



REPUBLIC OF TÜRKİYE
MINISTRY OF ENVIRONMENT, URBANIZATION AND CLIMATE CHANGE
Turkish State Meteorological Service



State of the Climate in October 2023



Climate and Agricultural Meteorology Department
Research Department

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1. Introduction

The mean temperature of Türkiye in October 2023 was 22.4°C. This value was 1.5°C above the 1991-2020's normal (20.9°C).

Mean temperatures in October 2023 were above normal in whole Türkiye. This made it 6th warmest October since 1971.

Regional temperatures were above the long-term mean (1991-2020) in all 7 regions.

The lowest temperature was observed in Kangal with -1.3°C and the highest temperature was observed in Cizre with 44.6°C. There were 2 new extreme maximum temperature records in Lüleburgaz and Kuşadası.

Türkiye's areal mean precipitation in October 2023 was 16.7 mm. This value is approximately 33% below the 1991-2020's normal (24.9 mm).

During the October, rainfall were decreased 60-80% in western Thrace and Eastern Anatolia, Southeastern Anatolia excluding Mardin, Western Black Sea, Anatolian side of Istanbul, Yalova, Bursa, Çorum, Yozgat, Mersin, Antalya, Gümüşhane, Hatay, Şırnak and Hakkari. On the contrary an increase of more than 100% compared to normal was recorded in Kırklareli, the west of Istanbul, Aydın, Muğla, Denizli, Uşak, Kütahya, Isparta, Afyonkarahisar, Ankara, Nevşehir, Kayseri, Samsun, Kars and Siirt.

In October, the highest precipitation was occurred in Rize with 86.2 mm and lowest recorded with 0.2 mm precipitation in Elazığ

Regional precipitation in October were below normal (1991-2020) except Aegean and Central Anatolia regions.

The number of rainy days in October throughout Turkey was around normal (1991-2020 normal is 4.4 days). The number of rainy days occurred in the range of 10-15 days in the Eastern Black Sea Region, and decreased to around 1 day in Hatay, Kahramanmaraş, Osmaniye, Gaziantep, Kilis, Şanlıurfa, Adıyaman, Diyarbakır, Elazığ, Tunceli and Bingöl.

There are 70 extreme events have been reported in October 2023 in TSMS's Kardelen Database. Percentage of extreme events recorded in October 2023 were heavy rain-flood (48%), hail (29%), storm-tornado (7%), lightning (13and wildfire (3%).

2. Temperature

The mean temperature of Türkiye in October 2023 was 17.1°C. This value was 1.5°C above the 1991-2020's normal (15.6°C) (Fig.2.1).

