

Government of Nepal Ministry of Energy, Water Resource and Irrigation Department of Hydrology and Meteorology

Climate Division (Climate Analysis Section)

Babarmahal, Kathmandu

27th December 2024

Preliminary Precipitation and Temperature Summary Post-monsoon Season (October - November), 2024

Highlights

Precipitation over the country as a whole was 80.4% of the normal precipitation of the season. Most parts of the country recorded above normal maximum temperature while a few parts of Karnali Province, Madhesh Province, Bagamati Province and Koshi Province recorded near-normal to below normal maximum temperature. Northern part of the country recorded below normal minimum temperature while the southern part recorded above normal minimum temperature.

Precipitation

Isolated part of the Koshi Province and Gandaki Province recorded precipitation above 200mm while southern part of Sudurpaschim Province and central and north-eastern part of Karnali Province recorded precipitation less than 10 mm (Figure 1). Most part of the country recorded below normal precipitation (Figure 2). However, central part of Gandaki Province, isolated part of Bagamati Province and Koshi Province recorded normal to above normal precipitation.

Dharan Bazar station recorded the highest seasonal precipitation of 381.3 mm with the highest seasonal normal precipitation of 291.9% (Annex 1). Based on the average of 93 stations shown in figure 3, Nepal received 80.4% of the normal precipitation of the season. In general, less than 90% of normal precipitation is considered as below normal, 90 to 110% is considered as near normal, and more than 110% of normal precipitation is considered as above normal precipitation for the season.

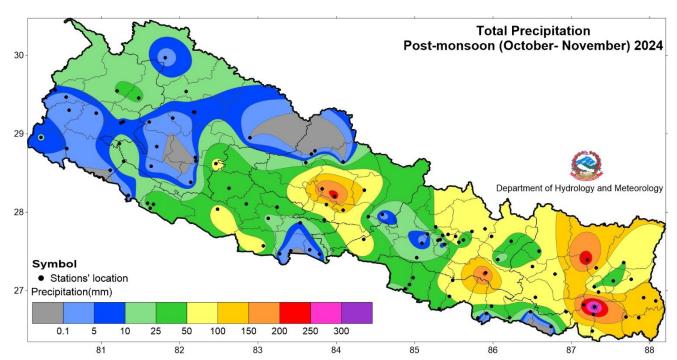


Figure 1: Total precipitation in Post-monsoon 2024.



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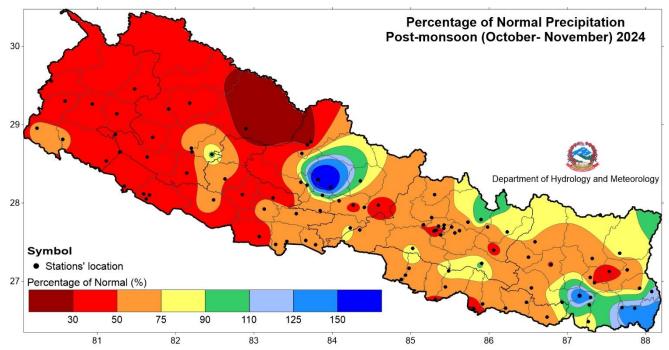


Figure 2: Percentage of normal precipitation in Post-monsoon 2024.

The temporal distribution of seasonal cumulative average of daily precipitation shows that precipitation remained normal-near normal in the first week of October, and below normal for the remaining of the period (Figure 3). The country averaged total precipitation of Post-monsoon 2024 was lower than in 2023. (Figure 4).

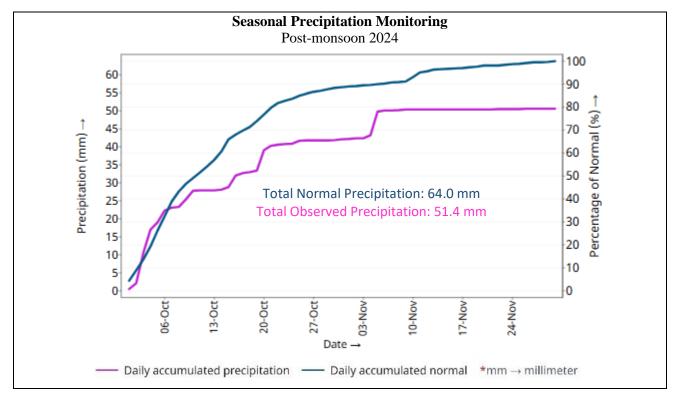


Figure 3: Cumulative average of daily normal and observed precipitation during Post-monsoon 2024.



