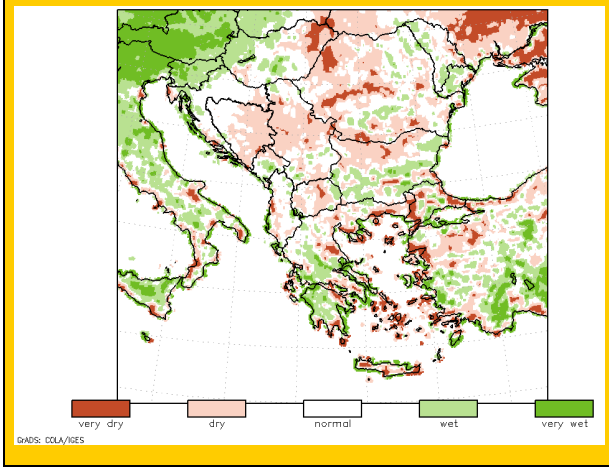
DROUGHT MONITORING BULLETIN

September 2024

HOT SPOT

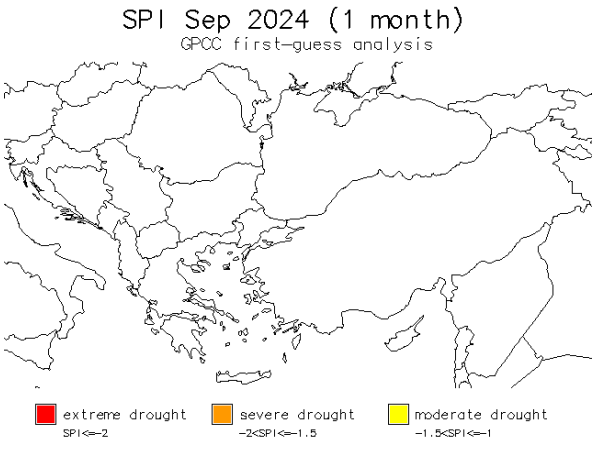


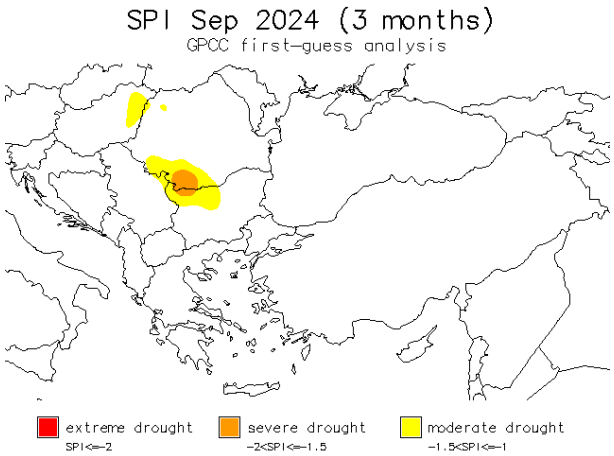
Accumulated surface water balance between 1 April and 27 September 2024 in percentile classes on the base of 1991-2020 (left) shows 6-monthly surface water balance levels across the region. It reveals prevailing of the deficit over central Balkan Peninsula where main vegetation season recorded 150–250 mm, over southwestern half of Romania up to 300 mm lower than normal surface water balance. Normal levels or local surplus of up to 250 mm were present mostly over the far north-west and locally over the south.

STANDARDIZED PRECIPITATION INDEX

Drought situation with regard to precipitation level is presented by Standardized Precipitation Index (SPI). The SPI calculation is based on the distribution of precipitation over long time periods (at least 30 years) and can be calculated at various time scales that reflect the impact of drought on the availability of water resources. The long-term precipitation record is fit to a probability distribution, which is then normalised so that the mean (average) SPI for any place and time period is zero. SPI values above zero indicate wetter periods and values less than zero indicate drier periods. Only the dry part of the extreme anomalies is presented on the maps.

Standardized precipitation index for **September 2024** is shown in figures below. SPI for a one-month period indicates possible drought conditions which can have impact on vegetation, while SPI for a three-month period can be indicative also for surface water status.



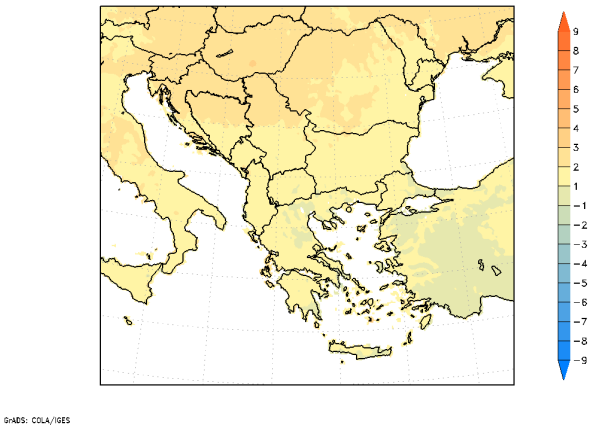


September brought at least average but mostly higher than normal amount of precipitation to the region. The area in a belt stretching across western half of Romania, northern Bulgaria and over the Aegean Sea area recorded a precipitation level within the normal range, while the rest of the region experienced wetter than normal or even very wet precipitation conditions. In that sense, September brought some level of d to the areas previously experiencing drought conditions.
A 3-monthly overview covering July-September precipitation conditions shows 3-monthly precipitation accumulation was still below normal across the border area between Serbia, Romania and Bulgaria where lack of rain indicates moderately to severely dry conditions, mostly on the account of extremely dry August and severely dry July. 3-monthly anomalies show drier than usual precipitation conditions also across eastern Hungary due to extremely dry August and July.