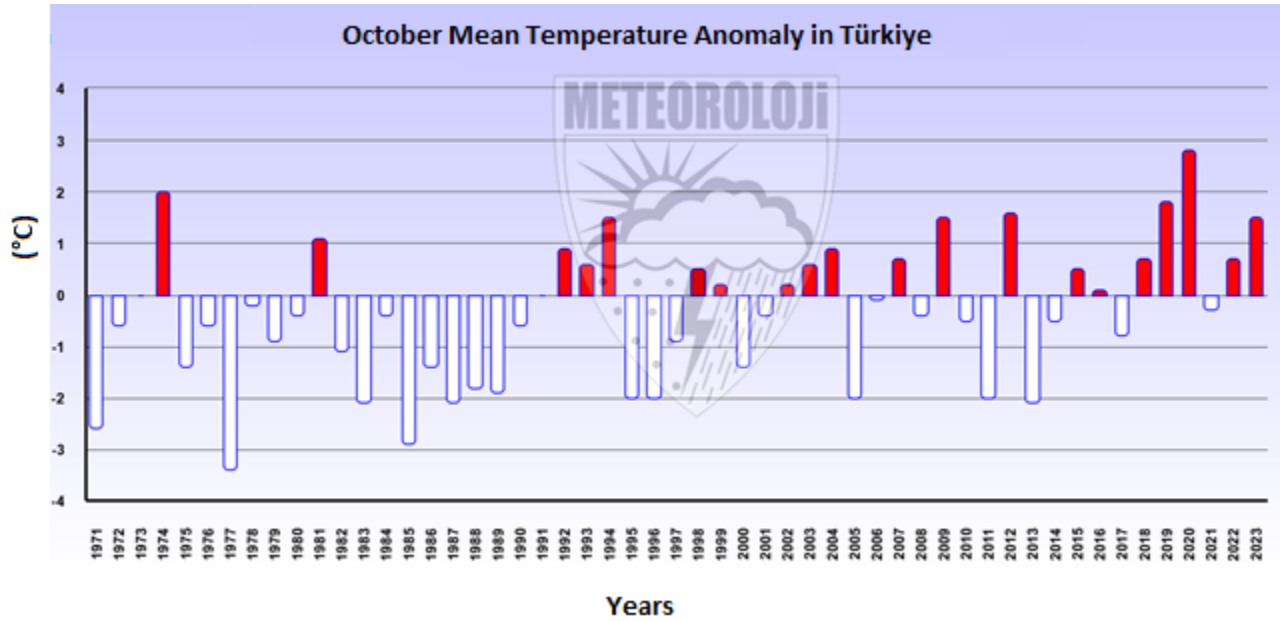


Figure 2.1 Monthly mean temperature anomalies in October (Url 1).

Mean temperatures in October 2023 were above normal in western parts of Türkiye; while it is was near normal in eastern parts of the country. This made it 7th warmest October since 1971 (Fig.2.2).

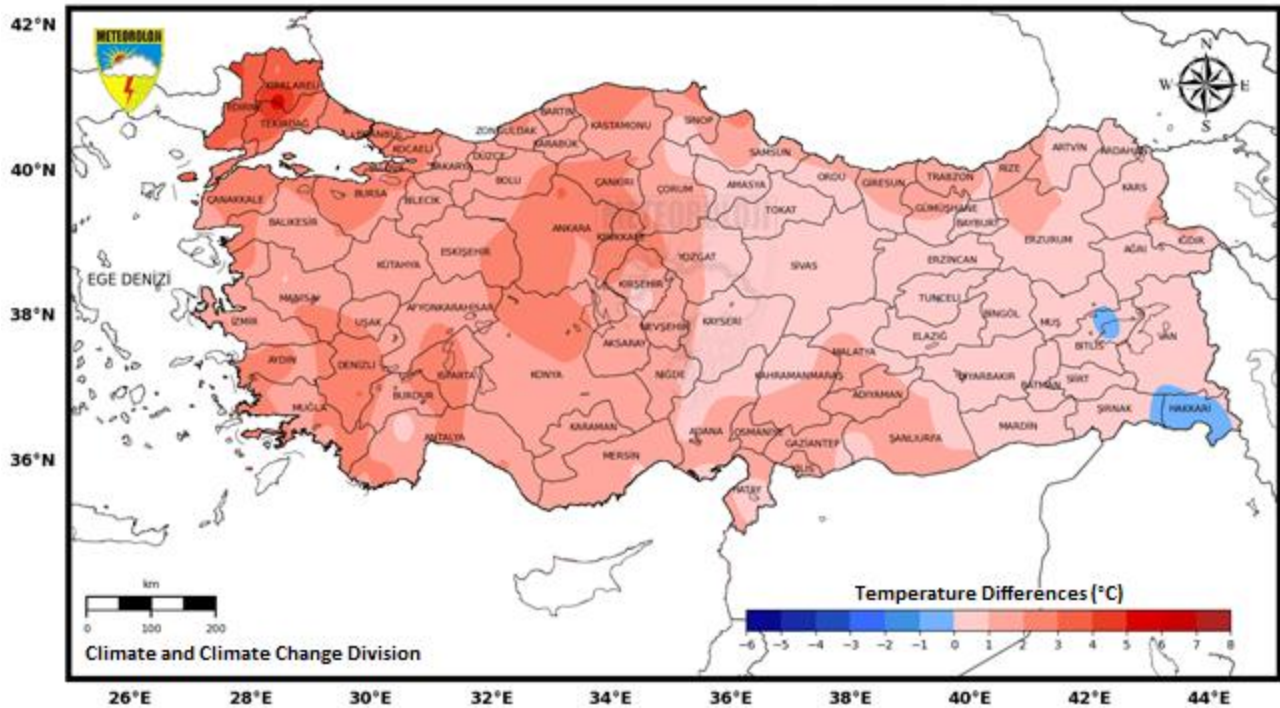


Figure 2.2. Spatial distribution of mean temperature anomaly in Türkiye in October 2023 (Url 1).