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Precipitation - Post-monsoon Season

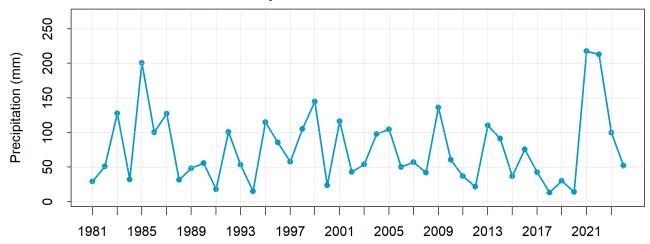


Figure 4: Seasonal total precipitation of Post-monsoon season from 1981 to 2024 at 97 stations (average of monthly total precipitation sum at stations having long term data).

Maximum Temperature

Northern part of the country recorded seasonal maximum temperature less than 12°C while southern part recorded above 30°C (Figure 5). Most parts of the country recorded above normal maximum temperature while a few parts of Karnali Province, Madhesh Province, Bagamati Province and Koshi Province recorded nearnormal to below normal maximum temperature (Figure 6).

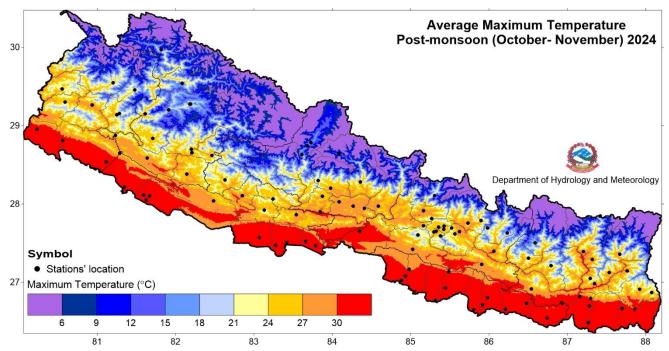


Figure 5: Maximum Temperature in Post-monsoon 2024.



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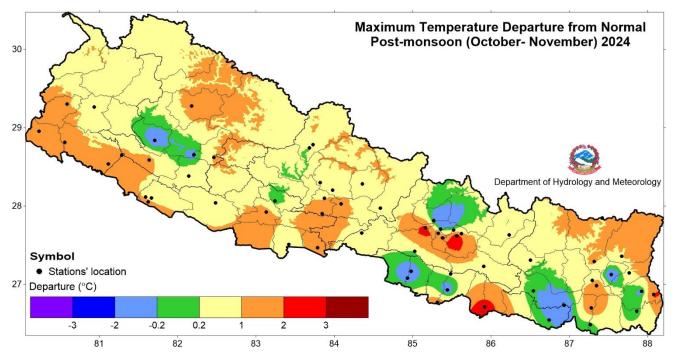


Figure 6: Departure from normal maximum temperature in Post-monsoon 2024.

Janakpur Airport station and Humde station recorded the highest and lowest seasonal maximum temperature of 33.5°C and 13.6°C respectively. Similarly, the highest seasonal anomaly of 3.2°C was recorded at Dhulikhel station and the lowest of -1.1°C was recorded at Phattepur station (Annex 1). The highest daily maximum temperature of 37.0°C was recorded at Birganj station on 8th October while the lowest daily maximum temperature of 6.4°C was recorded at Humde Station on 23th November. The country averaged maximum temperature of Post-monsoon 2024 was lower than 2023. (Figure 7).

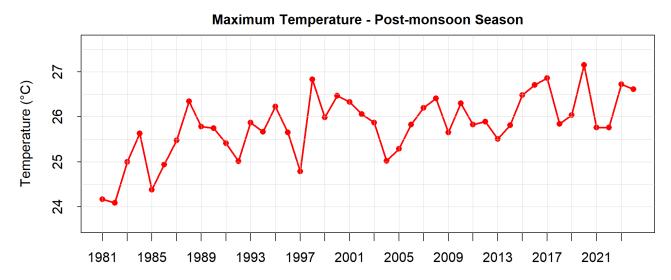


Figure 7: Seasonal average maximum temperature of Post-monsoon season from 1981 to 2024 at 56 stations (average of seasonal average maximum temperature at stations having long term data).