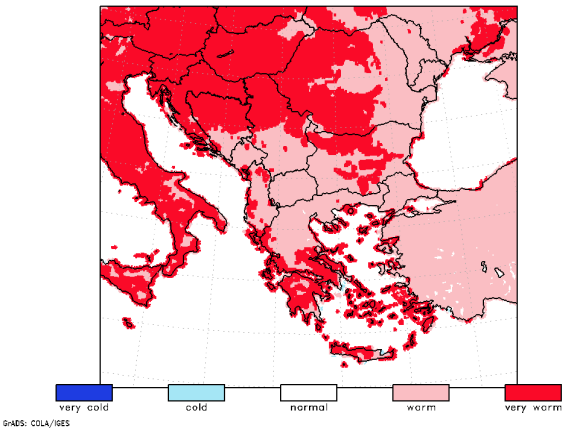
AIR TEMPERATURE AND SURFACE WATER BALANCE

Figures in this section show anomalies of the mean air temperature and accumulated surface water balance (precipitation reduced for evapotranspiration) as well as their absolute values in percentile classes for the given 60-day period.

AVERAGE AIR TEMPERATURE ANOMALY (°C)
30 JULY – 27 SEPTEMBER 2024

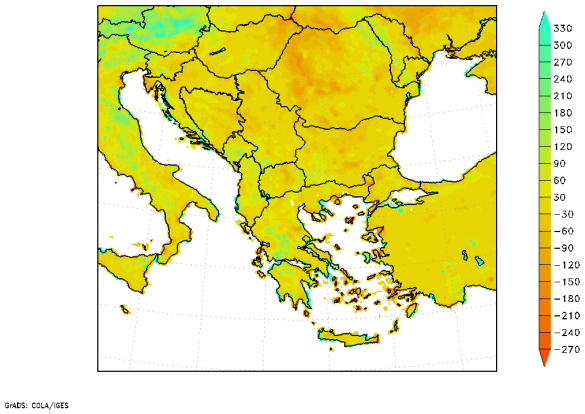


AVERAGE AIR TEMPERATURE PERCENTILE CLASSES
30 JULY – 27 SEPTEMBER 2024

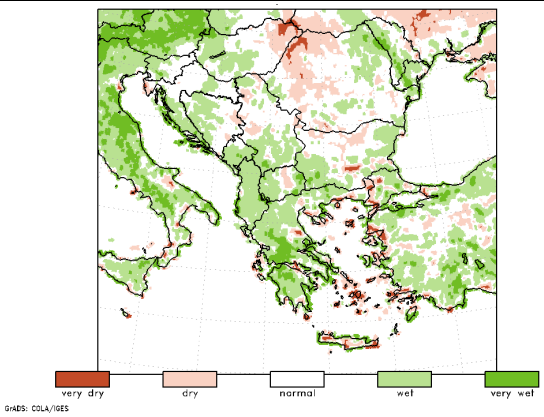


Air temperatures over Moldova were throughout all September constantly 3–5 °C higher than normal, which put this September among one of the warmest of the local long-term history. More or less constant this September were air temperatures also over Turkey, which in first half of September were 2–3 °C warmer than usual but at the end of the month returned to average for this time of the year. The rest of the region experienced great temperature shifts throughout September. Much warmer than normal was first dekad of the month, when many parts of the region recording daily air temperatures over 30 °C in first days of September and anomalies ranged from up to 3–4 °C in countries in southern Balkan Peninsula, to 7–8 °C towards the north-west. In second dekad came a spell of much colder than normal air mass from the north-west, resulting in air temperatures dropping to 3–4 °C below the average over the northwestern quarter of Balkan Peninsula, and down to 2 °C over the south. Last dekad saw average air temperatures across southern half of the region, and warmer than normal again for up to 2–3 °C. Together with warmer than normal August, the 60-day mean air temperature was across northern half of the region including Bulgaria and Bosnia and Herzegovina at least 2.5 °C warmer than normal, over central Pannonian Basin and Moldova up to 4 °C warmer, and over Montenegro and southern areas it exceeded the average for up to 2 °C.

ACCUMULATED WATER BALANCE ANOMALY (mm)
30 JULY – 27 SEPTEMBER 2024



ACCUMULATED WATER BALANCE PERCENTILE CLASSES
30 JULY – 27 SEPTEMBER 2024



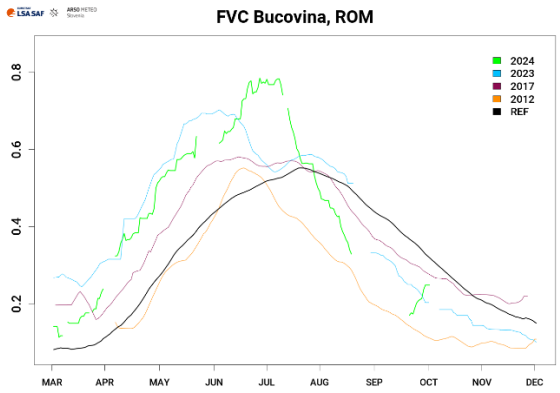
Southern part of Greece, southwestern quarter of Turkey and the area along the western coastline of the Black Sea recorded wetter than normal surface water balance levels in August as well as September, locally the conditions were very wet compared to the long-term. As a result, the 60-day accumulated surface water balance shows surplus of up to 100 mm, over scattered localised areas even up to 200 mm for this time of the year. On the contrary, deficit in surface water balance levels were over the central Pannonian Basin and northern Moldova present in August and to a lesser degree also in September, which in 60 days accumulated into surface water balance deficit of up to 100 mm, locally in western Romania up to -150 mm, indicating that dry conditions continued over that part of the region. Across the rest of the region, dry to very dry August surface water balance was in September followed by wet to very wet conditions. The accumulated 60-day surface water balance values thus ranged within the normal for this time of the year, locally surplus reached up to 100 mm, indicating ceasing of dry surface water balance conditions over this part of the region.