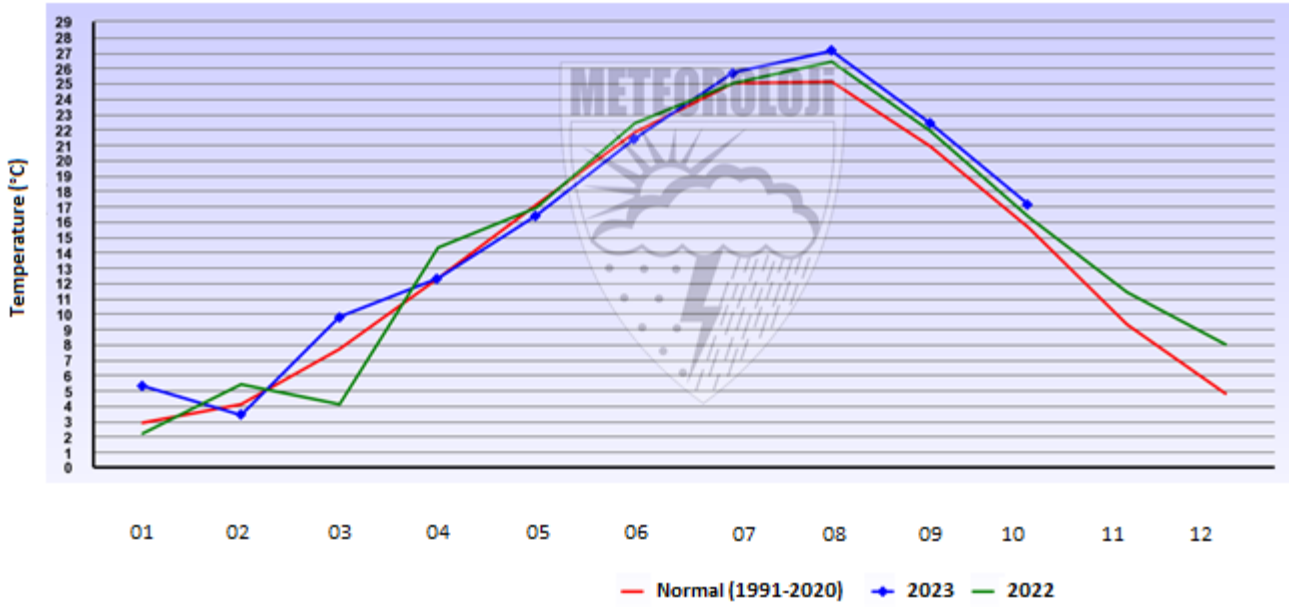


Figure 2. 3 The difference of the monthly mean temperature in 2023 from normal (1991-2020) (Url 1).

The monthly mean temperature of October was above its normal.

2.1. Regional Temperature

Regional temperatures were above the long-term mean (1991-2020) in all 7 regions (Fig. 2.4).

