



DROUGHT MONITORING BULLETIN

2024 May

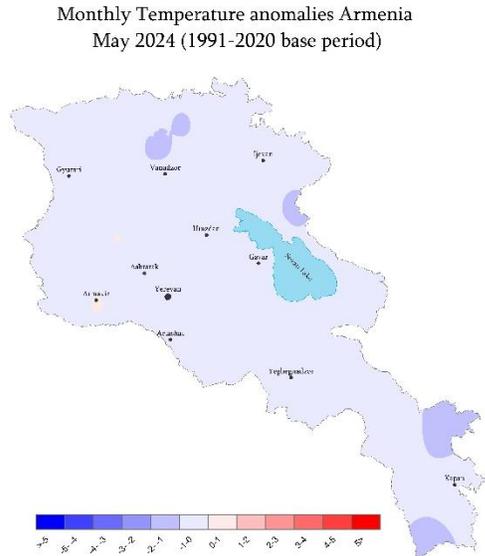
Content

<u>1.</u>	<u>Monthly temperature anomaly</u>	3
<u>2.</u>	<u>Monthly precipitation anomaly</u>	<i>Error! Bookmark not defined.</i>
<u>3.</u>	<u>Drought indices</u>	4
3.1	<u>Vegetation Condition Index (VCI)</u>	4
3.2	<u>Normalized Difference Vegetation Index (NDVI)</u>	5
3.3	<u>Agricultural Stress Index (ASI)</u>	5
3.4	<u>Assessment of meteorological drought intensity</u>	5

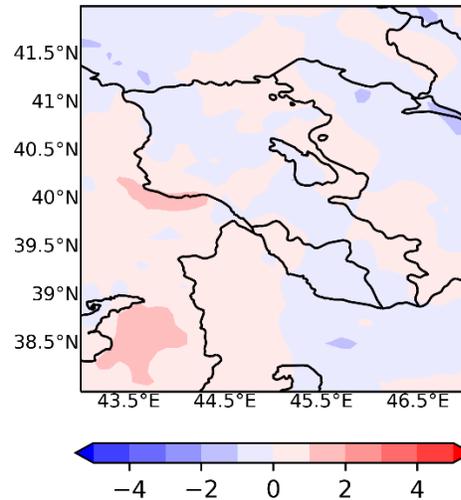
1. Monthly temperature anomaly

In May 2024, average air temperatures were mostly below normal. According to data from 43 meteorological stations in Armenia, the temperature across the entire republic was 0-1°C below the norm.

The ERA5-Land global reanalysis map of average monthly temperature deviations accurately reflects the negative deviations of May temperatures in Armenia.



Monthly Temperature anomalies Armenia
May 2024 (1991-2020 base period), ERA5-Land

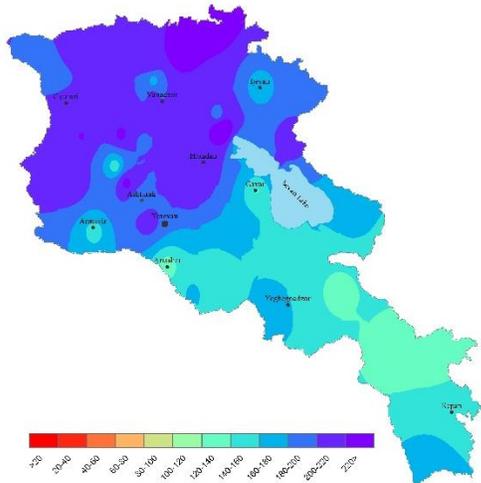


2. Monthly precipitation anomaly

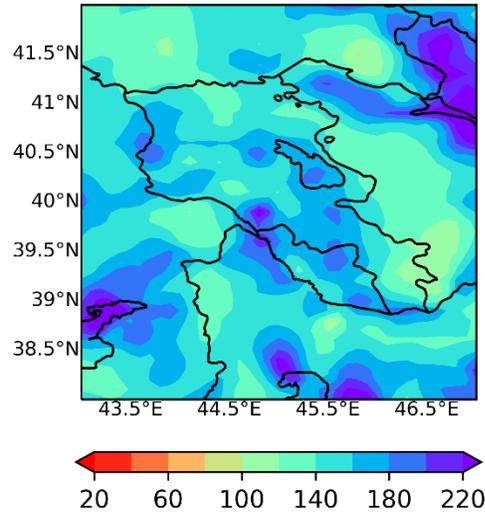
The below-normal temperatures in the republic were accompanied by abundant precipitation, making May the wettest May in the last 80 years. In the northern and central regions, precipitation was 200-220% of the norm, while in the rest of the regions, it was close to normal.

