



5th April 2024

Preliminary Precipitation and Temperature Summary Winter Season (December 2023 – February 2024)

Highlights

Precipitation over the country as a whole during winter season (December 2023 – February 2024) was 19.8% of the normal precipitation. Maximum temperature was below normal over southern plains while remaining part of the country experienced near-normal to above normal maximum temperature. Minimum temperature was below normal across northern and western part of the country while remaining part of the country experienced near-normal to above normal minimum temperature.

Precipitation

Country recorded below normal precipitation in winter (Figure 2). Extreme drought condition was observed in most part of the country. Northern part of Sudurpaschim Province and north-western part of Karnali Province recorded precipitation more than 50 mm. Martadi station of Bajura district recorded the highest seasonal precipitation of 90.7 mm with highest percentage of normal seasonal precipitation of 59.5% (Annex 1). Based on the average of 84 stations shown in figure 2, Nepal received 19.8% of the normal precipitation.

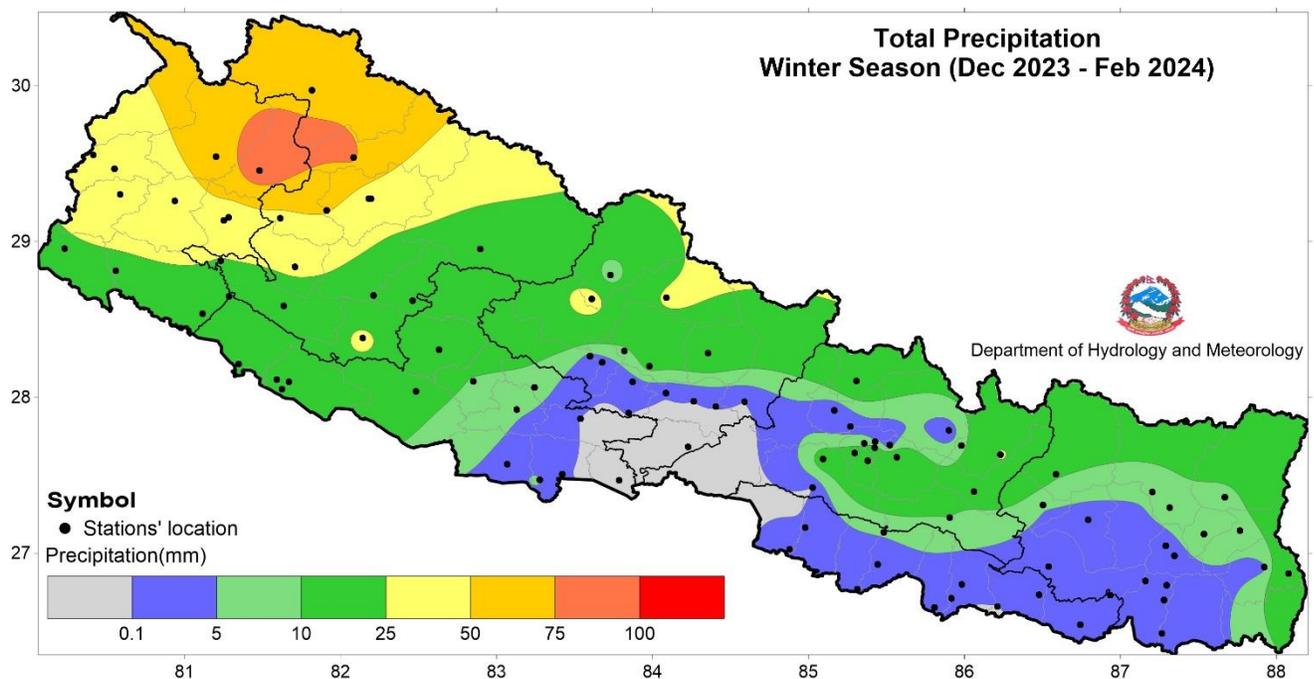


Figure 1: Total precipitation in winter 2023-24.