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Minimum Temperature

The minimum temperature in the most part of Terai remained above 18°C (Figure 8). Northern part of the country recorded below normal minimum temperature while the southern part recorded above normal temperature (Figure 9).

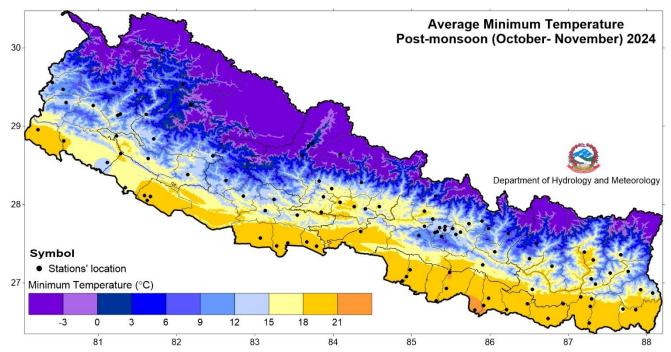


Figure 8: Minimum Temperature in Post-monsoon 2024.

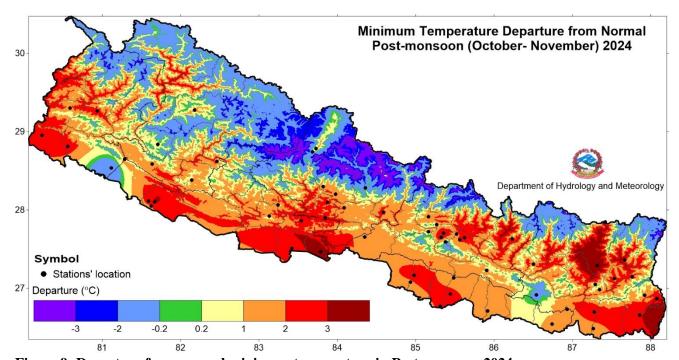


Figure 9: Departure from normal minimum temperature in Post-monsoon 2024.



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Jaleshwor station and Humde station recorded the highest and lowest seasonal minimum temperature of 22.1°C and -0.5°C respectively. Similarly, the highest seasonal anomaly of 4.8°C was recorded at Chainpur (East) station and the lowest anomaly of -2.0°C was recorded at Tikapur station (Annex 1). The highest daily minimum temperature of 28.5°C was recorded at Rampur station on 8th October while the lowest daily minimum temperature of -8.2°C was recorded at Humde station on 24th November. The country's average minimum temperature in Post-monsoon 2024 was higher since 1999 (Figure 10).

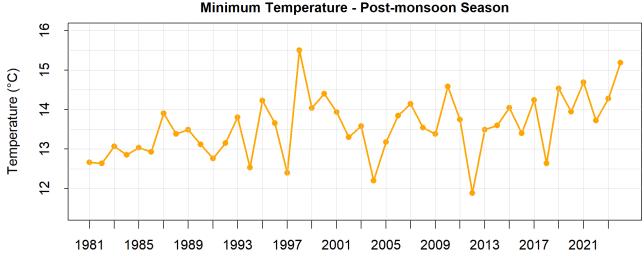


Figure 10: Seasonal average minimum temperature of Post-monsoon season from 1981 to 2024 at 56 stations (average of seasonal average minimum temperature at stations having long term data).

Drought

Sudurpaschim Province, Karnali Province and western part of Lumbini Province faced severe drought condition (below normal precipitation by 50%) in Post-monsoon season (Figure 2). Drought has been categorized based on the observed precipitation compared to normal. A drought is defined as moderate, severe and extreme as given in the table below.

