

--- 1. Performing Statistical Analysis ---

[1.1] Descriptive Statistics (Core Variables):

| | count | mean | std | min | 25% | 50% | 75% | max |
|---------------------|----------|-------|-------|--------|-------|-------|-------|---------|
| | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| temperature_celsius | 98799.00 | 22.76 | 8.89 | -24.90 | 18.10 | 24.90 | 28.30 | 49.20 |
| humidity | 98799.00 | 64.28 | 24.17 | 2.00 | 47.00 | 69.00 | 84.00 | 100.00 |
| wind_kph | 98799.00 | 13.25 | 12.63 | 3.60 | 6.50 | 11.20 | 18.00 | 2963.20 |
| uv_index | 98799.00 | 3.86 | 3.62 | 0.00 | 0.50 | 3.00 | 6.80 | 16.30 |
| precip_mm | 98799.00 | 0.14 | 0.60 | 0.00 | 0.00 | 0.00 | 0.03 | 42.24 |

[1.2] Top 5 Correlations with Temperature:

| | temperature_celsius |
|--------------------|---------------------|
| | ----- |
| feels_like_celsius | 0.978 |
| uv_index | 0.480 |
| air_quality_Ozone | 0.261 |
| hour | 0.183 |
| longitude | 0.155 |

[1.3] Seasonal Trends (Monthly Avg Temp):

| month | temperature_celsius |
|-------|---------------------|
| | ----- |
| 1.00 | 17.39 |
| 2.00 | 17.42 |
| 3.00 | 20.10 |
| 4.00 | 21.97 |

| | |
|-------|-------|
| 5.00 | 23.96 |
| 6.00 | 25.70 |
| 7.00 | 26.02 |
| 8.00 | 25.75 |
| 9.00 | 24.25 |
| 10.00 | 22.02 |
| 11.00 | 19.42 |
| 12.00 | 17.75 |

--- 2. Identifying Extreme Weather Events ---

Thresholds: Extreme Heat > 40.50°C, Extreme Wind > 37.40 kph

[2.1] Top 5 Extreme Heat Events:

| country | location_name | date | temperature_celsius | condition_text | |
|---------|---------------|------------|---------------------|----------------|--|
| :----- | :----- | :----- | :----- | :----- | |
| Kuwait | Kuwait City | 2024-06-19 | 49.2 | Sunny | |
| Iraq | Baghdad | 2024-07-11 | 49.1 | Sunny | |
| Iraq | Baghdad | 2024-06-22 | 49.1 | Partly cloudy | |
| Kuwait | Kuwait City | 2024-06-27 | 48.9 | Sunny | |
| Kuwait | Kuwait City | 2025-07-28 | 48.8 | Sunny | |

[2.2] Top 5 Extreme Wind Events:

| country | location_name | date | wind_kph | condition_text | |
|----------|---------------|------------|----------|----------------|--|
| :----- | :----- | :----- | :----- | :----- | |
| Burundi | Bujumbura | 2024-06-23 | 2963.2 | Partly cloudy | |
| Ethiopia | Addis Ababa | 2024-06-21 | 272.2 | Partly cloudy | |
| Burundi | Bujumbura | 2024-05-21 | 258.8 | Partly cloudy | |

| Saint Kitts and Nevis | Basseterre | 2024-06-28 | 205.9 | Partly cloudy |

| Fiji Islands | Suva | 2024-05-20 | 172.1 | Partly cloudy |

--- 3. Regional Comparative Analysis ---

[3.1] Comparative Metrics for Top 10 Countries:

| country | Avg_Temp_C | Avg_Humidity | Max_Wind_KPH | Observation_Count |
|------------------------------------|------------|--------------|--------------|-------------------|
| :----- -----: -----: -----: -----: | | | | |
| Sudan | 31.45 | 29.11 | 43.20 | 1014 |
| Thailand | 30.85 | 62.85 | 28.10 | 1013 |
| Indonesia | 27.79 | 75.38 | 32.00 | 1017 |
| Vietnam | 27.28 | 69.76 | 56.20 | 919 |
| Madagascar | 26.18 | 44.86 | 38.90 | 966 |
| Iran | 22.14 | 25.48 | 51.80 | 1014 |
| Turkey | 20.65 | 49.21 | 50.00 | 1013 |
| Bulgaria | 19.17 | 49.96 | 41.80 | 1090 |
| Bolivia | 17.07 | 74.39 | 15.10 | 1007 |
| Belgium | 14.29 | 73.55 | 50.00 | 995 |

--- 4. Generating Visualization Deliverables ---