REMOTE SENSING - FRACTION OF VEGETATION COVER

Fraction of vegetation cover (FVC) *is a vegetation index based on multi-channel remote sensing measurements (data from EUMETSAT's LSA SAF data base is used for products in this bulletin). FVC shows fraction of the total pixel area that is covered by green vegetation, which is relevant for applications in agriculture, forestry, environmental management and land use, it has also proved to be useful for drought monitoring. Values vary according to the vegetation stage and to the damages of possible natural disasters, including drought. FVC values are in general low at the beginning of the growth season, the highest at full vegetation development, then FVC slowly drops with vegetation senescence. Line shape depends on the sort of vegetation at the given location.*

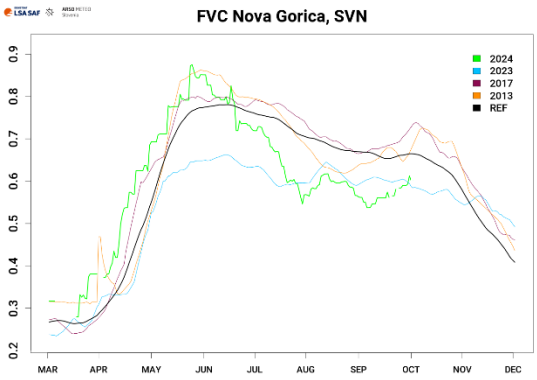
Graphs below present the **vegetation situation** as recorded **on 30 September 2024** at selected locations across southeastern Europe. FVC values for year 2024 are presented in green line. Graphs also include reference line (2004–2023) in black, and lines in light blue (year 2023), magenta (year 2017) and orange (year 2012, or 2013 for Slovenia) for comparison. Missing values or their sharp decline can be linked to prolonged cloudy weather, extreme weather events, snow blanket, human intervention or changes to product by the product provider.

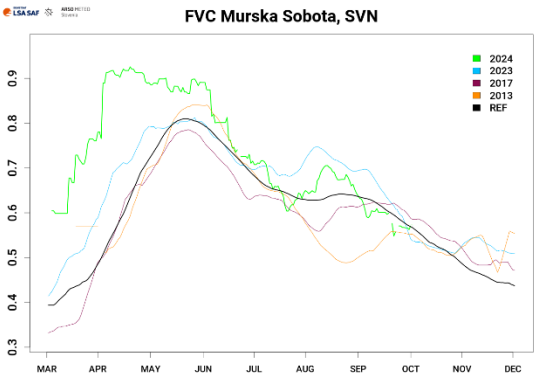
ROMANIA



Spring weather conditions favoured early vegetation development in Bucovina, northern Romania and further supported its growth throughout the rest of spring. As a result, level of cover was regularly up to a month ahead of its regular time, with additional boost in growth experienced in second half of June, with altogether up to 25 % greater-than-normal cover. Second half of vegetation season was characterised by two months of continuous FVC decline, during which the level of cover with green canopy fell from 80 % down to 20 %, sitting 20 % below the average in mid-September. Vegetation slightly recovered in late September, although still within lower-than-normal levels.

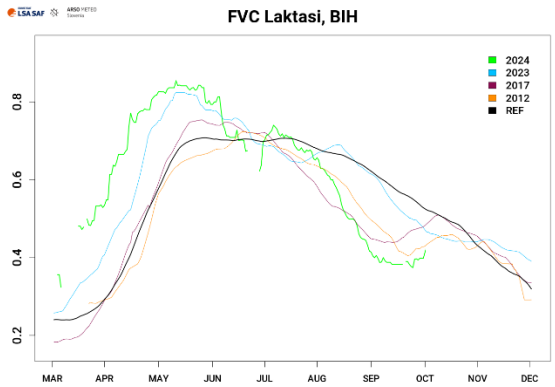
SLOVENIA

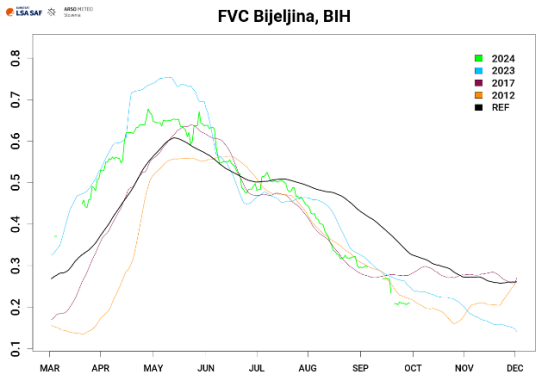


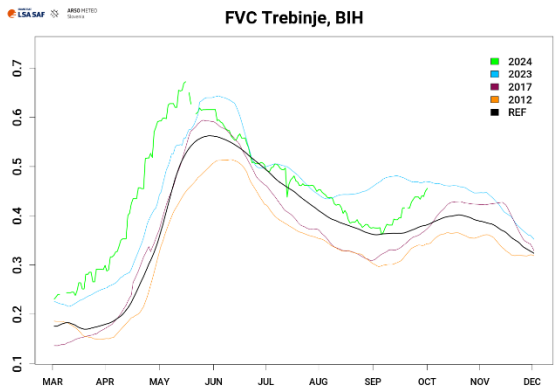


In Murska Sobota, northeastern Slovenia vegetation season began a month earlier than usual and on a base of 20 % greater-than-usual cover with green canopy, due to which spring saw abundant vegetation cover. Seasonal peak was reached in first half of April already and lasted until its regular peak time in early June. Favourable weather conditions ceased with June, during which the above-average level of cover dropped to the average, then more or less followed the usual senescence line, with a short-living boost during August. In Nova Gorica, western Slovenia, vegetation season began slightly earlier than normal and followed its regular pattern of development throughout spring, as a result, seasonal peak level of cover was in mid-May exceeded for up to 15 %. Weather conditions were less than favourable in second half of the season, beginning with a two-month period of continuous FVC decline that brought level of cover with green canopy approximately 20 % below the average before the end of July, followed by two months of short-living boosts and drops about the level up to 15 % below the average.

