

Supplementary Material A:

Calculation of average individual Wind Speed (aiWindSpeed)

The environmental conditions were collected hourly from 5 automated weather stations of the South African Weather Services along the race route between 6AM and 5PM on race day. Using the hourly information from these 5 weather stations, 5 areas' Wind Speed's that a participant was exposed to along the route was calculated and then averaged.

The following assumptions were made:

- 1) The cyclist kept a constant speed, allowing for the use of their overall average race speed to determine the time they presented at each weather station
- 2) When the cyclist presented to a weather station, the Wind Speed for that hour period during which they presented, was taken

Please see below for an example of a calculation of aiWindSpeed for a cyclist on race day:

Calculating the time at each weather station:

| Weather Station | Distance | Time at weather station |
|----------------------------|----------------|---|
| Cape Town Royal Yacht Club | 0km (start) | Start time (crossing mat, or batch time if no mat time) |
| Kirstenbosch | 10km | Start time + (10/speed) |
| Cape Point | 48km | Start time + (48/speed) |
| Slangkop | 67km | Start time + (67/speed) |
| Molteno Reservoir | 107km (finish) | Start time + (107/speed) |

Therefore:

If, in 2012 Rider A started at 7h30 and had a speed of 24.88km/h:

| Weather Station | Distance | Time at weather station | Wind Speed at that time point at weather station in 2012 |
|----------------------------|----------------|-------------------------|--|
| Cape Town Royal Yacht Club | 0km (start) | 7:30 | 2.8 |
| Kirstenbosch | 10km | 7:54 | 1.6 |
| Cape Point | 48km | 9:24 | 15.3 |
| Slangkop | 67km | 10:12 | 1.7 |
| Molteno Reservoir | 107km (finish) | 11:48 | 1.8 |

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| Wind Speed Average for Rider A | 4.6 |
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