day factors used in the competition. The day factor is a good indicator of the meteorological conditions during the competition. Under ideal circumstances the mean day factor is 1.

Zero Score Entries gives the percentage of the maximum possible number of flights (number of days multiplied by the number of pilots) that have zero points. Many reasons may cause a zero score entry: The pilot was sick in bed. A wrong first turning point was photographed. The glider was on repair following a damage on an outlanding the previous day. This analysis does not distinguish between zero score entries and considers them all to be grounded "flights." When comparing one pilot against the others, zero score entries are usually eliminated to give a better evaluation (i.e. it is not fair to compare pilots with one that did not fly).

Mean Irregularity is the average value of the irregularity of each pilot (to be discussed later). After the +/- symbol is shown the average deviation of each pilot's irregularity from the mean irregularity. The mean irregularity is expressed in percent.

Score Distribution says over how many percent of the winner's total score the best half of the pilots are distributed. For instance, if the winner's total score is 10,000 points and the best half of the pilots have more than 8,000 points, then the score distribution is 20 percent. The score distribution should preferably be as large as possible to distinguish well between the pilots.

Days in Sample is the number of days that is used to find the best selection of flights for each pilot. The sample size is equal to half the number of days (rounded upwards if the number of days is odd). The sample size is used for the calculation of the sample column in the table on page 1 (to be discussed later).

The rest of page 1 is used for a table where the overall performances of the competitors are presented. The columns are as follows:

pl gives the total rank (final classification) of the pilots.

pilot shows the names of the pilots.

pts lists the total score of the pilots.

perf gives the performance of each pilot. The performance of a pilot is found by dividing the total score of the pilot with the average total score of the other pilots (note that the average score of the other pilots is different for each pilot). In the table the performance is expressed in percent (e.g. a performance of 1.25 is listed as 25 percent, whereas a performance of 0.85 is listed at -15 percent).

days gives the number of days each competitor scored points. By looking at the tables one may quickly draw the conclusion that scoring all days is a must in order to end up in the better half of the list.

dayperf shows the pilot's mean day performance, weighted according to day factors. The day performance is calculated similarly to the performance, except that it is made on a daily basis, i.e. the day performance is found by dividing the day score of a pilot by the average day score of the other pilots. To compute the mean day performance each day performance is multiplied by the day factor before summing up and dividing by the sum of the day factors. The dayperf column displays the rank of the mean day performance, followed by the mean day performance. The mean day performance matches closely the performance, but is generally slightly smaller in magnitude since zero score entries are eliminated.

regular indicates the regularity of the pilots. The regular column shows the regularity rank of the pilots (number 1 is the most regular), followed by the irregularity expressed in percent. The irregularity is defined as the average deviation of the day performances from the mean day performance. The irregularity is also calculated with weighted day factors, similarly to the mean day performance. If the mean day performance is 29.4 percent and the irregularity is 9.5 percent, this is to be read as 29.4 +/- 9.5 percent, i.e. the day performances are typically in the range 19.9 to 38.9 percent.

sample is the column where the real potential of the pilots are to be found. All super pilots score well here. The sample column has three parts: to the left is the rank of the sample sorted according to the sample value, which is shown in the

middle. To the right is the sample value in percent relative to the average sample values of the other pilots. The sample is computed by first setting all day factors to 1 and then calculating the average of the best days for each pilot. The number of best days to be used is given by the sample size.

F1 shows the total rank and total score when applying MIKI's simple "formula one" inspired scoring system. This system goes as follows: Only the N first pilots on each competition day score points, where N is equal to one third of the pilots (rounded to the nearest whole number). The day winner gets N points, number two gets N-1 points, number three N-2 points, etc. No day factor is used. It is interesting to observe that this system gives a pilot ranking that closely matches the sample ranking.

Description of Page 2

The table on page 2 lists the best tenth of all flights according to the flight quality. The flight quality is defined as the product of the day performance and the day factor. It may also be considered as a list of the best weighted day performances.

The columns have the following meanings:

pl gives the rating of the flight, sorted according to the flight quality.

flightqty shows the flight quality of the flight (defined above).

pilot shows the pilot names.

day is the competition day when the flight was made.

dayrank is the day rank of the flight.

dayfactor gives the day factor the day the flight was made. However, where all day factors were 1.0, the column is omitted.

Description of Page 3

The table on page 3 lists the best tenth of all flights according to the day performance.

The columns have the same meanings as the columns in the table on page 2.