According to ERA5-Land global reanalysis data, the amount of precipitation in May was above normal. However, it should be noted that the heavy rainfall in the northern regions is not well reflected in the ERA5 data.

Monthly Precipitation anomalies (%) Armenia
May 2024 (1991-2020 base period)



Monthly Precipitation anomalies(%) Armenia
May 2024 (1991-2020 base period), ERA5-land

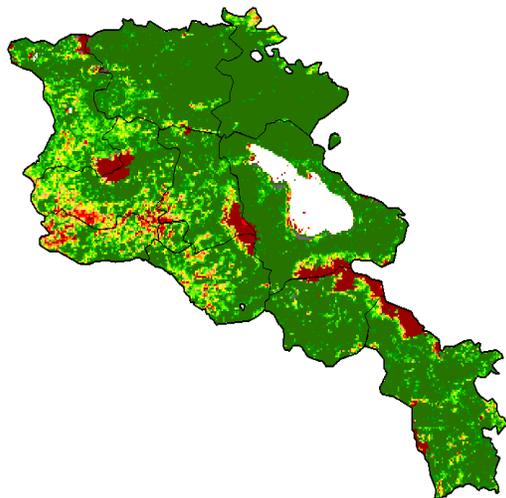


3. Drought indices

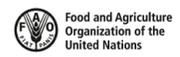
3.1 Vegetation Condition Index (VCI)

The Vegetation Condition Index (VCI) compares the current NDVI to the range of values observed in the same period in previous years. The VCI is expressed in percents and gives an idea where the observed value is situated between the extreme values (minimum and maximum) in the previous years. Lower and higher values indicate bad and good vegetation state conditions, respectively.

As shown on the May VCI map published on the FAO website, favorable conditions for vegetation growth were observed in most of Armenia.



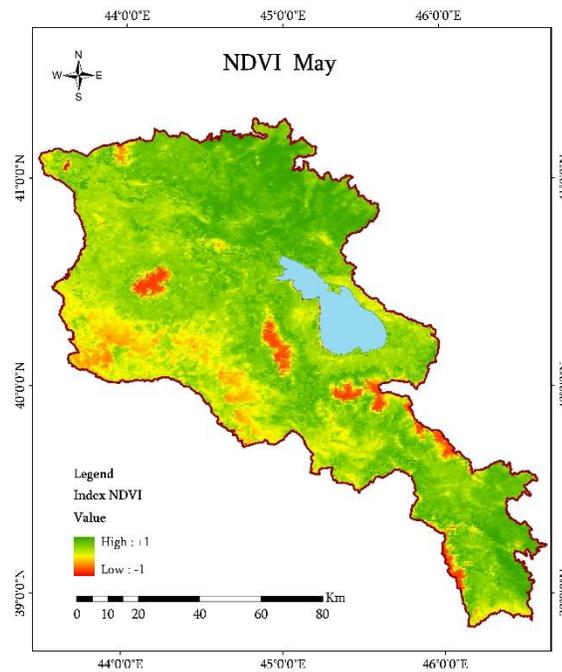
Vegetation Condition Index (VCI)
May 2024
METOP-AVHRR
WGS84, Geographic Lat/Lon



Global Information and Early Warning System – GIEWS

3.2 Normalized Difference Vegetation Index (NDVI)

The Normalized Difference Vegetation Index (NDVI) is an indicator of photosynthetically active biomass which is obtained by comparing the amount of absorbed visible red light and reflected infrared light. NDVI defines values from -1.0 to 1.0 where negative values coincide with areas devoid of vegetation. Most of the territory of Armenia is dominated by positive NDVI values, indicating favorable conditions for vegetation growth.