Table 1: Drought category

| S.N. | Percentage of normal precipitation (%) | Drought category |
|------|--|------------------|
| 1 | 50 - 75 | Moderate drought |
| 2 | 30 - 50 | Severe drought |
| 3 | < 30 | Extreme drought |



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Annex 1: Seasonal precipitation and temperature data of Post-monsoon 2024

| | | | | Precipi | tation | | Tempe | rature | |
|---|--------------------|--------------------|--------------|---------------|----------------------|--------------|-------------------------------|--------------|-------------------------------|
| | | | | 1 iccipi | | Maximum | | Minimum | |
| Station | Latitude | Longitude | Elevation | Total (mm) | Percentage of Normal | Average (°C) | Departure form normal (°C) | Average (°C) | Departure form normal (°C) |
| Bahrabise | 27.7887 | 85.9000 | 884 | 67.4 | 62.9 | 28.7 | De ' | 15.5 | De l |
| | 29.5574 | 80.4132 | 1352 | 6.5 | 19.3 | - 20.7 | - | 12.8 | - |
| Baitadi (Gothalapani) Bajura (Martadi) | 29.3374 | 81.4804 | 1598 | 28.9 | 71.2 | 23.6 | - | 12.2 | - |
| | 27.9418 | 84.4064 | 991 | | 43.0 | 26.4 | - | 12.5 | - |
| Bandipur Bhairahawa Airport | 27.5068 | 83.4204 | 108 | 22.6 0.0 | 0.0 | 31.5 | 0.7 | 19.9 | 2.3 |
| Bhaktapur | 27.6767 | 85.4240 | 1315 | - | - | 27.2 | - | 12.9 | 2.3 |
| Bijuwar Tar | 28.1035 | 82.8520 | 835 | 43.9 | 124.4 | 30.0 | - | 16.3 | - |
| Biratnagar Airport | 26.4840 | 87.2670 | 72 | 56.1 | 70.6 | 30.7 | -0.1 | 20.2 | 1.7 |
| Birganj | 27.0232 | 84.8782 | 67 | 16.5 | 26.3 | 32.2 | -0.1 | 21.3 | - |
| Chainpur (East) | 27.2921 | 87.3170 | 1277 | 121.8 | 193.0 | 25.5 | 1.3 | 17.4 | 4.8 |
| Chainpur (Bajhang) | 29.5459 | 81.2011 | 1405 | 26.0 | 193.0 | 25.1 | - | 10.7 | - |
| Changu Narayan | 27.7161 | 85.4268 | 1502 | 92.4 | 141.5 | 26.6 | - | 13.7 | - |
| Changu Narayan | 27.8999 | 83.8459 | 617 | 41.9 | 77.3 | 29.9 | 1.9 | 18.0 | 2.4 |
| Charikot | 27.6902 | 85.9802 | 2132 | 105.3 | 173.1 | 19.1 | - | 9.8 | - |
| Chatara | | 87.1592 | 105 | 224.0 | 139.1 | 32.3 | - | 20.4 | - |
| Chaurjhari Tar | | | 863 | | 4.9 | 25.7 | -0.5 | - | |
| Chautara | 28.6540 27.7538 | 85.7321 | 1552 | 2.0 51.1 | 79.6 | 25.4 | -0.5 | 13.1 | - |
| Chisapani (Karnali) | 28.6472 | 81.2854 | 201 | 23.5 | 46.5 | 29.7 | 1.3 | 19.9 | 1.7 |
| Dadeldhura | 29.3014 | 80.5878 | 1879 | 0.0 | 0.0 | 22.3 | 1.2 | 10.9 | 1.1 |
| Dailekh | 28.8381 | 81.7085 | 1394 | 2.8 | 8.6 | 23.2 | -0.8 | 11.2 | -0.5 |
| Damak | 26.6623 | 87.6988 | 119 | 150.8 | 116.1 | 30.9 | -0.6 | 17.6 | -0.5 |
| Daman | 27.6044 | 85.0920 | 2265 | 4.2 | - | 18.9 | - | 8.5 | - |