Description of Page 4

The table on page 4 lists the best tenth of all flights according to the day progress. The day progress is defined as the day score minus the average day score of the other pilots. From the final classification point of view, the day progress is the most important characteristic of a flight, since is says how many more (or less) points the pilot scored than the others. To evaluate his flight a pilot often just checks his day score. However, this method is much too simple since the day score does not contain the element of comparison, which in a competition is essential.

The columns have the same meanings as the columns in the tables on pages 2 and 3, except for the dayprog column which contains the day progress.

Note: The number of lines on pages 2, 3 and 4 usually exceeds that on page 1, since a given pilot may appear more than once.

3. DATA INACCURACIES

Readers that check the total scores may discover a few minor deviations from official scoring tables. This is due to minor inaccuracies in the day score data that was available for this project. However, these differences are, very small and of no importance to the results.

Some of the inaccuracies found were due to simple typographical errors, and most of these have been corrected successfully. In one case, however, the errors were systematic, suggesting a flaw in the organizer's scoring program. For the competition in question the day scores generally did not add up to give the total score, but instead deviated from this figure by up to ten points. Such errors would arise if the calculation of the total score was made from non-rounded day scores (this may seem like a trivial detail, but on the other hand Holger Back may have lost a third place because of this).

A good idea, therefore, is to certify scoring software for major competitions, or at least force the organizers to make listings of the source code available. Any careful team manager should furthermore run his own scoring program in parallel with the organizers, since it is highly probable that several important points may be "scored" that way.

4. LOOKING AT THE RESULTS

Full results are given here only for two of the 18 competitions. However, the following interesting observations have been made when studying the results from all 18. Some of the conclusions which are of general interest are presented in this chapter. The reader may be able to continue the study himself and make his own discoveries.

To get a medal your sample must be among the three best

It is widely accepted that to get a medal in a major championships you must get excellent results practically every day. However, how true this really is has never before been quantified. This analysis reveals that eighty percent of those who get medals have samples among the three best, which means that there is absolutely no way that you can "play it safe." Since the sample column actually is a measure of offensiveness, the message is: Fly as fast as you possibly can and don't make mistakes!

How much better are the best?

The winners of the championships studied in this report usually have a mean day performance in the order of 25 percent (i.e. 25 percent better than the others).

The mean day performances of the winners in the different classes in the same championships seem to be rather uncorrelated. For example: in WGC-85 the winners' mean day performances in the Standard, 15-Meter and Open Class were respectively 17.9 (Brigliadori), 33.5 (Jacobs) and 29.6 (Renner) percent. when the home advantage is particularly significant the winners' mean day performances may reach incredible levels. In EGC-84 in Vinon the winners' mean day performances in the Standard, 15-Meter and Open Class were respectively 48.9 (Lopitaux), 46.7 (Delylle) and 43.5 (Lherm) percent. Needless to say, these three gentlemen are all French.

"The others let me win"

Many years ago, a German champion is supposed to have pronounced these words. That may have happened then, but is rarely the case today. Very seldom will the mistakes of others give you a medal. An example of how this nevertheless may happen is WGC-85 and the Standard Class. With a sample only ranked eleventh Brigliadori became world champion, thanks to the best regularity in the competition.

Trading sample for regularity

In your struggle for fame and glory you may to some extent trade sample for regularity. This means that a low sample value may be compensated by a high regularity. Similarly, a low regularity may be compensated by a high sample value. Examples of this "law" are as follows:

—Selen, WGC-83 Standard: sample: 13, regularity: 1, total: 7 of 42

—Kuittinen, WGC-83 Standard: sample: 2, regularity: 35, total: 14 of 42

—Brigliadori, WGC-85 Standard: sample: 11, regularity: 1, total: 1 of 37

—Leutenegger, WGC-85 Standard: sample: 1, regularity: 26, total: 12 of 37

Top guns

The idea behind the sample concept was better to identify excellent pilots who were not placed well because of bad luck on a few days. It was thought that their real potential would be exposed in the sample. The pilots with samples among the best tenth in their class in one or more of the 18 competitions studied are supposed to have the guts it takes to win a championships.

From the analysis the following "Top Gun" pilots were found (listed alphabetically):

Aboulin, Back, Baumgartl, Beltz, Blatter, Brigliadori, Buchanan, Byrd, Delylle, Gantenbrink, Gerbaud, Gimmey, Goudriaan, Holighaus, Jacobs, Kjallstrom, Kuittinen, Lackner, Leutenegger, Lherm, Lipitaux, Mozer, Musters, Navas, Opitz, Oye, Pare, Peter, Petterson, Ragot, Renner, Schramme, Schroeder, Spreckley, Striedieck, Trzeciak, Wells, Wills.