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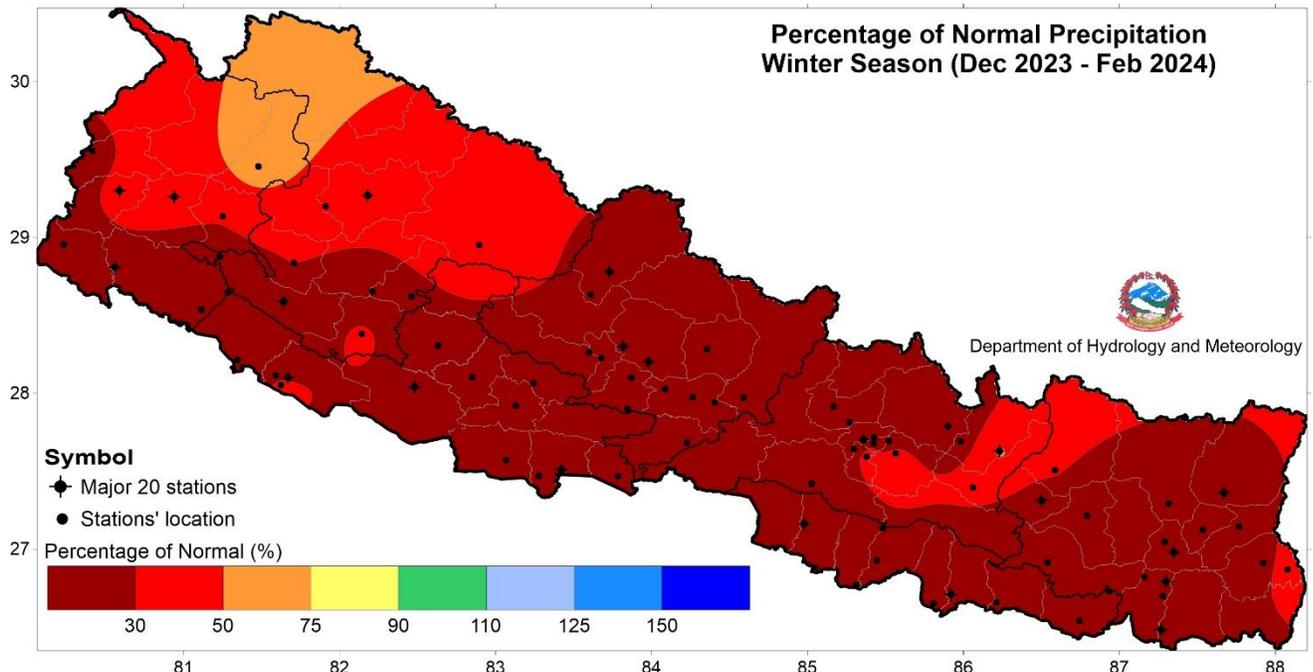


Figure 2: Percentage of normal precipitation in winter 2023-24.

Figure 3 shows the temporal distribution of seasonal cumulative average of daily precipitation at 20 major stations located as shown in figure 2. The timeseries of precipitation shows that precipitation was below normal during winter season.

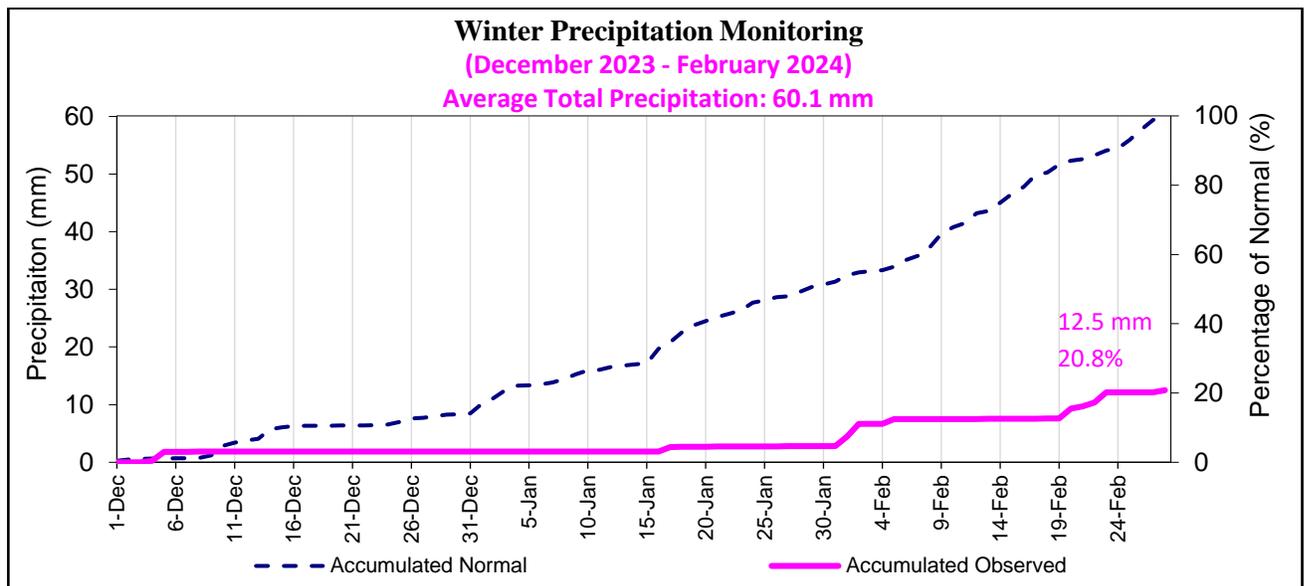


Figure 3: Cumulative average of daily normal and observed precipitation during winter season.

