

To measure the thermal comfort and to assess the risk of the heat stress phenomenon, for the female and male, at the Campus of the University of Coimbra, designated by Polo II, the RayMan Pro software was used to determine the PET index and obtain the level of thermal perception and the level of physical stress for two measurement periods (1:00pm to 2:00pm and 7:00pm to 8:00pm).

- **Period of the day from 1:00 pm to 2:00 pm**

Table 1.1 – Input data for the general parameters, in the period from 1:00 pm to 2:00 pm, for the days selected for each of the 6 Zones.

Zone	Date	Day of the year	Hour	Altitude [m]
1	2020-08-04	217	1:10 pm	55,00
2	2020-08-08	221	1:20 pm	54,00
3	2020-08-07	220	1:30 pm	47,00
4	2020-08-11	224	1:40 pm	43,00
5	2020-08-05	218	1:50 pm	42,00
6	2020-08-11	224	2:00 pm	39,00

Table 1.2 – Input data for environmental parameters, in the period from 1:00 pm to 2:00 pm, for the days selected for each of the 6 Zones.

Zone	Air temperature [°C]	Relative humidity [%]	Wind speed [m/s]	Solar radiation [W/m²]	Surface temperature [°C]
1	31,43	44,17	0,45	877,00	54,50
2	33,18	43,97	4,03	868,00	46,60
3	33,71	45,15	0,45	856,00	46,40
4	33,45	41,67	2,24	888,00	38,00
5	34,18	40,27	0,45	884,00	47,60
6	34,11	49,78	0,89	976,00	38,30

Table 1.3 – PET index, thermal perception level and physical stress level for males and females, in the period from 1:00 pm to 2:00 pm.

Zone	Gender Male			Gender Female		
	PET index	Level of thermal perception	Level of physical stress for heat	PET index	Level of thermal perception	Level of physical stress for heat
1	46,80	Very hot	Extreme heat stress	46,70	Very hot	Extreme heat stress
2	41,30	Very hot	Extreme heat stress	41,20	Very hot	Extreme heat stress
3	45,90	Very hot	Extreme heat stress	45,90	Very hot	Extreme heat stress
4	47,90	Very hot	Extreme heat stress	47,90	Very hot	Extreme heat stress
5	49,70	Very hot	Extreme heat stress	49,70	Very hot	Extreme heat stress
6	45,70	Very hot	Extreme heat stress	45,90	Very hot	Extreme heat stress

- **Period of the day from 7:00 pm to 8:00 pm**

Table 1.4 – Input data for the general parameters, in the period from 7:00 pm to 8:00 pm, for the days selected for each of the 6 Zones.

Zone	Date	Day of the year	Hour	Altitude [m]
1	2020-08-06	219	7:10 pm	55,00
2	2020-08-07	220	7:20 pm	54,00
3	2020-08-07	220	7:30 pm	47,00
4	2020-08-07	220	7:40 pm	43,00
5	2020-08-07	220	7:50 pm	42,00
6	2020-08-07	220	8:00 pm	39,00

Table 1.5 – Input data for environmental parameters, from 7:00 pm to 8:00 pm, for the days selected for each of the 6 Zones.

Zone	Air temperature [°C]	Relative humidity [%]	Wind speed [m/s]	Solar radiation [W/m²]	Surface temperature [°C]
1	30,78	47,69	1,79	253,00	43,70
2	30,84	48,62	2,24	220,00	38,40
3	30,49	49,09	0,89	200,00	42,80
4	31,51	46,75	4,47	160,00	34,40
5	31,62	46,88	0,89	148,00	31,00
6	29,65	51,99	0,89	130,00	40,10

Table 1.6 – PET index, thermal perception level and physical stress level for males and females, from 7:00 pm to 8:00 pm.

Zone	Gender Male			Gender Female		
	PET index	Level of thermal perception	Level of physical stress for heat	PET index	Level of thermal perception	Level of physical stress for heat
1	40,10	Hot	Strong heat stress	40,00	Hot	Strong heat stress
2	37,50	Hot	Strong heat stress	37,40	Hot	Strong heat stress
3	39,40	Hot	Strong heat stress	39,30	Hot	Strong heat stress
4	33,90	Warm	Moderate heat stress	33,70	Warm	Moderate heat stress
5	35,90	Hot	Strong heat stress	35,80	Hot	Strong heat stress
6	35,10	Hot	Strong heat stress	35,80	Hot	Strong heat stress