BOSNIA AND HERZEGOVINA (REPUBLIC OF SRPSKA)

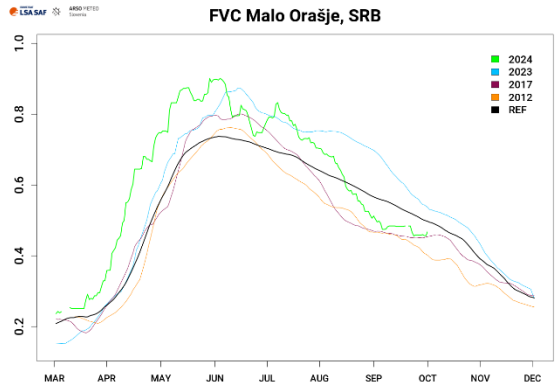


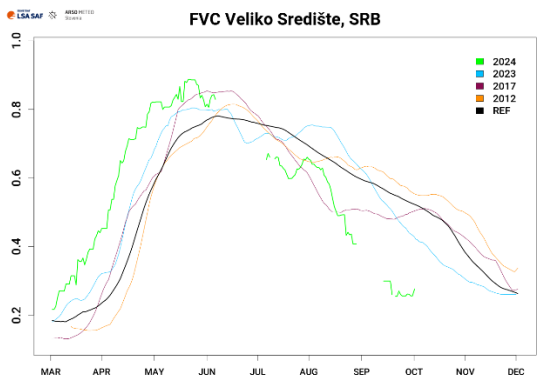




Early start to vegetation season was observed at all three locations in Bosnia and Herzegovina where vegetation development began up to a month earlier than normal. By progressing well throughout spring months, the usual peak levels were reached in early May already, and the seasonal high extent of green canopy over a unit area was at all locations 10–15 % greater than normal. While in Trebinje, southern Bosnia and Herzegovina senescence phase progressed more or less as usual, with an even greater than normal boost during September, the second half of the season negatively affected vegetation health in Laktasi and in Bijeljina in northern part of the country. Unfavourable weather conditions brought the above-average vegetation cover down before the end of June, although temporal short-term recovery back to the average levels in early July appeared to prevent worse seasonal outcome in vegetation health. As from mid-July onward, vegetation greenness in Laktasi and in Bijeljina experienced two months of progressive decline, as FVC values at both locations fell to about 15 % below the average before the end of September, similar as in drought year 2012.

SERBIA

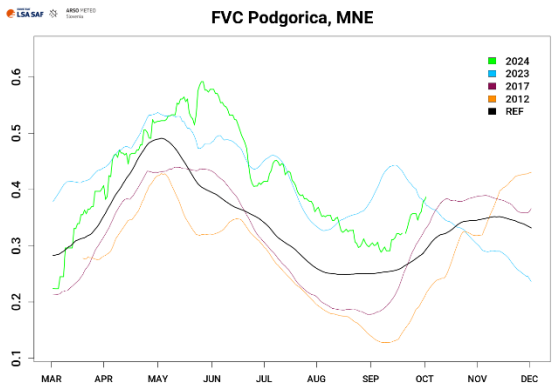




Vegetation in Veliko Srediste, northeastern Serbia kicked into growth in early March, almost a month earlier than normal, and progressed at its usual rate throughout spring months, resulting in reaching usual seasonal peak levels before the end of April already, and at seasonal high the

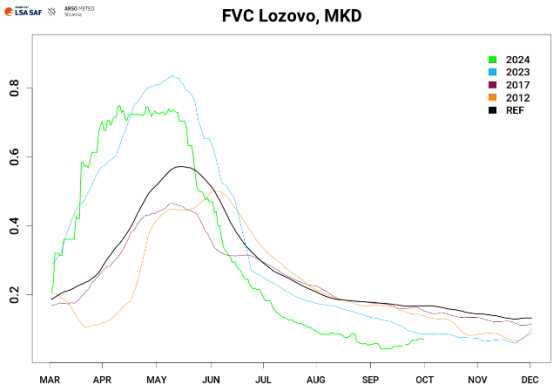
green canopy covered about 10 % greater-than-usual unit of area. Unfavourable summer weather conditions that followed, brought a period of four months of more of less continuous decline in level of cover with green canopy, with only a short-living temporal recovery in early August. The decline due to unfavourable weather conditions appeared to begin earlier and lasted much longer than in drought year 2017. According to FVC, green vegetation was at the end of September covering only about 25 % of the unit area, compared to 55 % in normal conditions. In Malo Orasje, central Serbia, vegetation season began only slightly earlier than normal, and favourable spring weather supported further growth and development at the rate slightly higher than normal throughout spring, resulting in earlier, greater-than-normal and longer-lasting seasonal peak cover. FVC values were at least as high as the usual seasonal peak from late April until early August, with up to 20 % greater extent covered at its peak level in early June. Unfavourable summer weather conditions negatively impacted vegetation cover from mid-August onward, with FVC values not more than 10 % below the long-term average.

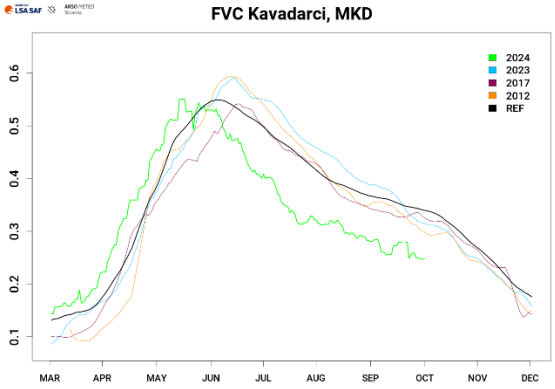
MONTENEGRO



Although on a base of about 10 % lower than usual level of vegetation cover in early March, vegetation season in Podgorica, southern Montenegro progressed well throughout spring and continued its growth and development up until June, a month beyond its usual seasonal peak. As a result, level of cover with green vegetation remained above-average even after a period of sharp decline that occurred in June when FVC values fell for about 20 % in less than a month. A short-living recovery in early July helped to keep level of cover with green canopy up to 15 % above the average during the rest of the summer. Autumn period of growth began about two weeks earlier than normal, in mid-September already, gaining further above-average level of cover before the end of the month.