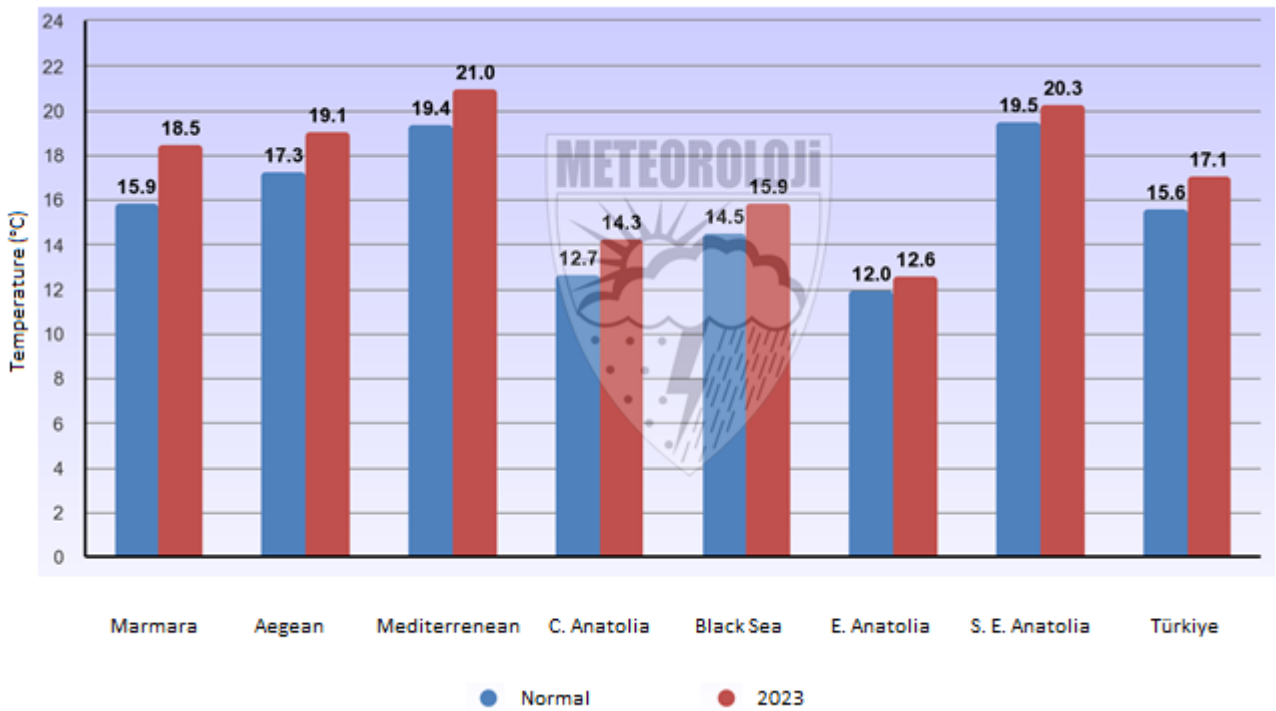


Figure 2. 4 Regional mean temperature differences in October 2023 (Url 1).

2.2. Extreme Temperature

The lowest temperature was observed in Erzurum with -3.7°C and the highest temperature was observed in Lüleburgaz with 34.1°C .

3. Precipitation

Türkiye's areal mean precipitation in October 2023 was 36.6 mm. This value is approximately 26% below the 1991-2020's normal (49.4 mm) (Fig. 3.1)