| Damauli | 27.9737 | 84.2651 | 347 | - | - | 29.7 | - | 20.0 | - |
| Darchula New | 29.8429 | 80.5388 | 887 | 24.8 | - | 28.6 | - | 14.9 | - |
| Dhangadhi (Attariya) | 28.8127 | 80.5600 | 184 | 4.9 | 9.3 | 30.9 | 1.1 | 18.7 | 2.7 |
| Dhankuta | 26.9832 | 87.3460 | 1192 | 90.6 | 196.6 | 26.8 | 2.1 | 14.7 | 0.9 |
| Dharan Bazar | 26.7922 | 87.2978 | 310 | 355.0 | 271.8 | 29.8 | - | 19.9 | - |
| Dhulikhel | 27.6161 | 85.5655 | 1543 | 52.0 | 101.8 | 23.8 | 3.2 | 12.6 | 2.1 |
| Dhunche | 28.1053 | 85.3077 | 2005 | - | - | 19.5 | - | 9.8 | - |
| Dhunibesi | 27.7229 | 85.1643 | 991 | 4.2 | 8.7 | 27.8 | 2.4 | 16.1 | 1.1 |
| Diktel | 27.2125 | 86.7919 | 1612 | 60.8 | 130.4 | 21.7 | - | 14.1 | - |
| Dipayal (Doti) | 29.2621 | 80.9369 | 563 | 0.5 | 1.1 | 30.0 | 0.4 | 16.4 | 2.9 |
| Dunai | 28.9507 | 82.8960 | 2098 | 0.0 | 0.0 | - | - | 2.2 | - |
| Gaida (Kankai) | 26.6569 | 87.8607 | 107 | 140.0 | 105.6 | 31.3 | -0.1 | 20.2 | 2.9 |
| Gaur | 26.7671 | 85.3130 | 77 | 36.2 | 81.2 | 31.5 | 1.8 | 20.3 | 2.1 |
| Ghorai (Dang) | 28.0372 | 82.4842 | 663 | 56.7 | 103.1 | 28.1 | 0.6 | - | - |
| Godavari | 27.5929 | 85.3788 | 1527 | 3.9 | 7.6 | 23.6 | 1.4 | 9.9 | 0.0 |
| Gorkha (Birenchowk) | 27.9714 | 84.5894 | 724 | 0.0 | 0.1 | 27.3 | 0.9 | 17.2 | 2.1 |
| Gulariya | 28.2128 | 81.3452 | 126 | 0.0 | 0.0 | 31.2 | - | 17.1 | - |
| Hardinath | 26.8000 | 85.9833 | 93 | 40.8 | - | 30.4 | - | 20.6 | - |
| Hetauda N.F.I. | 27.4202 | 85.0252 | 452 | 21.4 | 26.4 | 28.9 | 0.2 | - | - |
| Humde | 28.6399 | 84.0881 | 3401 | 0.6 | - | 13.6 | - | -0.5 | - |
| Ilam Tea Estate | 26.9096 | 87.9231 | 1208 | 136.8 | 194.9 | 23.5 | -0.3 | 16.0 | 0.8 |
| Jajarkot | 28.6990 | 82.2001 | 1236 | 1.5 | 2.4 | 25.9 | - | - | - |
| Jalesor | 26.6522 | 85.8073 | 68 | 9.2 | 41.6 | 30.9 | - | 22.1 | |
| Janakpur Airport | 26.7097 | 85.9172 | 76 | 1.4 | 2.5 | 33.5 | 2.7 | 20.9 | 1.9 |
| Jiri | 27.6304 | 86.2321 | 1877 | 35.6 | 42.2 | 20.6 | 0.3 | 9.3 | 2.8 |
| Jomsom | 28.7840 | 83.7298 | 2741 | 0.0 | 0.0 | 17.2 | 0.7 | 4.9 | 1.4 |
| Jumla | 29.2747 | 82.1796 | 2363 | 6.3 | 18.2 | 22.2 | 1.3 | 3.3 | 1.6 |
| Jumla Airport | 29.2740 | 82.1942 | 2384 | 5.6 | - | 21.3 | - | 2.8 | - |
| Kakani | 27.8113 | 85.2674 | 2002 | 50.7 | 69.0 | 19.5 | -0.2 | 10.8 | 0.2 |
| Kanyam Tea Estate | 26.8681 | 88.0783 | | 131.8 | 110.1 | 22.9 | 2.2 | 13.8 | 2.7 |
| Karmaiya Kathmandu Airport | 27.1330 | 85.4841 | 139 | 75.0 | 90.5 | 31.0 | 0.3 | 21.2 | 1.5 |
| Kathmandu Airport Khadbari | 27.7038 | 85.3562 87.2044 | 1337 1064 | 20.3 242.7 | 40.7 | 25.3 | -0.1 | 13.9 17.2 | 2.7 |
| ixiiauvaii | 41.3911 | 07.2044 | 1004 | ∠≒∠./ | | 26.5 | | 1/.2 | - |