Maximum Temperature

Northern part of the country recorded seasonal maximum temperature less than 9°C while southern part recorded above 21°C (Figure 4). Maximum temperature was below normal over southern plains while remaining part of the country experienced near-normal to above normal maximum temperature (Figure 5).



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Chatara station of Sunsari district and Humde station of Manang district recorded the highest and lowest seasonal maximum temperature of 26.4°C and 6.7°C respectively. Similarly, the highest seasonal anomaly of +4.0°C was recorded at Gaur station of Rautahat district and the lowest of -1.5°C was recorded at Taulihawa station of Kapilbastu district (Annex 1). The highest daily maximum temperature of 32.2°C was recorded at Janakpur Airport station of Dhanusha district on 24th December while the lowest daily maximum temperature of -1.5°C was recorded at Humde station of Manang district on 1st February.

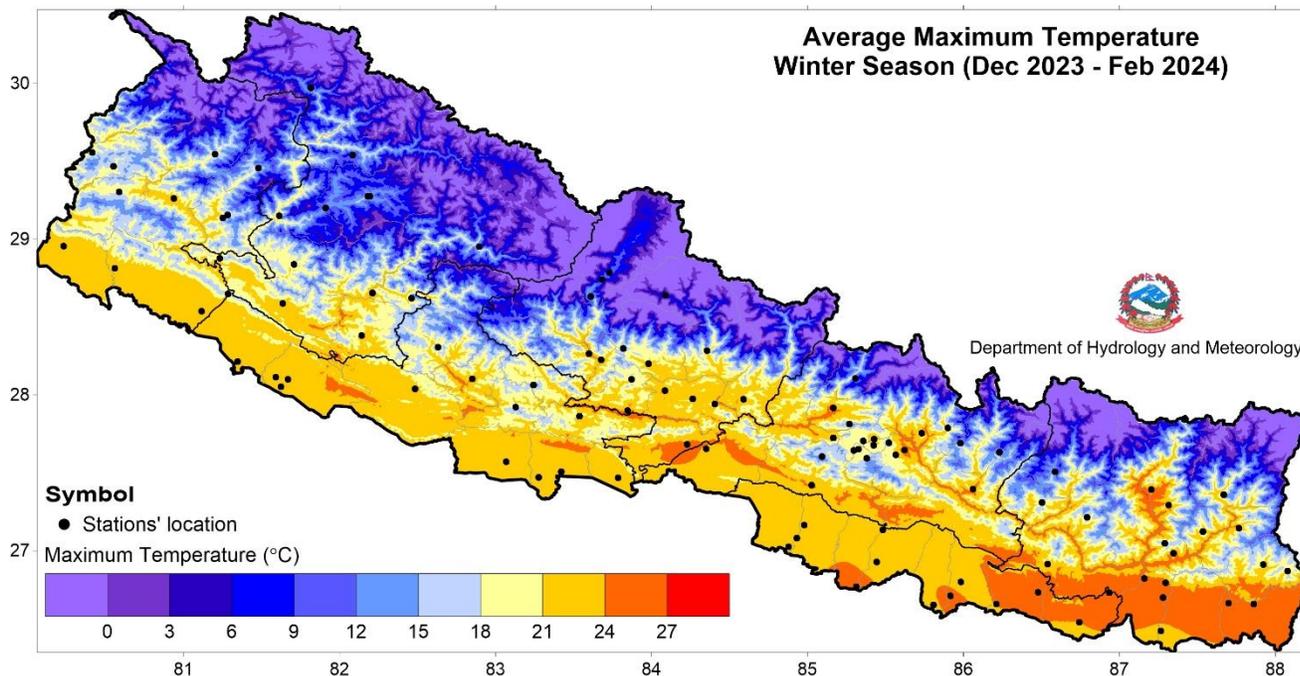


Figure 4: Maximum temperature in winter 2023-24.