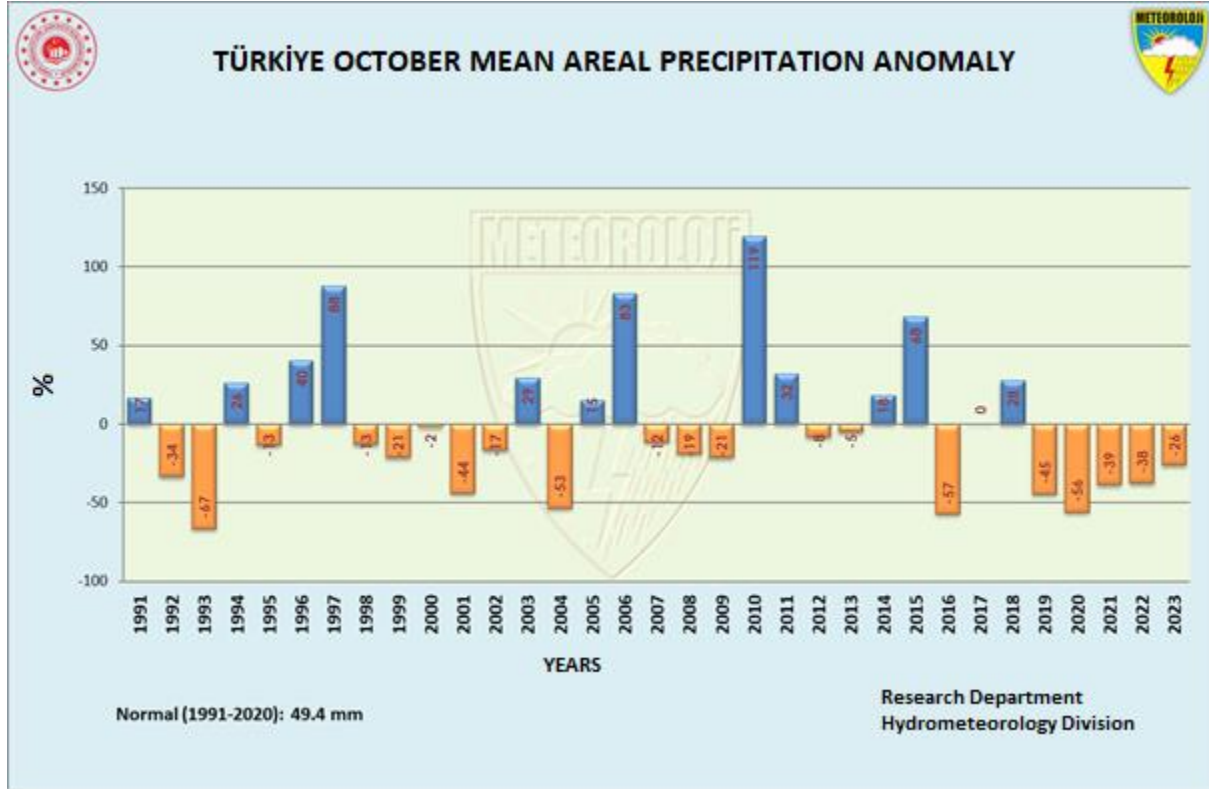


Figure 3. 1 Areal precipitation anomaly in October in Türkiye (Url 2).