It is, however, worth noting that Brigliadori and Kuittinen did not qualify for this list when they became world champions.

Maximum samples

When a pilot ends up with a sample of 1000 points, it means that he has won at least half of the days. This is a truly remarkable achievement and deserves special attention. The proud pilots are:

—Renner (WGC-83 Open)
—Lopitaux (EGC-84 Standard)
—Delylle (EGC-84 15-Meter)
—Blatter (EGC-84 Open)

Identifying future champions

The Gliding competition Analysis Program has a lot of potential when it comes to identifying future champions. After the WGC-83 it would have been a reasonable assumption to believe that Kuittinen (2nd best sample) would be a favorite in the next desert championships. No surprise: in the WGC-87 he won.

The mountain king

Federico Blatter is a well known character in international competition gliding. Famous for his kamikaze flying style in narrow mountain valleys, nobody knows better than Federico how to squeeze energy out of a piece of rock. No wonder why he was the first to do a 1000 km in the alps.

Although not yet an international champion, Blatter has achieved top samples twice in the mountains:

—EGC-83 Open: sample: 1, regularity: 15, total: 2 of 15
—WGC-85 Open: sample: 1, regularity: 5, total: 20 of 21

This shows how it is possible for glider pilots to be extremely specialized in certain areas and terrain types.

Spotting the Aussies

When looking at the analysis of WGC-83 and the 15-meter class one may easily see that the samples ranked 6 and 9 are "too" far down the list. Evidently, those two know how to fly in the New Mexico desert, but do not quite know how to tackle all the local problems. Not surprising, therefore, to find that Brockhoff and Giles are both Australians. Noteworthy again, is the presence of the sample/regularity law: both gentlemen had extremely low regularities (ranked 32nd and 39th, respectively), which completely destroyed their sample advantage.

The important points

To win a championship it is not sufficient to score a lot of points, the pilot must first of all score more than the competitors. The day progress table lists the flights that were really decisive in this respect. sometimes the day rank has very little to do with the day progress. A good illustration of this is found on the two bottom lines on page 4 of the analysis of the 15-meter class in WGC-85. The table shows that Bulukin advanced more with his 10th place on day 3 than Gerbaud did with his day win on day 12.

Gaggle breakers

WGC-87 will in particular be remembered for its gaggle flying. Gaggle flying is not a very admirable way of competing, since many pilots benefit from the gaggle to blindly follow a favorite tail to good results.

The day progress tables from those championships are probably the best way to identify those individuals who tried to break away from the gaggles and think independently. The day progress table is ideal for this purpose since a good day progress cannot be achieved by a pilot who flies together with many others.

The pilots figuring on the top of the day progress lists will probably be able to confirm that they were particularly much on their own on the days on which they achieved a high day progress.

5. TUNING THE SCORING SYSTEM

The scoring system is often modified and tuned by the organizers of a competition. Although the intention certainly

is to provide a better and fairer evaluation of the pilots, there are reasons to believe that modifications often are made on a rather arbitrary basis.

A frequently discussed item is the Speed Points Percentage Coefficient, which is the percentage of the winner's speed that gives zero speed points. This coefficient is usually 60 percent. In the WGC-87 the organizers decided to set the Speed Points Percentage Coefficient to 70 percent, and the idea was to put more emphasis on speed. One may ask, however, if there was any particular reason for choosing 70 percent instead of, say 65 or 75 percent. This might not seem very important, but one should keep in mind that small modifications here easily may give us different world champions.

It would certainly be preferable if the scoring system could have been modified according to certain clearly defined directives (instead of letting organizers playing around on their own). the aim of the modifications should be to provide the optimal scoring system for the local conditions. The ultimate goal would finally be to produce an official list of tuning coefficients to be applied for different countries and regions around the world.

To determine optimal local scoring system coefficients, one would have to analyze earlier competitions in the area. The process would be to run differently tuned scoring systems on the flight data (distance, speed, etc.) and to observe the effect on "competition quality" parameters (such as mean regularity and score distribution). the scoring system coefficients that gives the best evaluation should then be used in the next competition in the area. This process should be repeated after every competition to steadily improve the statistical background for the choice of coefficients.

6. FUTURE SCORING SYSTEMS

The current scoring system for gliding competitions has several drawbacks, and the most important is its complexity. This makes it necessary to use tools like the Gliding Competition Analysis Program to find out about the performances of the different pilots. The complexity of the scoring system makes it also very difficult for the pilots to do strategic in-flight decisions where scoring is concerned. Instead, scoring remains a tedious and frustrating night-time leisure for organizers trying to get the results sorted out before tomorrow's briefing. Another unfair aspect of the current system is how excellent pilots may have all their chances completely wiped out because of one single mistake (read: outlanding on a speed day).

