British Orienteering Rankings Scheme Specification

To be read in conjunction with Competition Rule S (The Rankings Scheme)

Definitions

Scores

Each runner has a set of "scores", the points awarded for each event that they complete. These are published in the event results and do not change subsequently.

Ranking scores

Each runner has a "ranking", which is the sum of their best six scores in the previous 12 month period. This is published on the British Orienteering website but is not used in any calculation.

Outlier

Outliers are regarded as anomalous performances which are inappropriate to include in the calculation of Ranking points and may arise for several reasons. These might include exceptional results caused by, e.g. illness/injury, incorrect results, results attributed to the wrong BOF member etc.

An "outlier" is any score which is more than 100 different from a runner's current score (*CS*) and is ignored in all calculations.

Current scores

Each runner has a current score (*CS*), which is the average of all their scores. It is the best predictor of their performance at an event in which they are included in the statistics. Current scores are not published. They are continually rebased to ensure that the mean of all current scores is 1000, and the standard deviation is 200.

Calculation of scores for a course

At each course, at each event, the following quantities are required:

> *SP* is the standard deviation of current scores of the non-outlier runners
>
> *MP* is the mean of current scores of the non-outlier runners
>
> *ST* is the standard deviation of times of the non-outlier runners
>
> *MT* is the mean time of the non-outlier runners

For each qualifying course, each runner's points (*RP*) are given by: $RP = MP + \dfrac{SP \times (MT - RT)}{ST}$

To decide which "non-outlier" runners are included in *SP*, *MP*, *ST* and *MT*

1. Those reported as non-competitive (n/c), DSQ, or who did not complete the course or are under 17 are excluded from the calculations.

2. Those who have no previous current score are excluded from the calculations.

3. Once this is done, a preliminary calculation of *SP*, *MP*, *ST*, *MT* and *RP* is done including all runners using the equation above. "Outliers" are identified as anyone with a preliminary *RP* more than 100 different from their *CS* (either higher or lower).

4. *SP*, *MP*, *ST*, *MT* and *RP* are calculated again with these outliers excluded from the calculations.

If there are fewer than eight "non-outlier" runners on a course, that course is not included in the ranking. Otherwise the scores (*RP*) are awarded to all runners including "outliers" and those without previous scores, but excluding non-competitive, those who did not complete the course or were otherwise disqualified, along with under 17s.

Calculation of Current Score and rebasing

To avoid the scores drifting over time, it is necessary to rebase the *CS* values.

The unrebased current score *UCS* for a runner is calculated from their previous scores in exactly the same way as *MP* for an event is calculated from the current scores of the runners: a preliminary *UCS* is calculated as the mean of all scores, outliers are eliminated, and a final *UCS* calculated from the remaining scores. Thus the *UCS* depends only on a runner's own scores

The actual *CS* are done by rebasing the *UCS* as follows:

The mean (*AV*) and standard deviation (*SD*) of the *UCS* across all runners is found:

The rebased current scores are then:

$CS = 1000 + (UCS-AV)*200/SD$