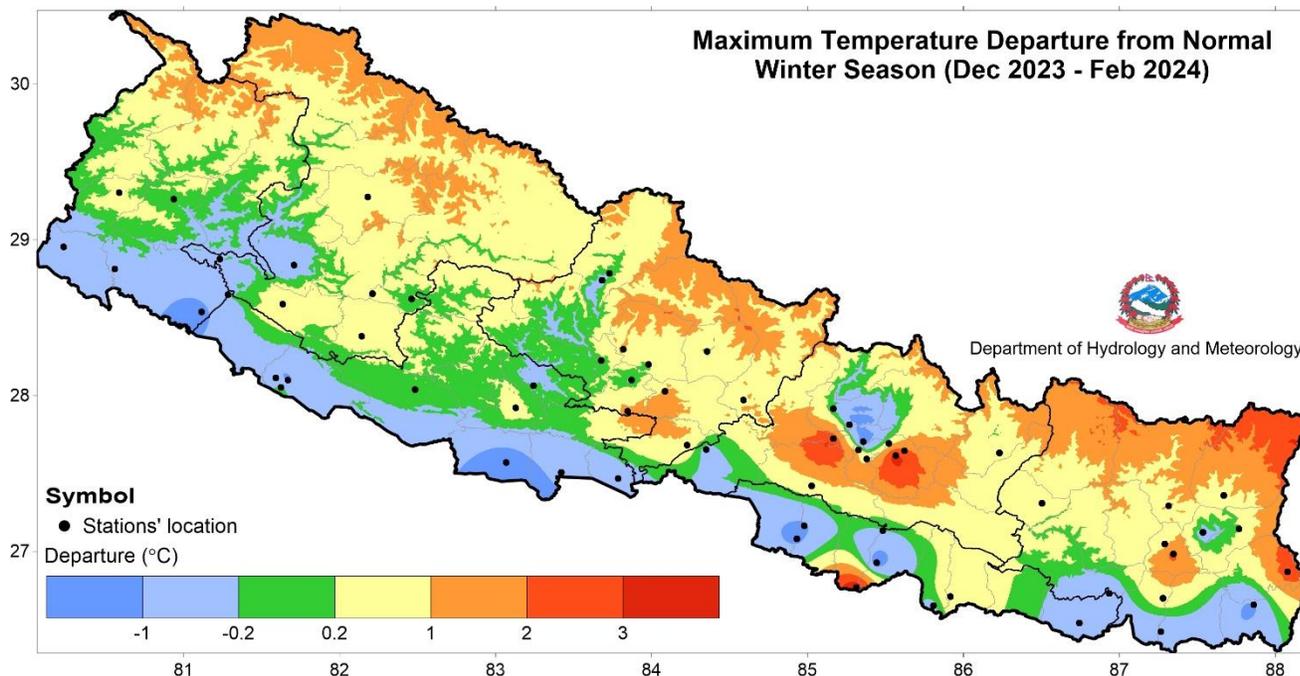


Figure 5: Departure from normal maximum temperature in winter 2023-24.



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Minimum Temperature

Northern part of the country recorded seasonal minimum temperature less than 0°C while southern part recorded above 9°C (Figure 6). Southern part of Sudurpaschim Province, Lumbini Province, southern part of Gandaki Province, southern and eastern part of Bagamati Province, Madhesh Province and central and southern part of Koshi Province recorded near-normal to above normal minimum temperature while rest of the country recorded below normal minimum temperature (Figure 7).

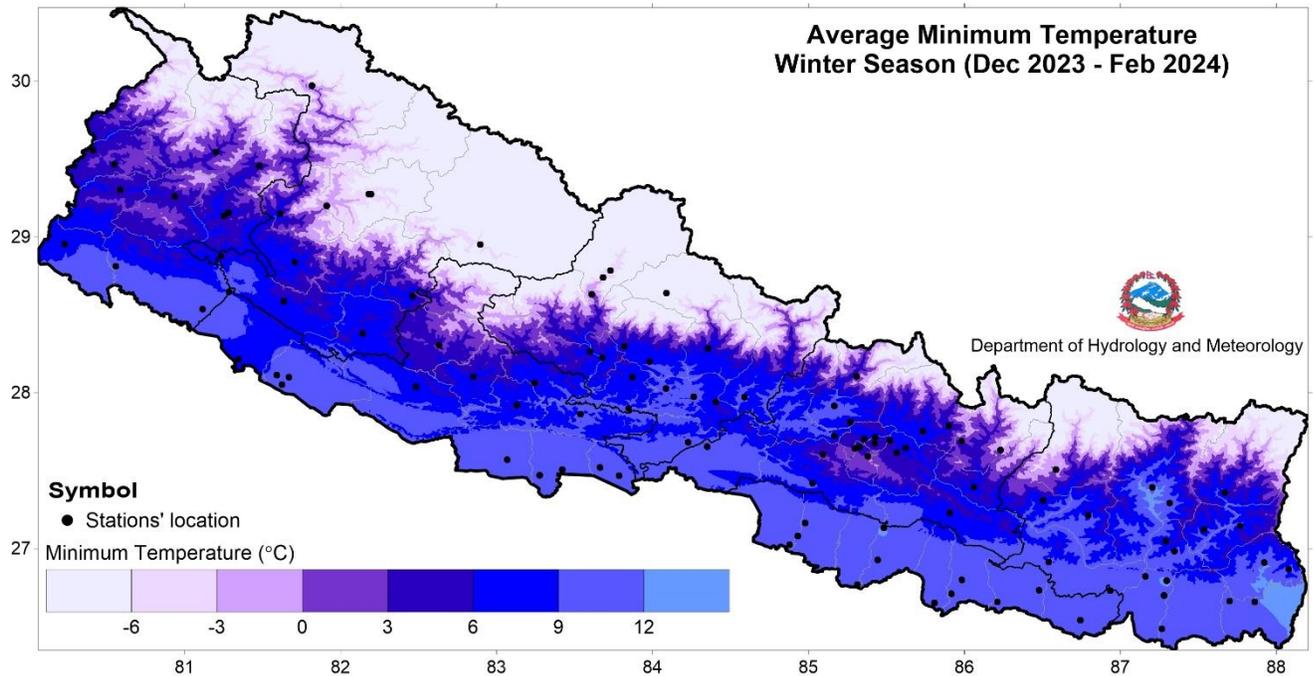


Figure 6: Minimum temperature in winter 2023-24.