NORTH MACEDONIA

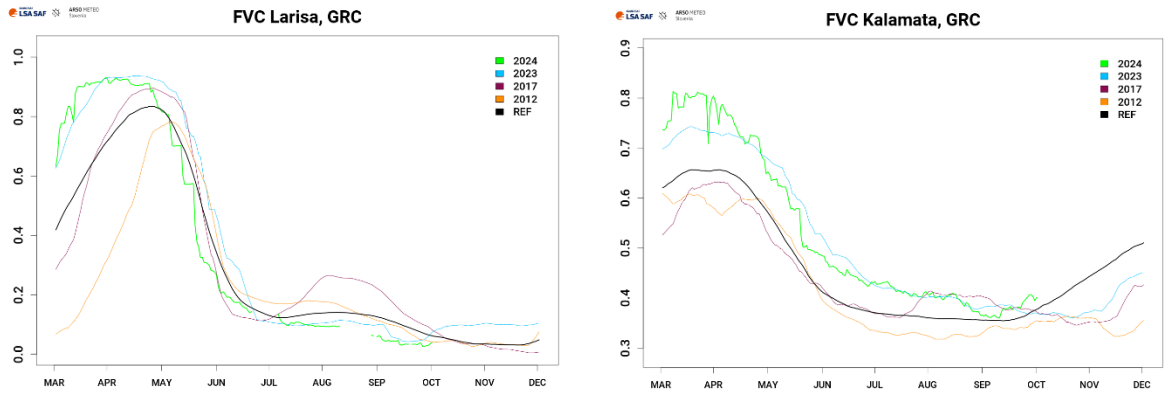




In Lozovo, central North Macedonia, vegetation boosted into growth early into the season and reached the usual peak level of cover within first three weeks. After further growth and development, the level of cover remained at about 70 % between April and seasonal peak in mid-May, exceeding the regular peak values by about 15 %. Unfavourable weather conditions

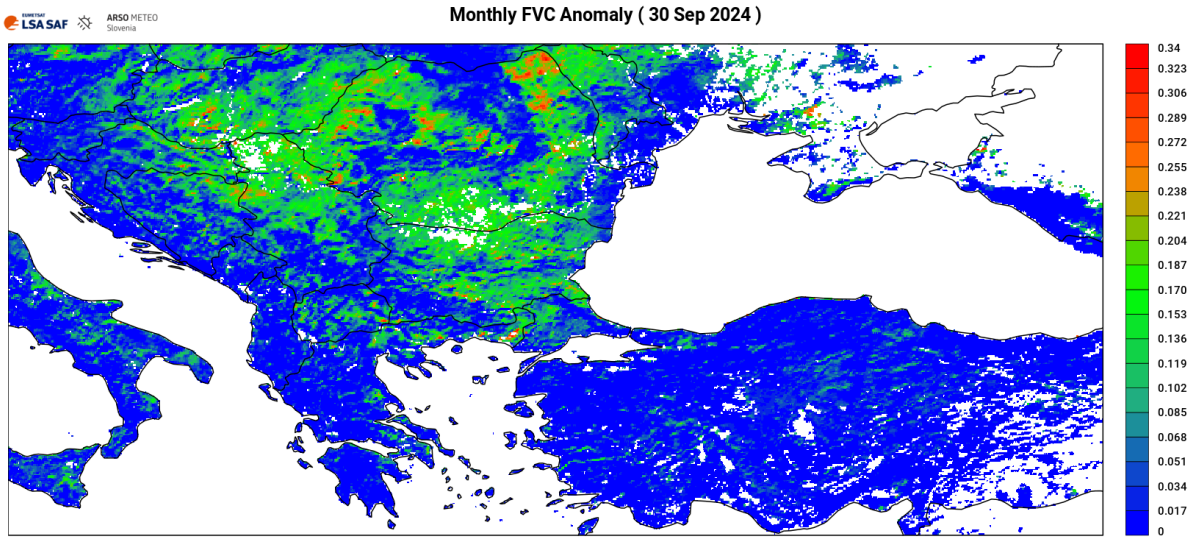
that followed in second half of the season resulted in a 4-month period of continuous decline in level of cover with green vegetation. Above-average extent of vegetation cover was brought down before the end of May and kept declining below the average until mid-September when FVC values showed only about 5 % of unit area covered with green canopy, instead of the usual 20 %. In Kavadarci, southern North Macedonia, vegetation growth and development began only slightly earlier than normal and progressed at its regular rate throughout spring up until early May. The unfavourable weather conditions came just before the seasonal peak, and due to their lasting nature sped up the senescence phase, bringing level of cover with green canopy down to the usual autumn values before early July. The extent of cover with healthy vegetation continued to decline for the rest of the season, remaining 10–15 % below the long-term average.

GREECE



The growing part of the vegetation season turned out abundant in Larisa, central-eastern Greece, with green vegetation covering up to 20 % higher than normal already in early March, and with the higher-than-normal rate of development throughout the rest of the month. By early April, about 90 % of unit area was covered with green canopy and remained high until the seasonal peak at the end of the month. Unfavourable weather conditions sped up the senescence phase, bringing FVC down up to two weeks ahead of its normal time. Level of cover remained below the average throughout the rest of the season, including during the usual late summer period of growth which this year did not occur. Seasonal peak cover was well exceeded also in Kalamata, southern Greece where during March and April green vegetation covered about 15 % greater than usual fraction of area. Before mid-May, much of the above-average extent of vegetation cover was brought down, while for the rest of the season senescence phase progressed at the rate slower than normal, similar as in year before, as FVC values mostly remained 5–10 % above the long-term average. Short-lasting drop down to the average can be observed for late August, followed by a slightly earlier onset of a new growing phase.

Figure below shows negative anomaly of **accumulated 30-day FVC values** as recorded on **30 September 2024** in comparison to the past 20 years (2004–2023) and is used experimentally.