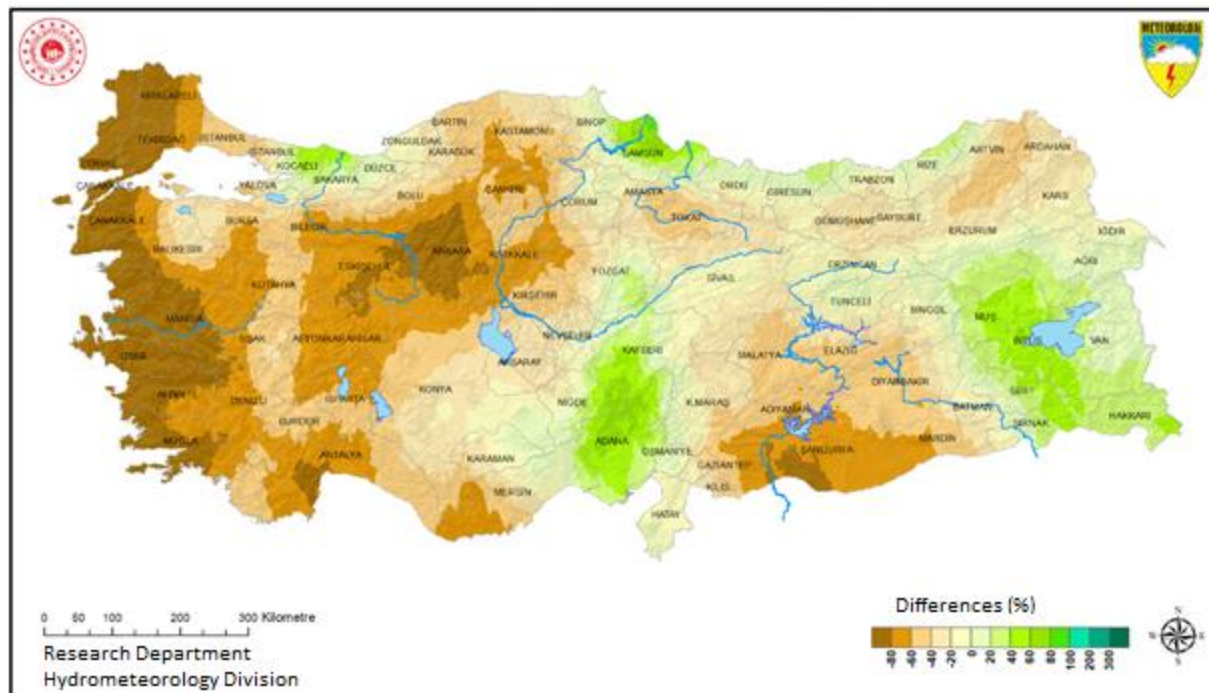


Figure 3. 2 Spatial distribution of mean precipitation anomalies in October 2023 (Url 2).

During the October, rainfall were increased 40-60% in Kocaeli, Sakarya, Samsun, Adana, Kayseri, Muş, Bitlis, Siirt, Şırnak and Hakkari; while were decreased 60-80% in Aegean Region, northeast parts of Marmara, Ankara, Eskişehir, Antalya and Şanlıurfa. (Fig. 3.2).

3.1. Regional Precipitation

Regional precipitation in October were below normal (1991-2020) except Eastern Anatolia Region (Figure 3.3).

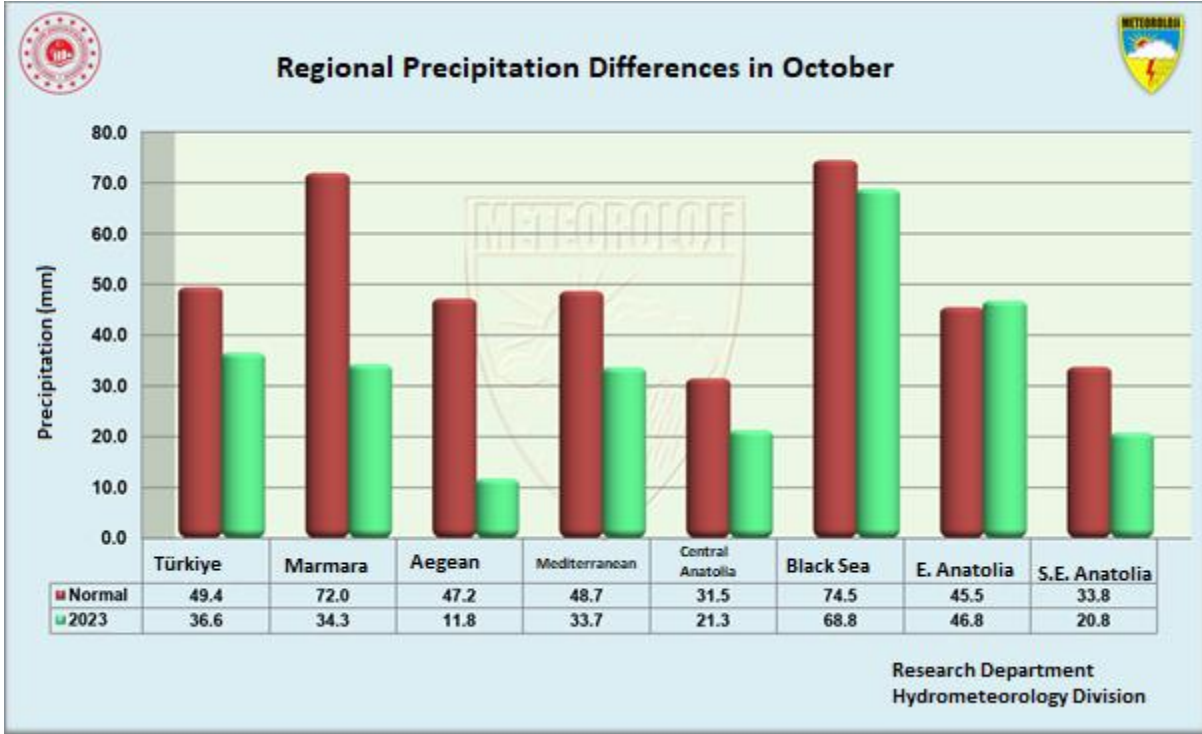


Figure 3. 3 Regional Precipitation Differences in October 2023 (Url 2).