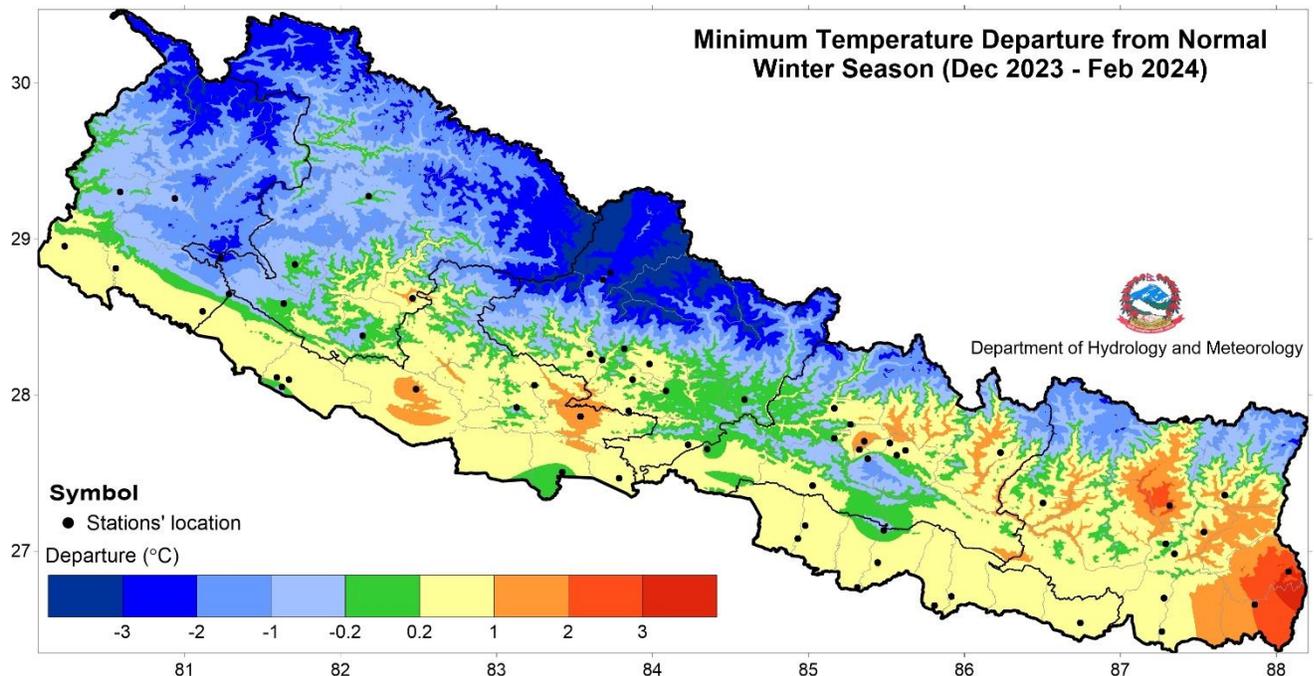


Figure 7: Departure from normal minimum temperature in winter 2023-24.



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Dharan Bazar station of Sunsari district and Humde station of Manang district recorded the highest and lowest seasonal minimum temperature of 12.7°C and -7.4°C respectively. Similarly, the highest seasonal anomaly of +3.0°C was recorded at Kanyam Tea Estate station of Ilam district and the lowest anomaly of -2.5°C was recorded at Pusma Camp station of Surkhet district (Annex 1). The highest daily minimum temperature of 19.0°C was recorded at Jaleswor station of Mahottari district on 7th December while the lowest daily minimum temperature of -15.0°C was recorded at Humde station of Manang district on 20th December.

Drought

Most part of the country faced extreme drought condition during winter (Figure 2). Monthly drought conditions during December 2023, January and February 2024 are shown in figure 8, 9 and 10. A drought is defined as moderate, severe and extreme as given in the table 1.

