1 Two-node model

Below I am comparing the results obtained with the Gagge's two node model and the SMA tables.

In the model I set that skin wettedness max is 1. Check the other inputs in the chart title.

The results greatly differ for both sports with low and high met. The color bar is showing the core temperature, the grouping is arbitrary and may not be correct, but this is to start the conversation.

1.1 Core temperature - Two-node model - Sport category 1

Figure 1: Sport category 1

1.2 Core temperature - Two-node model - Sport category 2

Figure 2: Sport category 2

1.3 Core temperature - Two-node model - Sport category 3

Figure 3: Sport category 3

1.4 Core temperature - Two-node model - Sport category 4

Figure 4: Sport category 4

1.5 Core temperature - Two-node model - Sport category 5

Figure 5: Sport category 5

1.6 Two-node model - skin wettedness

For completeness here I am presenting the results using skin wettedness as output. Which are meaningless for high met sports since the value is always one, they are just useful for sport category 1 and 2. I am not even reporting results for sport cat 5 since not useful.

(a) Sport category 1

(b) Sport category 2

(c) Sport category 3

(d) Sport category 4

2 PHS model

Below I am comparing the results obtained with the PHS and the SMA tables.

2.1 Core temperature - PHS model - Sport category 1

Figure 7: Sport category 1

2.2   Core temperature - PHS model - Sport category 2

Figure 8: Sport category 2

2.3 Core temperature - PHS model - Sport category 3

Figure 9: Sport category 3

2.4 Core temperature - PHS model - Sport category 4

Figure 10: Sport category 4

2.5 Core temperature - PHS model - Sport category 5

Figure 11: Sport category 5

2.6   Skin wettedness - PHS model - Sport category 1

Figure 12: Sport category 1

2.7 Skin wettedness - PHS model - Sport category 2

Figure 13: Sport category 2

2.8 Skin wettedness - PHS model - Sport category 3

Figure 14: Sport category 3

2.9   Skin wettedness - PHS model - Sport category 4

Figure 15: Sport category 4

2.10 Skin wettedness - PHS model - Sport category 5

Figure 16: Sport category 5

3 Core temperature - Side by side comparison models

Please note that we are using both models outside their limits. The two-node estimates a lower core temperature for low mets while a higher one at high mets when compared with the PHS output.

(a) two node Sport category 1   (b) phs Sport category 1

(c) two node Sport category 2   (d) phs Sport category 2

(a) two node Sport category 3   (b) phs Sport category 3

(c) two node Sport category 4   (d) phs Sport category 4

(e) two node Sport category 5   (f) phs Sport category 5