3.2. Rainy Days

The number of rainy days in October throughout Turkey was 6.4 (1991-2020 normal is 7.9 days). The number of rainy days occurred in the range of 10-15 days in the Eastern Black Sea Region, around Erzurum, Bingöl, Muş, Bitlis, Siirt and Kahramanmaraş; and decreased to around 3 day in coastal areas of Aegean Region, northwest part of Marmara Region, around Ankara and Kırıkkale. (Fig. 3.4).

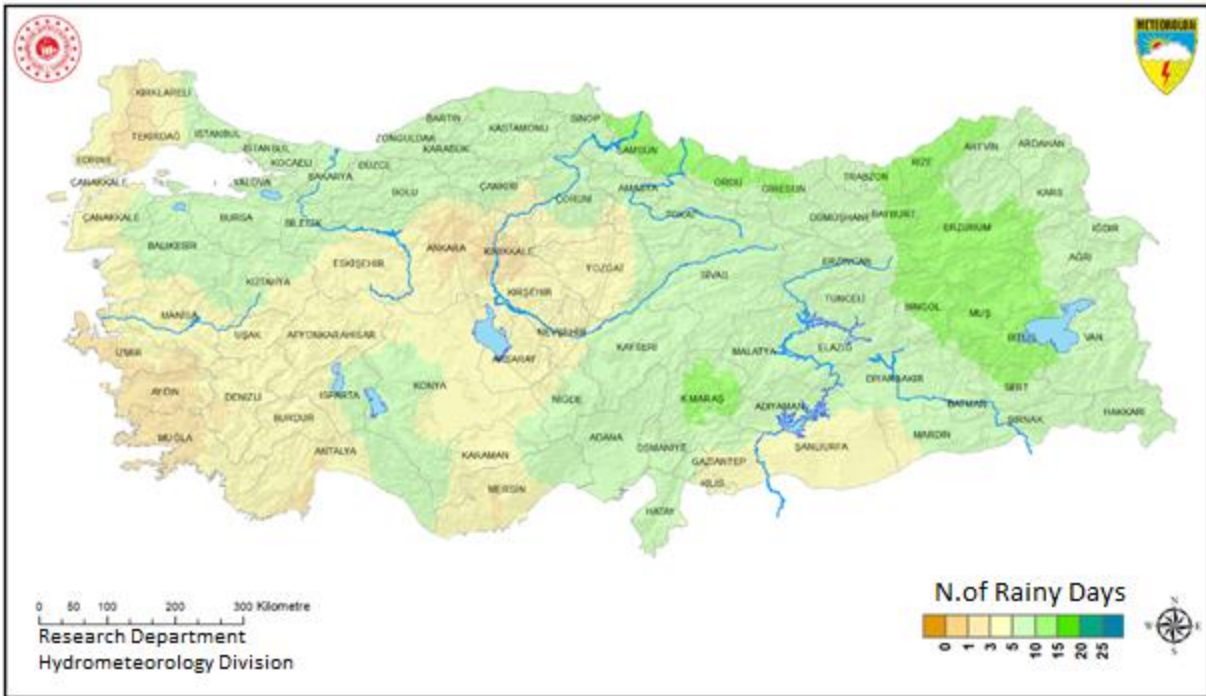


Figure 3. 4 Number of rainy days in October 2023 (Url 2).