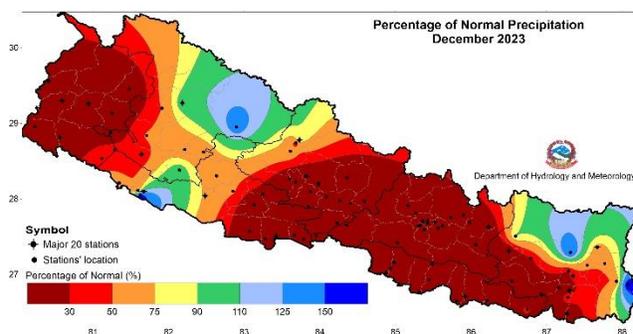


Figure 8: Percentage of normal precipitation in December 2023.

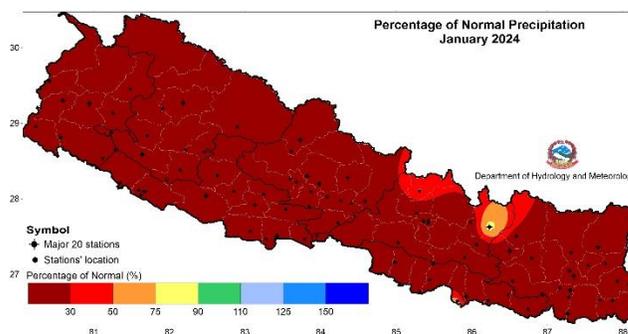


Figure 9: Percentage of normal precipitation in January 2024.

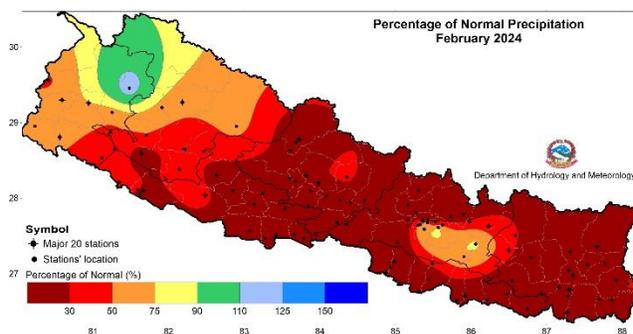


Figure 10: Percentage of normal precipitation in February 2024.

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

Table 1: Categorization of drought



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Annex 1: Seasonal precipitation and temperature data of winter 2023-24.