By introducing a simple formula one inspired scoring system (see the F1 column explanation) these problems would disappear. It is worth noting that the list of medalists would remain practically the same with such a system. Actually, in the 18 competitions analyzed only 20 percent of the actual medalists would not have gotten a medal had the F1 system been used instead.

The F1 scoring system has several advantages compared to the current system:

—Points can be calculated without the use of a computer.

—Faster cross-country flying is stimulated through the necessity of excellent day results.

—Pilots may have several non-scoring days without exclusion from champion titles.

—More emphasis on each competition day makes competition gliding more interesting for both pilots and spectators.

7. CONCLUSIONS

This study shows how official scoring tables cannot tell the full story about gliding competitions and competitors. By introducing several new descriptive parameters (computed automatically with the Gliding competition Analysis Program) an in-depth evaluation of pilots and competitions has been made possible.

For selection committees and team managers, the Gliding competition Analysis Program may become an important aid to prepare championship teams. the competition pilot may use the tool to identify strong and weak sides of himself and others, thereby allowing new strategies and better training programs to be developed.

Finally, it has been shown that the current scoring system can be sacrificed in favor of a much simpler "formula one" type system, without sacrificing the fairness and the quality of the competitions. On the contrary, such a simplification may be inevitable if competition gliding ever is going to be appreciated outside the gliding community.

APPENDIX

GLIDING COMPETITION ANALYSIS PROGRAM

The Gliding competition Analysis Program is written in transportable "C" code, and may be transported to any computer. However, it is estimated that the market for this program is too small to commercialize it as a separate product. MIKI S.A. has, therefore, instead made the Gliding Competition Analysis Program available as a special computing service. Clients are only charged for the actual costs of data entry, computing time, printing, and shipment. For detailed price lists and order forms please contact MIKI S.A., World Trade Center Geneva, 108 Avenue Louis-Casai, CH 1215, Geneva, Switzerland.

TABLE 1

World Gliding Championships 1987 - Open Class

place.....: Benalla, Australia
scenery....: desert, fields
Page 1-Competition Placings

number of days.....: 12
number of pilots.....: 21 (21 scoring all days)
mean total score.....: 8698 points (725 points per day)
mean day score.....: 725 +/- 160 points
mean day factor.....: 0.969
zero score entries.....: 0.0 per cent (0 of 252)
mean irregularity.....: 16.1 +/- 4.3 per cent
score distribution.....: 16.1 per cent
number of days in sample...: 6

pl:	pilot:	pcs:	perf:	days:	dayperf:	regular:	sample:	Fl:
1	Renner	11019	28.4	12	1/ 29.4	3/ 9.5	2/ 990/ 15.7	1/ 57
2	Schroeder	10859	26.4	12	2/ 27.4	6/ 11.8	1/ 997/ 16.5	2/ 54
3	Gantenbrink	10730	25.3	12	3/ 25.5	1/ 6.7	3/ 978/ 14.2	3/ 45
4	Chenevoy	10332	19.9	12	4/ 20.9	4/ 11.4	4/ 956/ 11.5	4/ 28
5	Gavazzi	9871	14.3	12	5/ 14.7	5/ 11.7	7/ 923/ 7.6	7/ 21
6	Centka	9853	14.0	12	6/ 14.3	2/ 8.4	8/ 915/ 6.4	5/ 26
7	Lynskey	9441	9.0	12	7/ 10.7	15/ 18.8	6/ 925/ 7.7	9/ 19
8	Peter	9349	7.9	12	8/ 8.3	7/ 12.7	10/ 897/ 4.2	11/ 10
9	Lee	9278	7.0	12	9/ 7.5	9/ 14.7	9/ 903/ 5.0	8/ 20
10	Kurstjens	9247	6.7	12	10/ 7.1	11/ 15.6	11/ 895/ 4.0	10/ 14
11	Gimmey	8403	-3.6	12	13/ -4.8	21/ 29.5	5/ 937/ 9.1	6/ 24
12	Nurminen	8330	-4.4	12	11/ -3.8	12/ 15.7	14/ 832/ -3.7	14/ 3
13	Ax	8279	-5.0	12	12/ -4.7	16/ 18.9	12/ 868/ 0.7	11/ 10
14	Schuit	8263	-5.2	12	14/ -5.9	18/ 22.1	13/ 865/ 0.3	16/ 2
15	Danz	7785	-11.0	12	15/-10.9	19/ 22.6	15/ 829/ -4.1	13/ 5
16	Innes	7629	-12.8	12	16/-12.7	10/ 15.5	16/ 780/-10.0	14/ 3
17	Holland	7038	-19.8	12	17/-19.8	13/ 16.6	19/ 735/-15.4	17/ 0
18	Bourgard	7022	-20.0	12	18/-20.1	17/ 19.9	17/ 759/-12.5	17/ 0
19	Hossinger	6803	-22.7	12	19/-23.1	8/ 13.4	20/ 695/-20.2	17/ 0
20	Blatter	6621	-24.8	12	20/-25.4	25/ 23.9	18/ 739/-14.9	17/ 0
21	Coutts	6466	-26.6	12	21/-26.9	14/ 17.9	21/ 692/-20.5	17/ 0