| | | | | Precipi | tation | | Tempo | rature | 1 |
|----------------------|--------------------|--------------------|-------------|---------------|--------------------------|------------------------------|-------------------------------|--------------|----------------------------|
| | | Longitude | Elevation | Precipitation | | Temperature Maximum Minimum | | | |
| Station | Latitude | | | Total (mm) | Percentage of Normal (%) | Average (°C) | Departure form normal (°C) | Average (°C) | Departure form normal (°C) |
| Khairini Tar | 28.0270 | 84.0866 | 515 | 110.0 | 176.3 | 29.1 | 1.2 | 18.7 | 1.9 |
| Khajura (Nepalganj) | 28.1137 | 81.5903 | 129 | 29.3 | 64.0 | 31.0 | 0.8 | 18.9 | 2.4 |
| Khanchikot | 27.9221 | 83.1298 | 1801 | 18.9 | 31.5 | 22.2 | 1.6 | 12.6 | 0.8 |
| Khokana | 27.6438 | 85.2967 | 1309 | 24.1 | 55.1 | 25.9 | - | 11.2 | - |
| Khudi Bazar | 28.2822 | 84.3564 | 838 | 100.3 | 105.9 | 27.6 | 0.6 | 13.8 | -0.1 |
| Khumaltar | 27.6517 | 85.3257 | 1334 | 14.4 | 37.3 | 26.2 | 1.7 | 13.6 | 2.9 |
| Lahan | 26.7327 | 86.4776 | 110 | 2.0 | 3.1 | 32.8 | - | 20.4 | - |
| Lete | 28.6327 | 83.6092 | 2490 | 13.6 | 21.8 | 17.2 | - | 6.7 | - |
| Libang Gaun | 28.3062 | 82.6323 | 1314 | 27.8 | 54.7 | 25.9 | - | 13.0 | - |
| Lumbini | 27.4703 | 83.2761 | 95 | 2.5 | 4.3 | 30.6 | - | 20.0 | - |
| Lumle | 28.2965 | 83.8179 | 1738 | 200.5 | 88.1 | 20.6 | 0.5 | 12.2 | 1.1 |
| Mahendra Nagar | 28.9548 | 80.2305 | 197 | 11.2 | 21.2 | 30.8 | 1.3 | 18.5 | 2.9 |
| Mangalsen | 29.1361 | 81.2501 | 1310 | 10.2 | 22.1 | 24.1 | - | 13.0 | - |
| Manma | 29.1488 | 81.6135 | 1729 | 2.6 | - | 23.5 | - | 11.6 | - |
| Manthali | 27.3947 | 86.0612 | 497 | 7.5 | 20.1 | 30.9 | - | 17.4 | - |
| Manusmara | 26.9280 | 85.4451 | 90 | 47.8 | 74.8 | 30.0 | -0.7 | 20.6 | 2.3 |
| Musikot (Rukumkot) | 28.6190 | 82.4625 | 1412 | 63.1 | 65.1 | 25.4 | 1.1 | 13.5 | 1.7 |
| Nagarkot | 27.6933 | 85.5209 | 2147 | 67.7 | 105.3 | 19.3 | 0.1 | 10.2 | 0.9 |
| Nagma | 29.2006 | 81.9106 | 2017 | 1.0 | 2.9 | 20.6 | - | - | - |
| Nepalgunj Airport | 28.1006 | 81.6682 | 165 | 45.2 | 89.7 | 30.5 | 0.4 | 19.9 | 3.1 |
| Nepalgunj (Reg.Off.) | 28.0520 | 81.6228 | 141 | 20.0 | 45.9 | 31.8 | 1.9 | 19.9 | 1.8 |
| Nuwakot | 27.9150 | 85.1646 | 966 | - | - | 27.1 | - | 16.8 | 1.1 |
| Okhaldhunga | 27.3081 | 86.5042 | 1731 | 60.2 | 87.0 | 22.6 | 0.4 | 13.2 | 1.3 |
| Oli Gaun (Patkani) | 29.1559 | 81.2831 | 989 | 7.6 | - | 20.9 | - | 12.6 | - |
| Pakhribas | 27.0463 | 87.2925 | 1720 | 41.6 | 70.6 | 21.3 | 0.7 | 11.9 | 0.3 |
| Panchkhal | 27.6451 | 85.6209 | 857 | 24.4 | 45.4 | 29.1 | 1.2 | 15.5 | 2.5 |