Station	Latitude	Longitude	Elevation	Precipitation		Temperature			
				Total (mm)	Percentage of Normal (%)	Maximum		Minimum	
						Average (°C)	Departure from normal (°C)	Average (°C)	Departure from normal (°C)
Baglung	28.2636	83.6003	964	3.4	5.1	24.4	-	8.3	1.0
Bahrabise	27.7887	85.9000	884	2.1	3.7	23.0	-	6.9	-
Baitadi (Gothalapani)	29.5574	80.4132	1352	27.7	23.1	16.8	-	4.7	-
Bajura (Martadi)	29.4570	81.4804	1598	90.7	59.5	17.4	-	5.3	-
Bandipur	27.9418	84.4064	991	0.3	0.5	20.8	-	5.3	-
Bhairahawa Airport	27.5068	83.4204	108	0.4	0.8	22.1	-0.9	9.7	-0.2
Bhaktapur	27.6767	85.4240	1315	13.8	28.9	20.8	-	3.5	-
Bijjuwar Tar	28.1035	82.8520	835	9.3	13.8	24.1	-	7.2	-
Biratnagar Airport	26.4840	87.2670	72	0.8	3.1	23.6	-1.0	11.0	0.5
Birganj	27.0232	84.8782	67	2.8	-	23.5	-	11.2	-
Chainpur (East)	27.2921	87.3170	1277	8.4	23.9	20.6	1.1	9.7	2.0
Chainpur Bajhang	29.5459	81.2011	1405	60.8	-	19.1	-	4.4	-
Changu Narayan	27.7161	85.4268	1502	5.7	12.2	22.0	-	6.0	-
Chapakot	27.8999	83.8459	617	0.2	0.3	23.7	1.3	9.6	0.5
Charikot	27.6902	85.9802	2132	7.7	16.7	14.2	-	3.0	-
Chatara	26.8204	87.1592	105	0.5	1.6	26.4	-	11.5	-
Chaurjhari Tar	28.6540	82.2103	863	14.2	19.9	21.7	0.4	-	-
Chautara	27.7538	85.7321	1552	-	-	20.8	-	6.1	-
Chisapani(Karnali)	28.6472	81.2854	201	19.3	25.4	21.1	-0.4	11.6	-0.2
Dadeldhura	29.3014	80.5878	1879	44.0	34.0	16.3	0.5	4.1	-0.6
Dailekh	28.8381	81.7085	1394	28.9	30.2	17.3	-0.8	6.4	-0.2
Damak	26.6623	87.6988	119	-	-	25.0	-	9.0	-
Daman	27.6044	85.0920	2265	13.5	-	13.9	-	2.3	-
Damauli	27.9737	84.2651	347	0.0	0.0	23.5	-	11.0	-
Darchula New	29.8429	80.5388	887	38.9	-	21.8	-	6.9	-
Dhangadhi(Attariya)	28.8127	80.5600	184	18.0	25.6	22.0	-0.6	9.4	0.8
Dhankuta	26.9832	87.3460	1192	2.3	6.9	22.3	2.5	8.7	0.5
Dharan Bazar	26.7922	87.2978	310	0.9	3.0	24.5	-	12.7	-
Dhulikhel	27.6111	85.5655	1543	19.2	41.3	19.5	3.6	4.9	0.2
Dhunchhe	28.1053	85.3077	2005	20.3	-	14.2	-	3.6	-
Dhunibesi	27.7229	85.1643	991	-	-	23.0	3.0	9.2	0.1
Diktel	27.2125	86.7919	1612	2.7	7.8	17.4	-	8.4	-
Dipayal (Doti)	29.2621	80.9369	563	39.2	36.4	23.6	-0.2	5.8	-0.5
Dumkauli	27.6807	84.2285	183	0.0	0.0	25.0	0.8	10.9	0.5
Dunai	28.9507	82.8960	2098	14.5	49.9	18.8	-	-4.3	-
Gaida (Kankai)	26.6569	87.8607	107	-	-	24.5	-1.2	11.8	2.1
Gaur	26.7671	85.3130	77	1.0	3.8	25.8	4.0	10.0	0.3
Ghorai (Dang)	28.0372	82.4842	663	13.1	25.1	22.2	0.0	8.5	1.3
Godavari	27.5929	85.3788	1527	18.0	32.1	18.0	0.6	2.8	-1.1
Gorkha (Birenchowk)	27.9714	84.5894	724	0.0	0.0	21.8	1.0	9.0	-0.1
Gulariya	28.2128	81.3452	126	14.9	25.3	21.7	-	8.5	-
Hardinath	26.8000	85.9833	93	0.6	-	22.8	-	11.2	-
Hetauda N.F.I.	27.4202	85.0252	452	0.0	0.0	24.2	0.5	9.4	0.9
Humde	28.6399	84.0881	3401	26.7	-	6.7	-	-7.4	-
Ilam Tea Estate	26.9096	87.9231	1208	3.8	11.9	18.7	-	10.6	-
Jalesor	26.6522	85.8073	68	3.0	28.8	23.4	-0.5	11.9	0.8
Janakpur Airport	26.7097	85.9172	76	0.7	3.1	25.2	1.0	11.4	0.8
Jiri	27.6304	86.2321	1877	26.6	52.6	15.8	0.3	0.6	1.1
Jomsom	28.7840	83.7298	2741	4.6	11.3	11.4	-0.1	-3.5	-2.3
Jumla	29.2747	82.1796	2363	36.3	39.4	15.7	0.5	-3.9	0.1
Jumla Airport	29.2740	82.1942	2384	35.2	-	14.9	-	-4.3	-
Kakani	27.8113	85.2674	2002	2.6	4.4	14.3	-0.6	5.0	-0.1
Kanyam Tea Estate	26.8681	88.0783	1570	22.1	50.7	17.9	2.6	8.1	3.0
Karmaiya	27.1330	85.4841	139	5.7	22.8	24.0	-0.3	12.3	-0.3
Kathmandu Airport	27.7038	85.3562	1337	8.3	17.9	19.2	-1.3	5.5	1.4
Khadbari	27.3911	87.2044	1064	6.0	-	23.1	-	10.9	-
Khairini Tar	28.0270	84.0866	515	0.7	1.1	23.8	1.1	9.7	0.1
Khajura (Nepalgunj)	28.1137	81.5903	129	14.5	24.3	22.0	-1.0	9.2	0.4