3.3 Agricultural Stress Index (ASI)

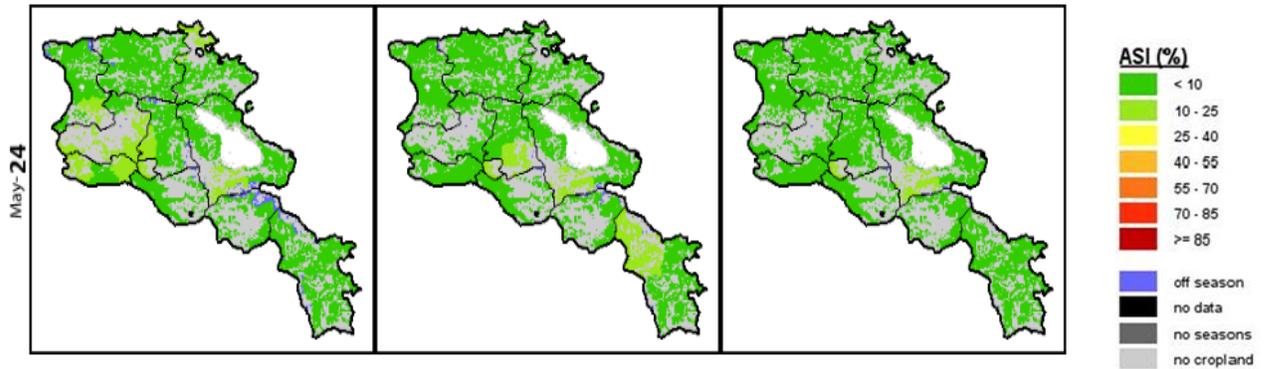
The Agricultural Stress Index (ASI) indicates the impact of agricultural drought. ASI integrates the temporal and spatial image of the Vegetation Health Index (VHI). ASI estimates the intensity and duration of dry spells during the growing season of agricultural crops. Areas with VHI values below 35 percent are critical for assessing the intensity of drought.

As can be seen from the satellite data of May, there was no agricultural drought in the territory of the republic.