World Gliding Championships 1987 - Open Class

top tenth flights in flight quality: Page 2

pl:	flightqty:	pilot:	day:	dayrank:	dayperf:	dayfactor:
1	1.745	Renner	1	1	74.7	0.999
2	1.714	Lynskey	1	2	71.6	0.999
3	1.675	Schroeder	1	3	67.6	0.999
4	1.650	Chenevoy	1	4	65.2	0.999
5	1.397	Gavazzi	6	1	39.7	1.000
6	1.385	Gantenbrink	6	2	38.5	1.000
7	1.363	Renner	6	3	36.3	1.000
8	1.362	Gantenbrink	3	1	36.2	1.000
9	1.360	Schroeder	5	1	36.0	1.000
10	1.356	Gantenbrink	7	1	35.6	1.000
11	1.351	Lynskey	5	2	35.1	1.000
12	1.350	Danz	6	4	35.0	1.000
13	1.349	Schroeder	7	2	34.9	1.000
14	1.348	Kurstjens	1	5	34.9	0.999
15	1.340	Schroeder	12	1	34.0	1.000
16	1.338	Chenevoy	5	3	33.8	1.000
17	1.327	Schroeder	9	1	32.7	1.000
18	1.325	Renner	12	2	32.5	1.000
18	1.325	Centka	12	2	32.5	1.000
20	1.321	Gimmey	10	1	32.1	1.000
21	1.309	Nurminen	6	5	30.9	1.000
22	1.300	Gavazzi	5	4	30.0	1.000
23	1.294	Renner	8	1	29.4	1.000
24	1.290	Renner	9	2	29.0	1.000
25	1.285	Renner	11	1	28.5	1.000

World Gliding Championships 1987 - Open Class

top tenth flights in day performance: Page 3

pl:	dayperf:	pilot:	day:	dayrank:	dayfactor:
1	74.7	Renner	1	1	0.999
2	71.6	Lynskey	1	2	0.999
3	67.6	Schroeder	1	3	0.999
4	65.2	Chenevoy	1	4	0.999
5	39.7	Gavazzi	6	1	1.000
6	38.5	Gantenbrink	6	2	1.000
7	36.3	Renner	6	3	1.000
8	36.2	Gantenbrink	3	1	1.000
9	36.0	Schroeder	5	1	1.000
10	35.6	Gantenbrink	7	1	1.000
11	35.1	Lynskey	5	2	1.000
12	35.0	Gimmey	2	1	0.884
13	35.0	Danz	6	4	1.000
14	34.9	Schroeder	7	2	1.000
15	34.9	Kurstjens	1	5	0.999
16	34.0	Schroeder	12	1	1.000
17	33.8	Chenevoy	5	3	1.000
18	32.7	Schroeder	9	1	1.000
19	32.5	Renner	12	2	1.000
19	32.5	Centka	12	2	1.000
21	32.1	Gimmey	10	1	1.000
22	30.9	Nurminen	6	5	1.000
23	30.0	Gavazzi	5	4	1.000
24	29.4	Renner	8	1	1.000
25	29.0	Renner	9	2	1.000

