
STATISTICAL DATA OF COMFORT LEVEL AROUND ALUN-ALUN PURWOREJO, JAWA TENGAH, INDONESIA

Sugiasih¹

¹Department of Diploma IV Pertanahan, Sekolah Tinggi Pertanahan Nasional, Yogyakarta,
Indonesia

Korespondensi Sugiasih, Email: sugiasih@stpn.ac.id

Abstract

Alun-alun Purworejo is a square in the center of Purworejo Regency, around which important buildings stand, such as the Kodim, the Grand Mosque, the Regent's Office, the DPRD Office. The comfort level around Alun-alun Purworejo is included in the Comfort criteria except at 13.00.

Keywords: Alun-alun Purworejo, comfort level, comfortable.

1. INTRODUCTION

Alun-alun Purworejo is a square in the center of Purworejo Regency, Central Java Province, Indonesia. Around the Alun-alun Purworejo there are several important buildings, namely: the Great Mosque of Darul Muttaqin Purworejo, the Kodim, the Regent's Office, the Purworejo DPRD Office. Alun-alun Purworejo is located in Purworejo Village, which is the capital of Purworejo Regency. Figure 1 is a photo of Alun-alun Purworejo.

The comfort level is a standard measuring tool for a person's comfort. The level of comfort is affected by the weather, such as air temperature and relative humidity (Adiwijaya et. al., 2013). The comfort level is used the term Temperature-Humidity Index (THI). There are many THI formulas, but what is often used is the Nieuwolt formula, namely:

$$THI = 0.8Ta - RH \times T/500 \quad (1)$$

where Ta = air Temperature with unit °C, RH = Relative Humidity with unit %. Kriteria adalah $THI \leq 29$ (Comfortable), $29 < THI \leq 30.5$ (Uncomfortable), $THI > 30.5$ (Very Uncomfortable). The use of this formula is related to the tropical climate in Indonesia (Sugiasih and Sugiyanto, 2023).



Figure 1. Alun-alun Purworejo

2. COMFORT LEVEL AROUND ALUN-ALUN PURWOREJO

In this study we use secondary data, namely Timeanddate (2023). Table 1 is data on air temperature and relative humidity on September 7-20 2022 around Alun-alun Purworejo. From Equation (1) the THI data is obtained in Table 1.

Table 1. Temperature of air and relative humidity on February 12 - 25, 2023 in Alun-alun Purworejo

No	Date	O'clock	Temperature (°C)	Humidity (%)	THI	Criteria
1	February 12, 2023	01.00	26	84	25.168	Comfortable
		04.00	26	84	25.168	Comfortable
		07.00	27	79	25.866	Comfortable
		10.00	29	80	27.84	Comfortable
		13.00	30	68	28.08	Comfortable
		16.00	29	73	27.434	Comfortable
		19.00	27	81	25.974	Comfortable
		22.00	26	90	25.48	Comfortable
2	February 13, 2023	01.00	25	90	24.5	Comfortable
		04.00	25	92	24.6	Comfortable
		07.00	25	91	24.55	Comfortable
		10.00	30	69	28.14	Comfortable
		13.00	26	64	24.128	Comfortable