As seen from the map above, green canopy was at the end of September across most part of the region covering 15–20 % lesser area than usual for this time of the year, the only exceptions appear to be the Carpathians, coastal area along the Adriatic Sea and most of southern Greece and Turkey. Several localised areas across the Pannonian Plain between Serbia, Hungary, Romania, as well as in Bulgaria recorded up to 30 % lesser cover with green vegetation, while in much of the northeastern Romania green vegetation was covering up to 35 % less unit of area, locally even more.

DROUGHT IMPACT REPORTS

SERBIA

In September, some estimates on damage for farmers, fruit growers and vegetable growers due to drought rose to an average of 50 % yield reduction this season. Mostly affected stood **corn and soybean** while the consequences of the drought in fruit growing are different - cherries and apricots suffered less from the drought, which is not the case with **apples, pears and vine**. [1] The producers from Sumadija, central Serbia estimated that the biggest damage from the two-month drought, when not a drop of rain fell in most villages in July and August, was suffered by corn and soybean, to about 50 %, as well as **sunflower**, which had a drop in yield by about 40 %. The damages to corn crop further concern livestock breeders, as **corn for cattle feed** has also failed this year. [2] Pepper yield was also up to 50 % reduced, due to high spring air temperatures in addition to summer drought and heat. Pepper sprouting was difficult, many didn't even produce seedlings and some plants in hot spring temperatures rejected the fruit, thus first flowers appeared only in July. According to agro-economists, the crop of **all basic vegetable crops** - potatoes, peppers, tomatoes, cucumbers and onions - has failed. [3] The **grapes** ripened earlier in Zeljin area, central Serbia, with early varieties picked at the beginning of August already, but due to extremely high temperatures and prolonged drought, yields are on average 30 % lower although it secured the quality of the remaining fruit. [4] The dry season did not favour the **walnut** crop across northern Serbia, and in high air temperatures quite some walnuts did not pollinate. Therefore, in some orchards the yield is expected to drop by more than 40 %. [5] Dry soil due to drought **prevented sowing** of the oilseed rape during its optimal period at the end of August or in early September

but has instead been postponed for about a month while some producers did not even purchase seeds in fear conditions for timely soil preparation will not be met. [6] weather conditions have this season not favoured **honey production**. High spring air temperatures and prolonged drought affected flowering, and in summer months decimated available bee pasture, which in addition lasted for a shorter time. The hives remained half-empty or with modest yields of honey, with which beekeepers cannot cover the high costs. Hives were observed to be sold off en-masse. [7]

In some sections, **Kamenica River** near Cacak, central Serbia almost completely dried up. [8] Very low water level was recorded also on the **Danube River** in eastern Serbia, which revealed the wrecks of German military ships near Negotin. [9] In early September, long-term drought left the water level of Serbia's cleanest **river Gradac** at its biological minimum near Valjevo, northwestern Serbia. The riverbed has been low in some places for a long time, but in early September also the river's main source dried up. [10] By mid-September, the Ibar River in southwestern Serbia dried up at several sections and caused a fish kill to the extent of **ecological disaster**. Its water level at the source was in June similar to that normal at the end of August or the beginning of September, when the water level is at its lowest. Low water level was due to lack of snow precipitation in the last two winter seasons, prolonged drought this summer as well as high temperatures, due to which all tributaries in the upper section of Ibar were at an extreme minimum, which at one point caused the river to dry up completely over a lengthy section from the village of Bac in eastern Montenegro to Lake Gazivoda in southwestern Serbia. [11]

[1] https://www.euronews.rs/biznis/agrobiznis/136915/problemi-ratara-vocara-i-povrtara-zbog-suse-se-suocavaju-sa-smanjenjem-roda-za-u-proseku-50-odsto/vest
[2] https://www.glassumadije.rs/ibar-presusio-ekoloska-katastrofa-koja-nas-mora-probuditi/
[3] https://novaekonomija.rs/vesti-iz-zemlje/letnja-susa-prepolovila-rod-paprike-tegle-ajvara-poskupela-na-preko-1-000-dinara
[4] https://biznis.rs/vesti/srbija/grozdje-sazrelo-ranije-ali-susa-obrala-30-odsto-prinosa/
[5] https://www.rts.rs/vesti/srbija-danas/5541598/kako-su-mraz-a-zatim-i-susa-uticali-na-proizvodnju-oraha-.html
[6] https://biznis.rs/u-fokusu/susa-pomerila-setvu-uljane-repice-za-kraj-septembra/
[7] https://www.blic.rs/biznis/privreda/zasto-pcelari-masovno-rasprodaju-kosnice/fexgbr2
[8] https://indeksonline.rs/2024/09/alarmantno-stanje-i-na-ovoj-srpskoj-reci-presusila-kamenica-kod-cacka-mestani-ne-pamte-susu-poput-ove/
[9] https://www.b92.net/zivot/aktuelno/58323/kod-negotina-isplivali-nacisticki-vilenjaci-pad-nivoa-dunava-otkrio-ratne-tajne-foto/vest
[10] https://www.telegraf.rs/vesti/srbija/3961672-alarmantno-stanje-u-valjevu-ekoloska-katastrofa-na-pomolu-presusuje-najcistija-reka-u-srbiji
[11] https://www.glassumadije.rs/ibar-presusio-ekoloska-katastrofa-koja-nas-mora-probuditi/
https://www.rina.rs/item/21361-/