World Gliding Championships 1987 - Open Class

top tenth flights in day progress: Page 4

pl:	dayprog:	pilot:	day:	dayrank:	dayfactor:
1	427.0	Renner	1	1	0.999
2	410.2	Lynskey	1	2	0.999
3	388.2	Schroeder	1	3	0.999
4	374.5	Chenevoy	1	4	0.999
5	284.3	Gavazzi	6	1	1.000
6	275.9	Gantenbrink	6	2	1.000
7	265.6	Gantenbrink	3	1	1.000
8	264.5	Schroeder	5	1	1.000
9	262.8	Gantenbrink	7	1	1.000
10	260.2	Renner	6	3	1.000
11	258.3	Lynskey	5	2	1.000
12	257.5	Schroeder	7	2	1.000
13	254.0	Schroeder	12	1	1.000
14	250.7	Danz	6	4	1.000
15	248.8	Chenevoy	5	3	1.000
16	246.3	Schroeder	9	1	1.000
17	242.7	Gimmey	10	1	1.000
18	242.4	Renner	12	2	1.000
18	242.4	Centka	12	2	1.000
20	229.0	Gimmey	2	1	0.884
21	227.2	Renner	8	1	1.000
22	222.3	Nurminen	6	5	1.000
23	221.5	Renner	11	1	1.000
23	221.5	Gavazzi	5	4	1.000
25	219.0	Renner	9	2	1.000

TABLE 2

World Gliding Championships 1983 - Standard Class

place.....: Hobbs, New Mexico, U.S.A.
scenery....: desert

Page 1-Competition Placings

number of days.....: 12
number of pilots.....: 42 (37 scoring all days)
mean total score.....: 9064 points (755 points per day)
mean day score.....: 763 +/- 143 points
mean day factor.....: 1.000
zero score entries.....: 1.0 per cent (5 of 504)
mean irregularity.....: 12.7 +/- 4.2 per cent
score distribution.....: 9.7 per cent
number of days in sample...: 6

pl:	pilot:	pts:	perf:	days:	dayperf:	regular:	sample:	FT:
1	Oye	10780	19.5	12	1/ 18.5	2/ 5.5	4/ 953/ 11.7	6/ 69
2	Beltz	10771	19.4	12	2/ 18.2	13/ 9.9	1/ 976/ 14.4	1/ 87
3	Buchanan	10714	18.7	12	3/ 18.1	24/ 11.7	2/ 966/ 13.2	3/ 77
4	Andersen	10661	18.1	12	4/ 17.4	11/ 9.6	7/ 944/ 10.6	5/ 73
5	Mozer	10499	16.3	12	5/ 15.3	6/ 7.7	9/ 940/ 10.1	8/ 58
6	Stouffs	10448	15.7	12	6/ 15.2	27/ 12.5	5/ 950/ 11.3	6/ 69
7	Selen	10432	15.5	12	8/ 14.4	1/ 4.8	13/ 921/ 7.8	12/ 41
8	Glock	10427	15.5	12	7/ 14.8	25/ 11.9	5/ 950/ 11.3	4/ 74
9	Kjallstrom	10346	14.5	12	9/ 13.8	3/ 5.7	22/ 897/ 4.9	26/ 21
10	Ottoson	10342	14.5	12	10/ 13.6	7/ 7.9	10/ 928/ 8.7	12/ 41
11	Dunbar	10197	12.8	12	12/ 11.9	28/ 13.0	8/ 942/ 10.3	10/ 46
12	Forssten	10184	12.7	12	11/ 12.3	23/ 11.4	14/ 919/ 7.6	22/ 25
13	Schreiber	10109	11.8	12	13/ 10.7	4/ 6.8	20/ 903/ 5.7	16/ 34
14	Kuittinen	10071	11.4	12	16/ 10.1	35/ 17.5	2/ 966/ 13.2	2/ 81
15	Reira	10020	10.8	12	15/ 10.2	14/ 10.1	19/ 904/ 5.8	22/ 25
16	Leutenegger	9921	9.7	12	18/ 8.5	18/ 10.4	12/ 924/ 8.2	16/ 34
17	Brigliadori	9918	9.7	12	17/ 8.9	9/ 8.6	23/ 894/ 4.6	21/ 28
18	Navas	9914	9.6	12	19/ 8.2	12/ 9.6	14/ 919/ 7.6	9/ 49
19	Hansen	9836	8.7	12	21/ 7.7	17/ 10.4	21/ 899/ 5.2	15/ 35
20	Rizzi	9828	8.7	12	20/ 8.1	10/ 9.3	28/ 866/ 1.2	29/ 13
21	Davis	9734	7.6	12	23/ 6.1	30/ 15.3	10/ 928/ 8.7	11/ 42
22	Kristiansen	9709	7.3	12	22/ 6.1	26/ 12.3	14/ 919/ 7.6	14/ 38
23	Crego	9618	6.3	12	25/ 5.8	15/ 10.3	29/ 855/ -0.1	27/ 20
24	Lyons	9610	6.2	12	24/ 5.9	21/ 11.3	27/ 868/ 1.5	25/ 22
25	Wanzenried	9220	1.9	11	14/ 10.3	16/ 10.3	14/ 919/ 7.6	16/ 34
26	Teunisse	9182	1.3	12	28/ 0.1	38/ 19.8	18/ 908/ 6.3	19/ 32
27	McCaffrey	9157	1.1	12	27/ 0.2	31/ 15.7	23/ 894/ 4.6	20/ 29
28	Nietlispach	9137	0.8	12	26/ 0.3	19/ 10.6	31/ 836/ -2.4	30/ 12
29	Monti	9081	0.2	12	29/ -1.3	36/ 18.9	25/ 892/ 4.3	24/ 23
30	Stogner	8865	-2.2	12	30/ -3.3	22/ 11.3	30/ 845/ -1.3	28/ 15
31	Soares	8769	-3.3	12	31/ -4.0	20/ 10.7	33/ 821/ -4.2	31/ 11
32	Sears	8682	-4.3	12	32/ -5.1	8/ 8.4	36/ 797/ -7.0	36/ 0
33	Osen	8381	-7.7	12	33/ -8.9	33/ 16.2	32/ 823/ -3.9	32/ 7
34	Bertoncini	8352	-8.0	12	34/-10.2	41/ 24.3	26/ 880/ 2.9	32/ 7
35	Tobola	8099	-10.9	12	36/-12.3	32/ 16.0	35/ 800/ -6.7	35/ 1
36	Stevens	8094	-10.9	12	35/-12.0	34/ 16.6	34/ 801/ -6.6	36/ 0
37	Maffini	7182	-21.2	11	37/-14.6	5/ 7.2	37/ 729/-15.1	36/ 0
38	Langelaan	6560	-28.1	12	39/-29.3	39/ 22.1	38/ 725/-15.6	36/ 0
39	Szabo	6507	-28.7	12	38/-28.9	42/ 24.8	39/ 717/-16.6	34/ 3
40	Moneo	4392	-52.1	11	40/-48.9	40/ 23.0	40/ 566/-34.4	36/ 0
41	Inamori	3480	-62.2	11	41/-60.0	37/ 19.5	41/ 436/-49.7	36/ 0
42	Gresa	3459	-62.4	11	42/-60.0	29/ 15.2	42/ 425/-50.9	36/ 0