I decade

II decade

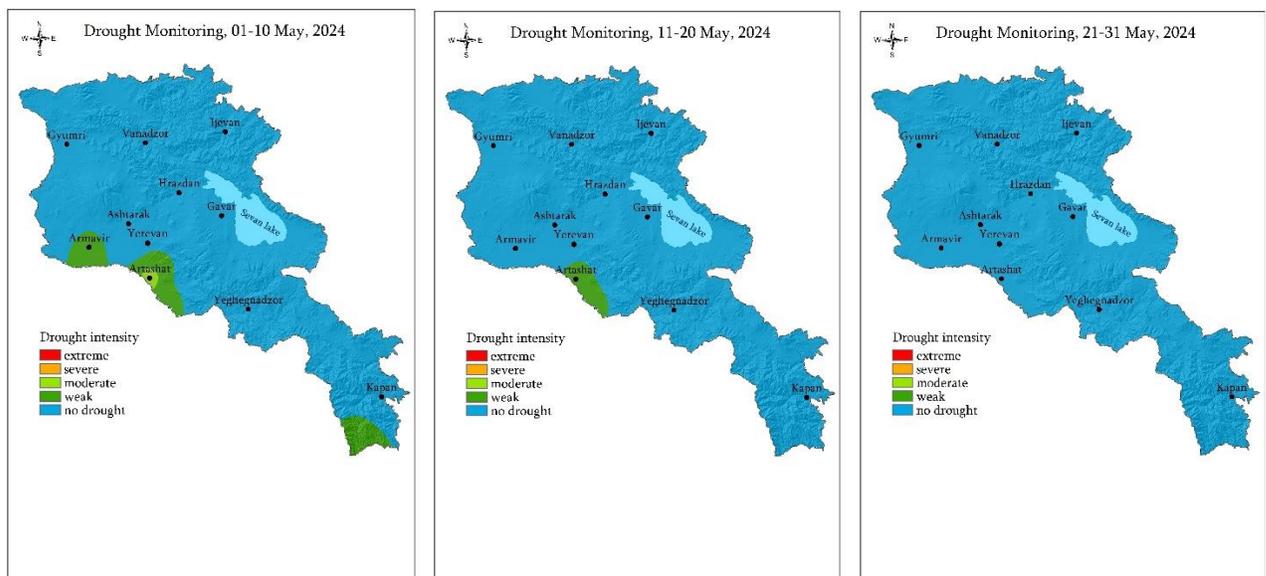
III decade



3.4 Assessment of meteorological drought intensity

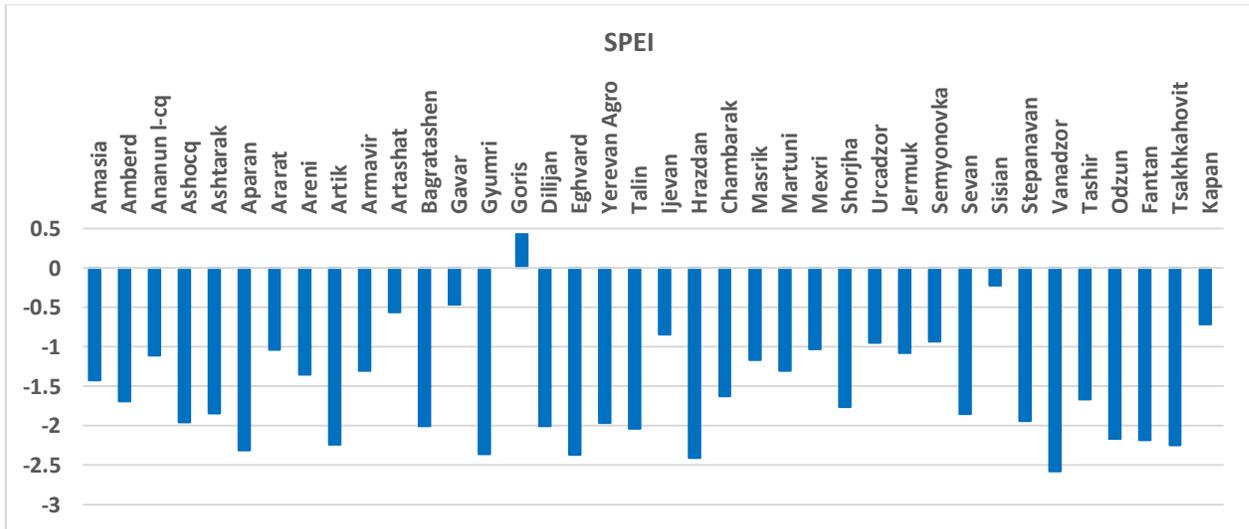
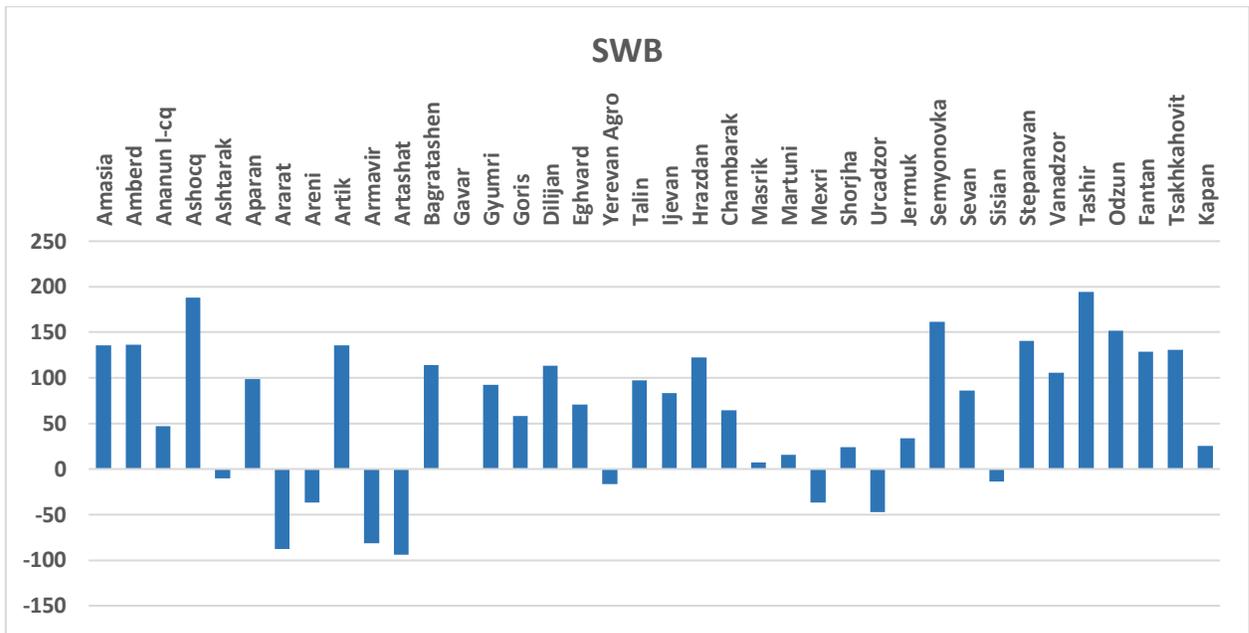
Drought intensity was evaluated by Selyaninov's hydrothermal coefficient according to the data of 38 meteorological stations.