No	Date	O'clock	Temperature (°C)	Humidity (%)	THI	Criteria
		16.00	26	81	25.012	Comfortable
		19.00	26	78	24.856	Comfortable
		22.00	26	80	24.96	Comfortable
3	February 14, 2023	01.00	26	86	25.272	Comfortable
		04.00	25	90	24.5	Comfortable
		07.00	25	90	24.5	Comfortable
		10.00	29	74	27.492	Comfortable
		13.00	30	75	28.5	Comfortable
		16.00	29	74	27.492	Comfortable
		19.00	26	92	25.584	Comfortable
		22.00	27	88	26.352	Comfortable
4	February 15, 2023	01.00	26	92	25.584	Comfortable
		04.00	26	93	25.636	Comfortable
		07.00	26	94	25.688	Comfortable
		10.00	28	78	26.768	Comfortable
		13.00	31	67	28.954	Comfortable
		16.00	29	71	27.318	Comfortable
		19.00	27	84	26.136	Comfortable
		22.00	26	88	25.376	Comfortable
5	February 16, 2023	01.00	26	90	25.48	Comfortable
		04.00	25	90	24.5	Comfortable
		07.00	25	92	24.6	Comfortable
		10.00	29	79	27.782	Comfortable
		13.00	31	68	29.016	Uncomfortable
		16.00	30	69	28.14	Comfortable
		19.00	25	90	24.5	Comfortable
		22.00	26	90	25.48	Comfortable
6	February 17, 2023	01.00	25	92	24.6	Comfortable
		04.00	25	94	24.7	Comfortable

No	Date	O'clock	Temperature (°C)	Humidity (%)	THI	Criteria
		07.00	26	88	25.376	Comfortable
		10.00	29	74	27.492	Comfortable
		13.00	30	72	28.32	Comfortable
		16.00	29	75	27.55	Comfortable
		19.00	28	77	26.712	Comfortable
		22.00	26	88	25.376	Comfortable
7	February 18, 2023	01.00	25	91	24.55	Comfortable
		04.00	25	86	24.3	Comfortable
		07.00	26	87	25.324	Comfortable
		10.00	28	78	26.768	Comfortable
		13.00	30	75	28.5	Comfortable
		16.00	26	88	25.376	Comfortable
		19.00	25	91	24.55	Comfortable
		22.00	26	89	25.428	Comfortable
8	February 19, 2023	01.00	25	88	24.4	Comfortable
		04.00	25	90	24.5	Comfortable
		07.00	25	90	24.5	Comfortable
		10.00	29	68	27.144	Comfortable
		13.00	30	77	28.62	Comfortable
		16.00	26	78	24.856	Comfortable
		19.00	26	94	25.688	Comfortable
		22.00	27	90	26.46	Comfortable
9	February 20, 2023	01.00	26	92	25.584	Comfortable
		04.00	25	94	24.7	Comfortable
		07.00	25	92	24.6	Comfortable
		10.00	30	75	28.5	Comfortable
		13.00	31	68	29.016	Uncomfortable
		16.00	26	91	25.532	Comfortable
		19.00	26	92	25.584	Comfortable

No	Date	O'clock	Temperature (°C)	Humidity (%)	THI	Criteria
		22.00	26	93	25.636	Comfortable
10	February 21, 2023	01.00	26	91	25.532	Comfortable
		04.00	26	91	25.532	Comfortable
		07.00	26	91	25.532	Comfortable
		10.00	30	70	28.2	Comfortable
		13.00	31	73	29.326	Uncomfortable
		16.00	30	75	28.5	Comfortable
		19.00	28	76	26.656	Comfortable
		22.00	26	93	25.636	Comfortable
11	February 22, 2023	01.00	26	86	25.272	Comfortable
		04.00	26	90	25.48	Comfortable
		07.00	26	86	25.272	Comfortable
		10.00	28	81	26.936	Comfortable
		13.00	28	79	26.824	Comfortable
		16.00	29	78	27.724	Comfortable
		19.00	27	79	25.866	Comfortable
		22.00	25	94	24.7	Comfortable
12	February 23, 2023	01.00	25	94	24.7	Comfortable
		04.00	26	90	25.48	Comfortable
		07.00	24	94	23.712	Comfortable
		10.00	26	93	25.636	Comfortable
		13.00	29	76	27.608	Comfortable
		16.00	28	80	26.88	Comfortable
		19.00	27	89	26.406	Comfortable
		22.00	26	90	25.48	Comfortable
13	February 24, 2023	01.00	26	87	25.324	Comfortable
		04.00	26	94	25.688	Comfortable
		07.00	25	92	24.6	Comfortable
		10.00	27	83	26.082	Comfortable