World Gliding Championships 1983 - Standard Class

top tenth flights in flight quality: Page 2

pl:	flightqty:	pilot:	day:	dayrank:	dayperf:
1	1.505	Forssten	1	1	50.5
2	1.454	Dunbar	5	1	45.4
3	1.442	Teunisse	7	1	44.2
4	1.387	Andersen	5	2	38.7
5	1.387	Stouffs	7	2	38.7
6	1.380	Beltz	1	2	38.0
7	1.374	Buchanan	1	3	37.4
7	1.374	Stouffs	1	3	37.4
9	1.374	Lyons	7	3	37.4
10	1.369	Crego	7	4	36.9
11	1.368	Mozer	1	5	36.8
12	1.357	Kuittinen	6	1	35.7
13	1.356	Buchanan	9	1	35.6
14	1.354	Stogner	7	5	35.4
15	1.353	Beltz	6	2	35.3
16	1.351	Leutenegger	5	3	35.1
17	1.351	Wanzenried	7	6	35.1
18	1.350	Kristiansen	9	2	35.0
19	1.350	Rizzi	7	7	35.0
20	1.338	Reira	7	8	33.8
21	1.335	Kjallstrom	7	9	33.5
22	1.326	Glock	7	10	32.6
23	1.326	Buchanan	6	3	32.6
24	1.324	Beltz	10	1	32.4
25	1.320	Soares	7	11	32.0
26	1.315	Oye	1	6	31.5
27	1.313	Kuittinen	5	4	31.3
28	1.301	Davis	7	12	30.1
29	1.297	Monti	9	3	29.7
30	1.293	Buchanan	2	1	29.3
31	1.287	Ottoson	7	13	28.7
32	1.284	Andersen	9	4	28.4
33	1.283	Andersen	8	1	28.3
34	1.280	Kjallstrom	1	7	28.0
35	1.279	Davis	9	5	27.9
36	1.279	Oye	7	14	27.9
37	1.277	Brigliadori	1	8	27.7
38	1.274	Glock	5	5	27.4
39	1.266	Reira	10	2	26.6
40	1.264	Stouffs	12	1	26.4
41	1.260	Nietlispach	5	6	26.0
42	1.258	Andersen	1	9	25.8
43	1.255	Ottoson	9	6	25.5
44	1.255	Forssten	7	15	25.5
45	1.252	Schreiber	9	7	25.2
46	1.251	Stouffs	8	2	25.1
47	1.251	Leutenegger	12	2	25.1
48	1.249	Beltz	2	2	24.9
49	1.245	Kuittinen	2	3	24.5

TABLE 2 (cont.)