ROMANIA

Drought conditions this year severely affected **agricultural crops** across Romania. According to farmers' estimates, the degree of damage ranged between 70 % and 100 %. As a result of such losses, the **prices** of basic food products such as sunflower oil, corn and potatoes will rise considerably, affecting the purchasing power of consumers. [1, 2, 3] According to the County Agricultural Directorate's final analysis, **spring crops** in Olt County, southern Romania was observed on one third of the arable lands. Sunflower crops were affected on more than two thirds of the cultivated area, and complete calamity was present on about 10 % of the cultivated area. [4] In Arad County, western Romania around 40,000 ha were affected by drought, which presents 12 % of the county's arable surface. The most affected was its western part, mostly in Nadlac, Pecica or Sintin, where the surfaces were affected in proportions of up to 70-80 %. [5] In Prahova County, southern Romania, of more than 4600 ha sown with autumn crops, a degree of damage was determined between 71 % and 100 %. The most affected crops were corn and sunflower, these being the crops principals of Prahova County. [6] In Buzau County, southeastern Romania, almost the entire **corn** production was affected by drought, even on irrigated plots, and the lands

cultivated with **wheat** were affected to a considerable extent. The areas of Balta Alba, Boldu, Valcelele, Ghergheasa and several others were completely affected, with no corn successfully produced. As for sunflower, the yields were on average more than 50 % lower. [7] In general, farmers recorded also poor production of **cabbage** due to drought, as most of the crop was compromised. [8] The **sugar beet** crop was also among the affected crops due to drought. The heat wave and the lack of rain even led to the halving of production. [9] Ostrovit wine and table **grape** producing company, located in southeaster Romania reported that due to hot and dry summer, followed by heavy rains, their production was reduced by approximately 20-30% in comparison to the last year, although the quality was not expected to be affected. [10]
In the view of extreme weather conditions affecting agricultural production in the past year, the Romanian government adopted **emergency ordinances** as a solution to support agricultural producers, which evolves around financial compensation for production losses and the legal suspension of the repayment of current and outstanding debts. According to their estimates, more than 2.5 million ha of agricultural land was affected by drought, and the eligibility for compensations applies to more than 230,000 farmers whose crops of **wheat, barley, rapeseed, corn, peas, sunflowers, soybeans, vines, fruit trees** were affected by drought from September 2023 to August 2024. [11, 12, 13]

Serious problems in the Carpathian Delta, a **natural area** in Brasov, central Romania, protected for its fish ponds and reed beds where rare bird species nest. Three lakes became expanses of dry land with deep cracks from which dry clam shells emerge. The little life left here huddled in the mud holes, on which dead fish floated. [14] According to the Inspectorate for Emergency Situation in Bistrita-Nasaud County, northern Romania, there were more than 80 **wildfires** since the beginning of the year, which affected a total of more than 400 hectares of land. The most extensive fires occurred in September, fuelled by drought and wind, over 300 hectares of agricultural land and forest were affected. [15]

Hot and dry weather conditions caused **hydrological drought** across Romania. According to the National Administration "Romanian Waters", two sections of rivers from the Arges-Vedea hydrographic basin, southern Romania and one from the Prut-Barlad hydrographic basin, eastern Romania remained dry as of mid-September, while another 20 sections out of the 120 monitored had flows below the minimum required. Due to **water shortages**, the water supply restrictions were maintained in 556 localities, and the filling coefficient in the 40 reservoirs was 70 %, 10 % less than two months ago. [16] Hydrological situation was alarming across the entire country. Four rivers have dried up, and 32 were in early September in danger of disappearing as well, after the longest drought of the last century. A 20-kilometers stretch of **Jiu River**, southwestern Romania dried up completely, revealing its riverbed of an otherwise wide water course. Except for some puddles, there was no water left in riverbed of one of its tributaries, the 14-kilometer **Sohodol River**. According to the locals, the river has, to their memory, never dried up. Tens of thousands of people from hundreds of localities were under strict **water regime**, supplied with water for only a few hours a day. Severe hydrological drought in surface waters greatly affected **aquatic ecosystems**. Aquatic life including fauna and flora disappeared completely over the dried up stretches of the rivers. According to the Fishermen Association, such stress affects the life of fish in the very long term, as it may take decades for fish populations to recover. Severe drought also destroyed the **natural parks and protected areas**, such as the Neajlovu Delta, and the Comana Natural Park, home to dozens of protected species of birds and plants, where dried up water left visible the black mud, cracked by dryness [17]

[1] https://cronicaromana.net/2024/09/06/seceta-severa-ii-ingrijoreaza-pe-fermieri-preturile-alimentelor-de-baza-crestere-alarmanta/
[2] https://www.realitatea.net/stiri/actual/toamna-aduce-scumpiri-la-mai-multe-produse-de-sezon-seceta-extrema-a-facut-ravagii-recoltele-sunt-slabe_66f94c1a0066e776f66360a3
[3] https://www.realitatea.net/stiri/actual/painea-se-scumpeste-iar-seceta-severa-a-afectat-grav-agricultura_66f415205606404ade7fa71e
[4] https://www.agerpres.ro/mediu/2024/09/23/olt-peste-119-000-hectare-de-culturi-agricole-afectate-de-seceta--1359292
[5] https://www.agerpres.ro/social/2024/10/11/arad-fermierii-au-declarat-72-000-de-hectare-de-culturi-calamitate-autoritatile-au-constatat-40-000--1369323
[6] https://www.agerpres.ro/social/2024/09/16/prahova-peste-44-000-de-hectare-de-culturi-de-primavara-declarate-ca-fiind-afectate-de-seceta--1355169
[7] https://www.agerpres.ro/social/2024/09/03/buzau-seceta-a-calamitat-in-intregime-culturile-de-porumb-si-lasa-agricultorii-cu-datorii-la-banci-si-furnizori--1349097
[8] https://www.gandul.ro/financiar/productia-de-varza-romaneasca-mai-slaba-anul-acesta-leguma-se-vinde-si-la-6-lei-kilogramul-in-magazine-20297685
[9] https://www.realitatea.net/stiri/mediu/cultura-de-sfecla-de-zahar-grav-afectata-marturiile-fermierilor_670cc6a10b34fc461005c638
[10] https://www.bursa.ro/domeniile-ostrov-anunta-finalizarea-campaniei-de-recoltare-a-strugurilor-de-masa-69835353
[11] https://www.bursa.ro/guvern-230000-de-producatori-agricoli-vor-primi-compensatii-financiare-de-1000-lei-per-hectar-calamitat-03356355
[12] https://www.agerpres.ro/politica/2024/10/02/peste-230-000-de-fermieri-afectati-de-seceta-sprijiniti-pentru-compensarea-pierderilor--1364128
[13] https://tvrinfo.ro/seceta-a-distrus-25-milioane-de-hectare-de-teren-agricol-efectele-se-vor-vedea-la-raft-marfa-putina-si-mai-scumpa/
[14] https://stirileprotv.ro/stiri/actualitate/seceta-a-lasat-zdelta-din-carpati-fara-apa-trei-lacuri-din-zona-protejata-au-secat-si-pun-in-pericol-specii-rare-de-pasari.html
[15] https://www.agerpres.ro/social/2024/10/12/salaj-circa-500-de-participanti-din-tara-si-strainatate-la-alergarea-montana-semimaraton-porolissum--1369758
[16] https://www.agerpres.ro/mediu/2024/09/13/gradul-de-umplere-in-lacurile-de-acumulare-a-scazut-la-70-6-restrictii-de-furnizare-a-apei-in-556-de-localitati-anar--1354326
[17] https://www.gandul.ro/actualitate/cea-mai-lunga-perioada-de-seceta-din-ultimii-100-de-ani-schimba-harta-romaniei-in-unele-zone-au-secat-si-rauri-lungi-de-14-km-20296777

