

LEGIBILITY OF ORIENTEERING MAPS: EVOLUTION AND INFLUENCES

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Paper maps are generally planned for use under normal circumstances. One of the exceptions is orienteering maps, which are used in special circumstances, namely, at sport events such as running, when poor visibility and bad weather conditions may considerably reduce the legibility.

The objective of this article is to investigate how these special factors were taken into account when the map specifications of orienteering maps were developed and updated or how they influenced the new forms and disciplines of orienteering events.

When the drawing specifications of orienteering maps were created and when later new forms and disciplines of orienteering events were invented, the clear legibility of printed maps was one of the most important aspects.

The first issue of the International Specification of Orienteering Maps was ratified in 1969. This issue was still not a specification but rather a simple guideline, although it already contained quite concrete requirements. Additional specifications were released in 1987, 1982, 1990. The last full specification was published in 2000. This was the first one which included all official disciplines (foot orienteering, ski orienteering, mountain bike orienteering, trail orienteering).

The legibility issue of orienteering maps was part of the standardization process of the sport. As the sport was practiced in more and more countries the issue of standardization became increasingly important. When the organization of international championships started in the 1960s the international federation had an ambition to establish not just a map specification, but also to standardize somehow the whole sport itself.

One of the ways in which orienteering maps differ from other topographical maps is in the amount of fine relief detail (contour lines) that is included. Thus, the main purpose of contours on these maps is the indication of the shape and steepness of the terrain, simply to show all details which are easily identifiable by the competitor during the event (this approach is applicable for other elements of orienteering maps too).

The best strategy of map reading for orienteers is the selectivity; the competitors attend to certain types of information and ignore or rather only pay minimal attention to other kinds of information, but having more and more details represented on orienteering maps this requirement is against the map makers practice.

The maps of the first international championships were based on the national topographic maps (the scale was 1:25,000: there were very few point, line and area symbols, so the legibility was not an issue at all.

The first World Orienteering Championships where the legibility of maps was a problem was in 1972 in Czechoslovakia due to the extreme terrain (sandstone area) which was selected and its over-detailed representations on the map.

The larger scale (1:15,000), which is still the basic scale of orienteering maps since the second half of the 1970s also influenced the map-makers to fill the "empty areas" of maps.

The 1972 event had a relatively long term effect to select extreme terrains for World Orienteering Championships. This effect lasted till 1987. Sweden in 1989 was ready to select less typical Scandinavian terrain to organize fairer championships than previously.

The larger speed in a new short distance event also required a larger scale map (1:10,000). It had the same specification and the larger scale was just a simple enlargement.

Since the end of the 1980s computer drawing became possible. The Swiss OCAD software was launched around 1989 for drawing orienteering maps and very soon this software became the dominant in this field. It was important that the specification of orienteering maps was uniform all over the world, so the same product could be used in every country.

Actually digital elevation models and orthophotos provided more detailed base maps for orienteering maps. The main problem of the very detailed base maps (such as photogrammetric plots) is that they were not simplified by the mapmaker on the terrain, because their generalization would require cartographic knowledge.

The legibility issue of orienteering maps is an interesting sample of how users' demands influence the map itself. Mapmakers should understand that without the proper level of generalization the legibility of orienteering maps will not be suitable for the organization of fair events. The International Orienteering Federation keeps the aim of preserving the characteristics of the different event and discipline formats by ensuring the legibility of the event maps.

The project is supported by the European Union and co-financed by the European Social Fund (grant agreement no. TAMOP 4.2.1/B-09/1/KMR-2010-0003)