No	Date	O'clock	Temperature (°C)	Humidity (%)	THI	Criteria
		13.00	29	78	27.724	Comfortable
		16.00	28	81	26.936	Comfortable
		19.00	27	76	25.704	Comfortable
		22.00	27	76	25.704	Comfortable
14	February 25, 2023	01.00	27	76	25.704	Comfortable
		04.00	26	79	24.908	Comfortable
		07.00	25	91	24.55	Comfortable
		10.00	25	92	24.6	Comfortable
		13.00	29	75	27.55	Comfortable
		16.00	29	74	27.492	Comfortable
		19.00	28	80	26.88	Comfortable
		22.00	27	84	26.136	Comfortable

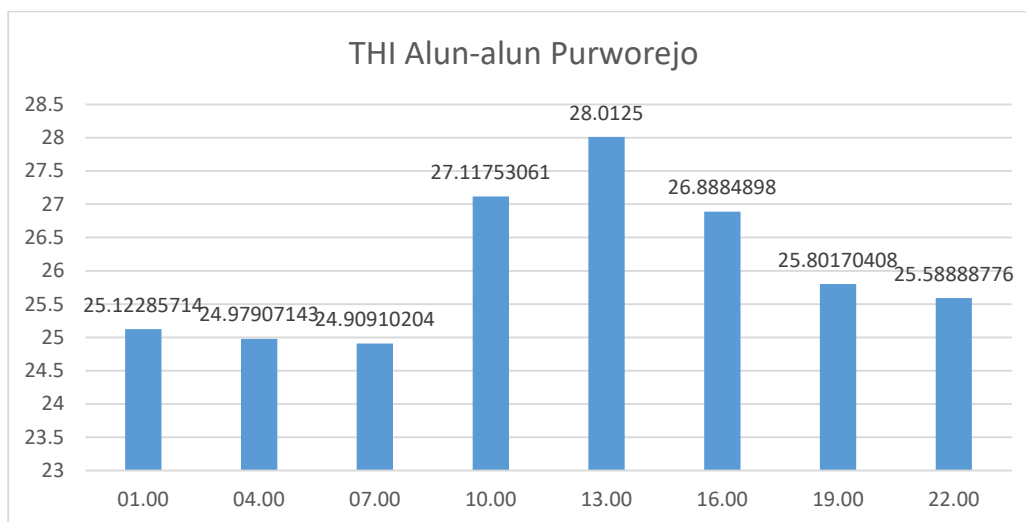


Figure 2. Average THI around Alun-Alun Purworejo

Table 1 shows that on February 16 2023, February 20 2023 and February 21 2023 at 13.00 the criteria are uncomfortable. Another date at 13.00 has comfortable criteria because of rain. Figure 2 shows the THI from 12 – 25 February 2023. The lowest THI was 24.9091024 at 07.00 and the highest THI was 28.0125 at 13.00.

3. CONCLUSION

Alun-alun Purworejo is located in the center of Purworejo Regency. Around Alun-alun Purworejo are important buildings such as the Kodim, the Purworejo DPRD Office, the Purworejo Grand Mosque. THI on February 12 – 25, 2023 in Alun-alun Purworejo, the lowest was 23.712 and the highest was 29.326.

REFERENCES

- Adiwijaya, K., Wirayuda, T. A. B., Baizal, Z. K. A., & Haryoko, U. (2013). An improvement of backpropagation performance by using conjugate gradient on forecasting of air temperature and humidity in Indonesia. *Far East J. Math. Sci*, 1, 57-67.
- Sugiasih. (2023). Statistical Data of Comfort Level Province of Daerah Istimewa Yogyakarta, Indonesia, *Sunan Kalijaga Journal of Applied Mathematics*, 1, 1 – 10.
- Timeanddate. (2023). <https://www.timeanddate.com/weather/@6263383/historic> downloaded on February 18, 2023.