World Gliding Championships 1983 - Standard Class
top tenth flights in day performance: Page 3

pl:	dayperf:	pilot:	day:	dayrank:
1	50.5	Forssten	1	1
2	45.4	Dunbar	5	1
3	44.2	Teunisse	7	1
4	38.7	Andersen	5	2
5	38.7	Stouffs	7	2
6	38.0	Beltz	1	2
7	37.4	Buchanan	1	3
7	37.4	Stouffs	1	3
9	37.4	Lyons	7	3
10	36.9	Crego	7	4
11	36.8	Mozer	1	5
12	35.7	Kuittinen	6	1
13	35.6	Buchanan	9	1
14	35.4	Stogner	7	5
15	35.3	Beltz	6	2
16	35.1	Leutenegger	5	3
17	35.1	Wanzenried	7	6
18	35.0	Kristiansen	9	2
19	35.0	Rizzi	7	7
20	33.8	Reira	7	8
21	33.5	Kjallstrom	7	9
22	32.6	Glock	7	10
23	32.6	Buchanan	6	3
24	32.4	Beltz	10	1
25	32.0	Soares	7	11
26	31.5	Oye	1	6
27	31.3	Kuittinen	5	4
28	30.1	Davis	7	12
29	29.7	Monti	9	3
30	29.3	Buchanan	2	1
31	28.7	Ottoson	7	13
32	28.4	Andersen	9	4
33	28.3	Andersen	8	1
34	28.0	Kjallstrom	1	7
35	27.9	Davis	9	5
36	27.9	Oye	7	14
37	27.7	Brigliadori	1	8
38	27.4	Glock	5	5
39	26.6	Reira	10	2
40	26.4	Stouffs	12	1
41	26.0	Nietlispach	5	6
42	25.8	Andersen	1	9
43	25.5	Ottoson	9	6
44	25.5	Forssten	7	15
45	25.2	Schreiber	9	7
46	25.1	Stouffs	8	2
47	25.1	Leutenegger	12	2
48	24.9	Beltz	2	2
49	24.5	Kuittinen	2	3

World Gliding Championships 1983 - Standard Class
top tenth flights in day progress: Page 4

pl:	dayprog:	pilot:	day:	dayrank:
1	335.5	Forssten	1	1
2	312.1	Dunbar	5	1
3	306.6	Teunisse	7	1
4	268.7	Stouffs	7	2
5	267.0	Andersen	5	2
6	262.9	Kuittinen	6	1
7	262.3	Buchanan	9	1
8	259.9	Beltz	6	2
9	259.5	Lyons	7	3
10	258.2	Kristiansen	9	2
11	256.4	Crego	7	4
12	253.5	Beltz	1	2
13	249.5	Buchanan	1	3
13	249.5	Stouffs	1	3
15	246.1	Stogner	7	5
16	245.3	Mozer	1	5
17	244.5	Beltz	10	1
18	244.1	Wanzenried	7	6
19	243.1	Rizzi	7	7
20	242.4	Leutenegger	5	3
21	240.4	Buchanan	6	3
22	234.9	Reira	7	8
23	232.8	Kjallstrom	7	9
24	226.7	Buchanan	2	1
25	226.7	Glock	7	10
26	222.6	Soares	7	11
27	220.3	Andersen	8	1
28	219.3	Monti	9	3
29	215.7	Kuittinen	5	4
30	210.5	Oye	1	6
31	210.0	Andersen	9	4
32	209.3	Davis	7	12
33	208.6	Stouffs	12	1
34	206.0	Davis	9	5
35	201.5	Reira	10	2
36	200.0	Ottoson	7	13
37	198.4	Leutenegger	12	2
38	195.8	Stouffs	8	2
39	193.9	Oye	7	14
40	192.9	Beltz	2	2
41	192.1	Dunbar	11	1
42	189.9	Kuittinen	2	3
43	189.1	Wanzenried	12	3
44	189.1	Glock	5	5
45	188.5	Ottoson	9	6
46	186.9	Kjallstrom	1	7
47	186.8	Hansen	2	4
48	186.5	Glock	8	3
48	186.5	Dunbar	8	3