Khanchikot	27.9221	83.1298	1801	5.6	6.3	16.2	0.8	6.3	-0.3
Khokana	27.6438	85.2967	1309	13.6	25.4	20.7	-	2.0	-
Khudi Bazar	28.2822	84.3564	838	17.4	19.0	22.1	0.1	8.5	-
Khumaltar	27.6517	85.3257	1334	-	-	20.3	1.0	4.5	1.3
Kushma	28.2249	83.6769	900	2.8	3.9	22.7	-0.2	7.8	0.2
Lahan	26.7327	86.4776	110	2.0	-	24.7	-	11.3	-
Lete	28.6327	83.6092	2490	33.1	27.4	14.3	-	0.9	-
Libang Gaun	28.3062	82.6323	1314	17.7	18.4	20.7	-	4.2	-
Lumbini	27.4703	83.2761	95	5.5	13.7	21.8	-	9.8	-
Lumle	28.2965	83.8179	1738	8.1	8.0	16.2	1.2	5.7	-0.1
Mahendra Nagar	28.9548	80.2305	197	22.0	25.0	21.8	-0.7	8.9	0.5
Mangalsen	29.1361	81.2501	1310	47.0	31.9	19.4	-	5.2	-
Manma	29.1488	81.6135	1729	41.4	-	16.9	-	5.2	-
Manthali	27.3947	86.0612	497	11.5	36.2	25.8	-	8.0	-
Manusmara	26.9280	85.4451	90	0.0	0.1	22.4	-1.4	11.0	1.1
Musikot(Rukumkot)	28.6190	82.4625	1412	19.5	23.7	19.3	-0.1	6.6	1.0
Nagarkot	27.6933	85.5209	2147	2.5	5.1	14.7	0.5	4.3	0.4
Nagma	29.2006	81.9106	2017	51.5	39.1	15.4	-	0.3	-
Nepalgunj Airport	28.1006	81.6682	165	15.2	28.4	21.8	-1.1	10.1	1.0
Nepalgunj(Reg.Off.)	28.0520	81.6228	141	20.0	34.7	22.7	0.1	10.1	-0.4
Nuwakot	27.9150	85.1646	966	0.0	0.0	22.1	0.1	9.6	0.1
Okhaldhunga	27.3081	86.5042	1731	5.6	16.0	17.6	0.5	6.9	0.5
Oli Gaun (Patkani)	29.1559	81.2831	989	33.4	-	16.6	-	6.1	-
Pakhribas	27.0463	87.2925	1720	1.7	4.5	16.7	0.8	5.9	-0.2
Panchkhal	27.6451	85.6209	857	-	-	24.8	2.2	6.1	0.6
Parasi	27.5193	83.6622	112	-	-	-	-	9.7	-
Parwanipur	27.0789	84.9327	87	-	-	22.4	-1.2	10.5	0.6
Patan new	29.4664	80.5506	1299	28.9	-	19.7	-	4.5	-
Phattepur	26.7305	86.9348	101	1.8	5.8	25.8	-0.7	10.7	-
Phidim (Panchther)	27.1437	87.7656	1157	7.8	21.8	21.7	0.2	8.1	-
Pokhara Airport	28.2002	83.9795	827	11.6	17.0	21.3	0.1	9.1	0.8
Pusma Camp	28.8755	81.2327	953	23.3	21.4	18.5	-0.4	6.3	-2.5
Rajbiraj	26.5407	86.7425	68	1.6	5.7	24.1	-0.6	12.0	0.8
Rampur	27.6540	84.3508	189	-	-	23.7	-0.4	9.1	0.1
Rara	29.5401	82.0818	2989	77.6	-	10.7	-	-	-
Salleri	27.5051	86.5862	2383	10.8	32.8	14.8	-	0.3	-
Salyan Bazar	28.3821	82.1423	1557	27.8	33.0	20.7	0.5	6.9	-0.4
Semari	27.4682	83.7861	110	0.0	0.0	21.8	-0.9	9.9	0.8
Simara Airport	27.1642	84.9800	137	0.5	1.4	22.5	-1.2	9.7	0.7
Simikot	29.9715	81.8161	2993	67.4	-	10.7	-	-1.8	-
Sindhuli Madhi	27.2281	85.905	556	9.9	-	-	-	7	-
Siraha	26.6561	86.2117	63	0.01	0.039	24.1	-	11.7	-
Surkhet Airport	28.5879	81.6352	683	12.9	12.84	22.8	0.947	6.44	-0.06
Syangja	28.0988	83.8722	871	2.58	3.981	20.9	-0.33	7.79	0.495
Tamghas	28.0636	83.2435	1547	7.71	9.542	16.3	-0.22	5.85	0.348
Tansen	27.8637	83.5387	1183	0.0	-	21.0	-	9.3	1.6
Taplejung	27.3586	87.6700	1744	8.1	15.4	16.6	0.8	5.7	0.4
Tarahara	26.6987	87.2786	120	2.0	6.1	25.1	0.7	10.4	0.6
Taulihawa	27.5711	83.0672	106	4.1	8.5	21.7	-1.5	9.3	-
Terhathum	27.1230	87.5362	1525	10.3	25.5	18.4	-0.4	7.1	0.8
Thakmarpha	28.7409	83.6816	2655	-	-	11.7	-0.7	-2.9	-1.4
Tikapur	28.5366	81.1150	149	17.1	19.6	21.5	-1.2	9.2	1.0
Udayapur Gadhi	26.9130	86.5397	469	1.7	5.6	24.0	-	10.4	-

Note:

- “mm” = millimeter; “-” = Data Not Available.
- This summary is prepared based on the precipitation and temperature received at 111 meteorological stations during Winter, 2023-24. Out of 104 stations, 84 stations have normal precipitation data, 62 stations have normal maximum temperature data and 58 stations have normal minimum temperature data. Normal precipitation/temperature is the average of the seasonal precipitation/temperature for period of 1991-2020.
- 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.