| Parasi | 27.5193 | 83.6622 | 112 | 2.0 | 2.7 | 31.1 | - | 19.3 | - |
| Parwanipur | 27.0789 | 84.9327 | 87 | 50.7 | 83.1 | 30.5 | -0.4 | 19.4 | 1.7 |
| Patan new | 29.4664 | 80.5506 | 1299 | 1.5 | - | 26.3 | - | 12.4 | - |
| Phattepur | 26.7305 | 86.9348 | 101 | 81.5 | 92.3 | 31.0 | -1.1 | 20.3 | 1.8 |
| Phidim (Panchther) | 27.1437 | 87.7656 | 1157 | 76.7 | 146.9 | 27.5 | 1.0 | 15.5 | 1.9 |
| Pokhara Airport | 28.2002 | 83.9795 | 827 | 223.8 | 126.8 | 27.0 | 0.8 | 16.5 | 1.7 |
| Pusma Camp | 28.8755 | 81.2327 | 953 | 12.5 | 33.6 | 24.1 | - 0.2 | 14.3 | 1.4 |
| Rajbiraj | 26.5407 | 86.7425 | 68 | 0.7 | 1.1 | 30.9 | -0.2 | 20.3 | 1.4 |
| Rampur Rara | 27.6540 29.5401 | 84.3508 82.0818 | 189 2989 | 76.8 14.5 | 118.2 | 30.5 17.4 | 0.3 | 18.1 3.3 | 1.5 |
| Salleri | 27.5051 | 86.5862 | 2383 | 41.4 | 56.7 | 19.3 | - | 7.4 | - |
| Salyan Bazar | 28.3821 | 82.1423 | 1557 | 0.4 | 1.1 | 26.2 | 0.8 | 13.5 | 0.9 |
| Semari | 27.4682 | 83.7861 | 110 | 4.0 | 5.5 | 30.9 | 1.2 | 19.9 | 3.6 |
| Simara Airport | 27.1642 | 84.98 | 137 | 44 | 60.7 | 30 | -0.55 | 19.6 | 2.6 |
| Simikot | 29.9715 | 81.8161 | 2993 | 0.01 | - | 16.6 | - | 3.7 | - |
| Sindhuli Madhi | 27.2281 | 85.905 | 556 | 216.51 | 229.6 | 29.2 | 0.5 | 16.8 | 1.1 |
| Siraha | 26.6561 | 86.2117 | 63 | 27.8 | 43.4 | 31.9 | - | 20.2 | - |
| Surkhet Airport | 28.5879 | 81.6352 | 683 | 0.71 | 1.9 | 29 | 1.45 | 15 | 1.8 |
| Syangja | | 83.8722 | | 82.44 | 89 | 27.7 | 0.95 | 17 | 2.8 |
| Tamghas | 28.0636 | | | 36.11 | 75.2 | 21.8 | -0.05 | 12.4 | 1.2 |
| Tansen | 27.8637 | | 1183 | 6.5 | 12.7 | 26.6 | - | 15.5 | 2.3 |
| Taplejung | 27.3586 | | 1744 | 47.8 | 55.9 | 22.1 | 0.9 | 12.9 | 2.0 |
| Tarahara | 26.6987 | 87.2786 | 120 | 206.9 | 219.9 | 32.2 | 1.8 | 19.8 | 2.4 |
| Taulihawa | 27.5711 | 83.0672 | 106 | 60.3 | 176.4 | 30.5 | - | 19.2 | - |
| Terhathum | 27.1230 | | 1525 | 21.6 | 59.2 | 23.5 | -1.0 | 13.6 | 1.7 |
| Thakmarpha | 28.7409 | | | 0.0 | 0.0 | 16.8 | 0.1 | 2.5 | -0.4 |
| Tikapur | 28.5366 | | 149 | 0.0 | 0.1 | 31.0 | 1.2 | 13.6 | -2.0 |
| Udayapur Gadhi | 26.9130 | 86.5397 | 469 | 86.5 | 116.0 | 28.7 | -0.2 | 18.0 | -0.6 |

Note:

- "mm" = millimeter; "temp" = temperature; "-" = Data Not Available.
- This summary is prepared based on the precipitation and temperature received at 109 meteorological stations during Post-monsoon, 2024. Out of 109 stations, 93 stations have normal precipitation data, 62 stations have normal maximum temperature data and 61 stations have normal minimum temperature data. Normal precipitation/temperature is the average of the seasonal precipitation/temperature for period of 1991-2020.