3. Extreme Meteorological Events

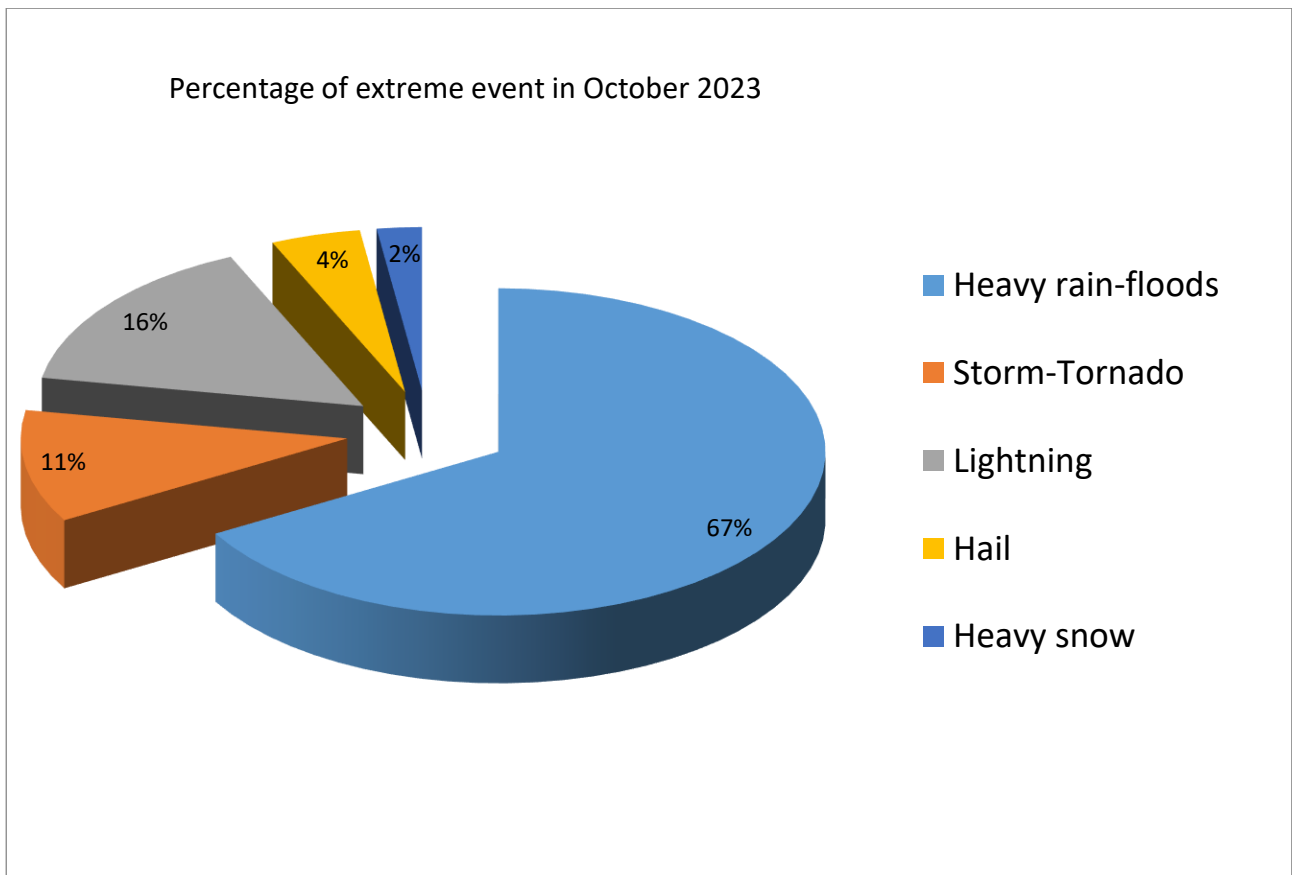


Figure 4.1. Percentage of extreme event in October 2023 (Url 3).

There are 70 extreme events have been reported in October 2023 in TSMS's Kardelen Database. Percentage of extreme events recorded in October 2023 were heavy rain-flood (67%), hail (29%), storm-tornado (7%), lightning (13and wildfire (3%) (Fig. 4.1).

References

1. URL 1, Turkish State Meteorological Service, temperature analysis
<http://www.mgm.gov.tr/veridegerlendirme/sicaklik-analizi.aspx>
2. URL 2, Turkish State Meteorological Service, precipitation analysis
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3. URL 3, Turkish State Meteorological Service, Kardelen, meteorological extreme event database
<http://kardelen.mgm.gov.tr/BultenGenel/Klima/fevkGlnYeni.aspx>



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