BULGARIA

Summer 2024 was in Bulgaria the hottest and one of the driest since the beginning of the measurements. [1] **Corn and sunflower** harvest appeared to be worst in the last ten years. The heat and high temperatures in recent months have taken their toll on cereals, with losses reaching 30 %. Under normal conditions, the corn harvest reaches around 700 kg/ha, but in Rusensko, northern Bulgaria this indicator barely reaches between 450-500 kg/ha. However, conditions in some areas were more critical as yields fell to below 100 kg/ha. Sunflower harvest began almost a month earlier, and yield was mostly halved. The quality of the produce was also low, mainly the oil content. Greatly affected was also **rice** production due to drought causing poor hydrological conditions. [2, 3, 4] Prolonged drought during summer months reduced **bee pastures**. Beekeepers observed bees returned to the hive without pollen, and the combs, which in early September would normally be full, were at that time mostly empty. [5] According to the chairman of the National Chamber of Vine and Wine, insufficient rainfall and high temperatures adversely affected the **grapes**, reducing their quality and quantity. The harvest started earlier than expected this year due to dry and hot summer, and yields were lower by 30–40 % compared to the previous year. [6]

In early September, Municipality of Straldzha in Yambol region, eastern Bulgaria extended the **partial state of emergency** due to lack of **drinking water supply**, which has been in place since mid-July, for another month due to drought. According to some of Palauzovo residents, not a single drop came from the tap. Residents from the higher parts of Djinot reported water supply was partial, only in the evening hours. In addition to households, lack of drinking water supply affected also **livestock breeders**. [7]

In mid-September, Bulgaria requested the **activation of funds from the agricultural reserve of the European Union** due to damage caused by drought. In July and August, the country also suffered severely from uncontrollable fires exacerbated by high temperatures and prolonged drought. [8]

[1] https://www.bta.bg/bg/news/balkans/740319-lyato-2024-g-na-balkanite-temperaturni-rekordi-susha-gorski-pozhari-i-probl
[2] https://www.focus-news.net/novini/regioni/Tezhko-e-polozhenieto-s-rekoltata-na-carevica-i-slunchogled-v-Silistra-2249487
[3] https://econ.bg/2024-г-е-с-най-лошата-реколта-на-царевица-и-слънчоглед-от-10-години_l.a_i.808614.html
[4]https://econ.bg/Факти/Добивите-от-слънчоглед-наполовина-от-миналогодишните-цените-на-суровината-скачат_l.a_i.808659_at.18.html
[5] https://www.focus-news.net/novini/Bylgaria/Sushata-udari-i-pchelarite-iskat-speshna-durzhavna-pomosht-2249658
[6] https://www.focus-news.net/novini/Bylgaria/Mnogo-losha-novina-za-lyubitelite-na-vinoto-2251206
[7] https://www.bta.bg/bg/news/bulgaria/737785-mesetsi-nared-zhiteli-na-straldzhansko-sa-izpraveni-pred-tezhki-izpitaniya-zarad
[8] https://www.bta.bg/bg/news/bulgaria/oficial-messages/739659-mzh-balgariya-poiska-aktivirane-na-sredstva-ot-zemedelskiya-rezerv-na-es-zaradi

Methodology

DMCSEE Drought monitoring bulletin is based on numerical weather prediction (NWP) model simulations over SE Europe, SPI index calculations, remote sensing product and public media drought impact reports. Precipitation data is provided by Global Precipitation Climatology Centre (GPCC; https://www.dwd.de/EN/ourservices/gpcc/gpcc.html) shown against the average of the 1961–1990 time period. NWP simulations are performed with Non-hydrostatical Mesoscale Model at ~7 km spatial resolution (NMM; http://www.dtcenter.org/wrf-nmm/users/). Historical model climatology in terms of air temperature and surface water balance is computed with NMM on the base of 1 January 1991 to 31 December 2020 time period, using European Centre for Medium Range Weather Forecast (ECMWF) ERA5 dataset (http://www.ecmwf.int/en/forecasts/datasets/reanalyses-datasets/era5) as input for simulations. Long-term averages (1991–2020), used for comparison of current weather conditions, are obtained from simulated dataset. Comparison of current values against long-term average or in percentile classes (the two extreme classes have a 5-percent range, and each of the middle three classes has a 30-percent range) provides a signal on potentially ongoing drought. Remote-sensing product in the bulletin is based on the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) Land SAF MSG Daily Fraction of Vegetation Cover product (https://landsaf.ipma.pt/en/products/vegetation/fvc/), presented for the checked and confirmed locations and using long-term averages from 2004 to the last full year (currently to 2023). Information on drought impacts is obtained from freely available online reports of national authorities and media newspapers.