As can be seen from the maps of May, no drought conditions were observed in the regions of Armenia.



Drought intensity was evaluated using on the Standardized Precipitation Index (SPI). SPI is a statistical indicator, which calculates and compares the amount of observed precipitation in a given month to long-term climatological precipitation distribution for the same period. SPI was calculated for monthly (SPI1) and quarterly (SPI3) periods. In addition the SWB (Soil Water Balance) was calculated which is an index based on the difference between monthly precipitation and potential evapotranspiration. Lastly, the SPEI drought index was calculated.

SWB was used as input to calculate SPEI. Calculations were performed with the R Studio software package.

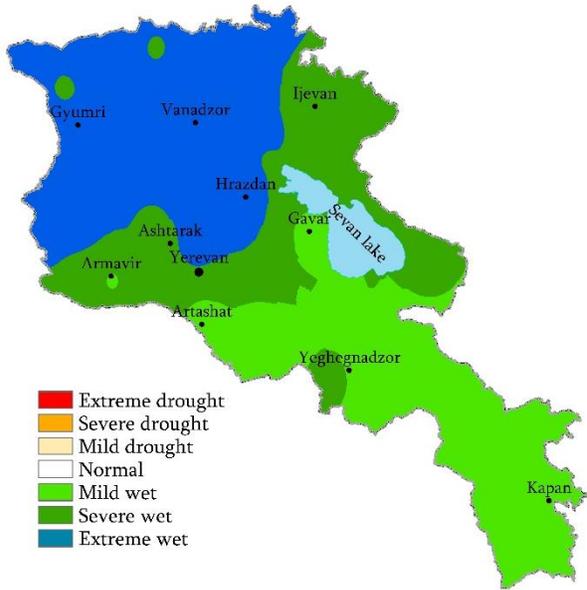


From the May SPI1 map, it can be seen that very wet conditions were observed in the central, northern, and northwestern regions of the country due to heavy rainfall.

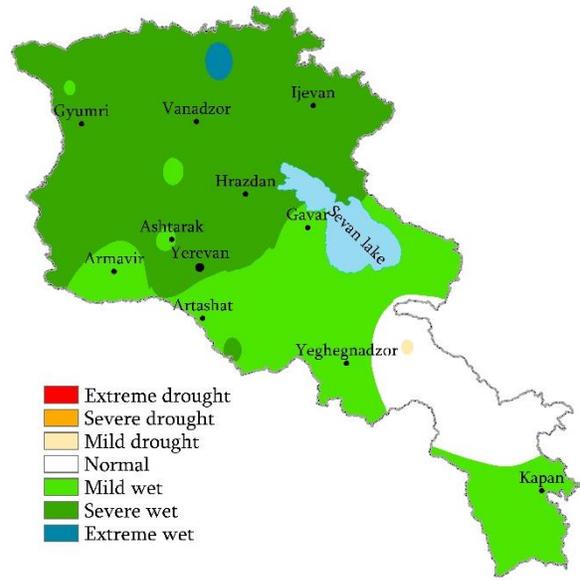
SPI3 reflects humid and moderately humid conditions throughout the country.

The SPEI map shows that, in general, drought conditions were not observed across the country.

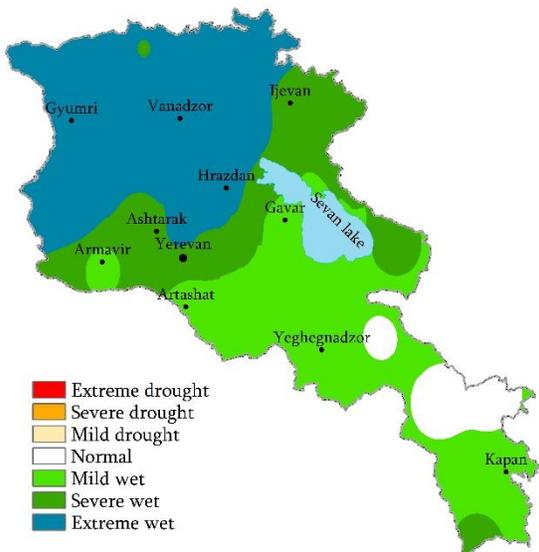
SPI1, May 2024



SPI3, May 2024



SPEI, May 2024



Thus, analyzing the actual temperature and precipitation deviations, as well as the values of the vegetation state indices, we can conclude that due to heavy precipitation and lower than normal temperatures, drought conditions did not develop in the republic in May.