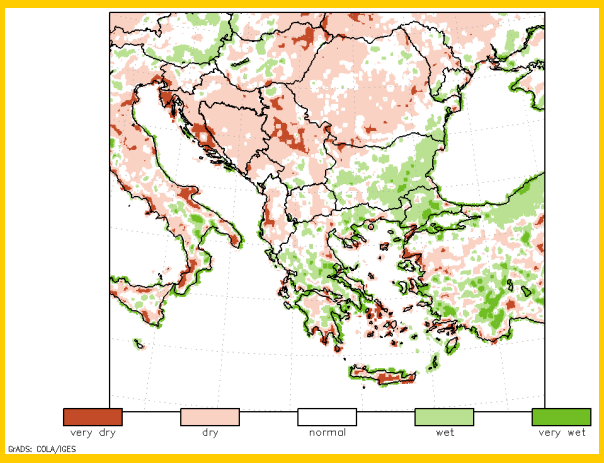
DROUGHT MONITORING BULLETIN

June 2022

HOT SPOT

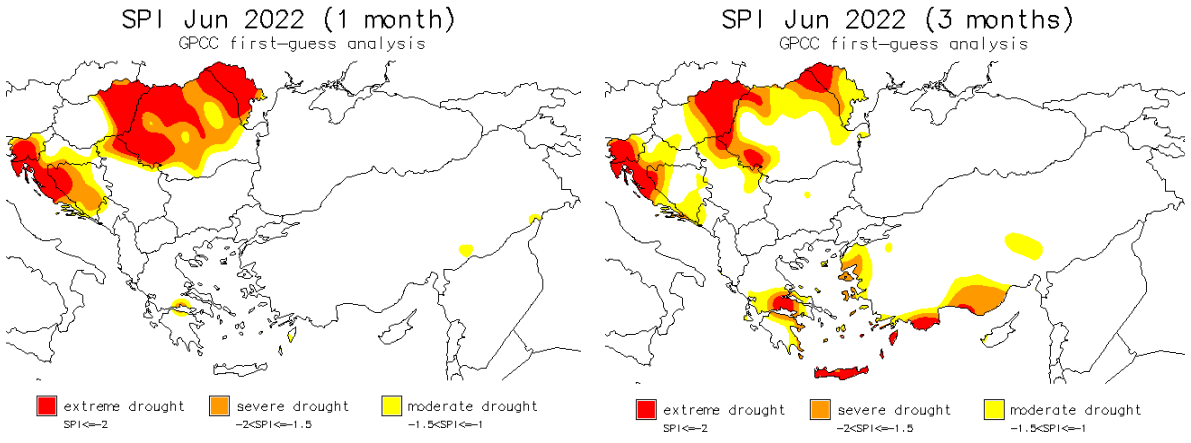


In first half of the vegetation season, from April to June 2022, northern half of Balkan Peninsula recorded considerable deficit in surface water balance. Figure on the left shows **accumulated surface water balance from 1 April to 29 June 2022 in percentile classes** on the base of 1991-2020 period. Especially in a belt from Slovenia over Bosnia and Herzegovina and Serbia to Moldova, as well as northeastern Hungary, past three months accumulated a water balance deficit of 120-180 mm in the topsoil level, in northwestern Croatia up to 210 mm.

STANDARDIZED PRECIPITATION INDEX

Drought situation with regard to the 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 **June 2022** 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.



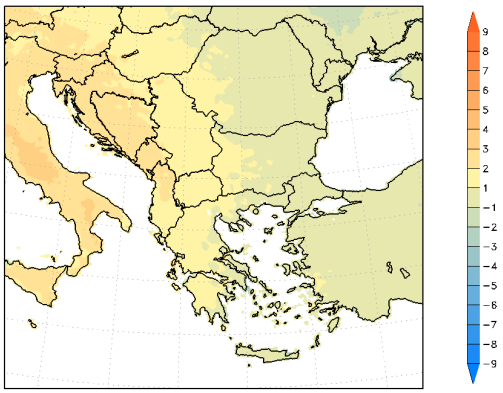
Much of the northern half of Balkan Peninsula, especially Slovenia, Croatia and Bosnia and Herzegovina in the north-west and Moldova, Romania, northeastern Serbia and eastern half of Hungary in north and north-east, received noticeably less rain than normally in June. According to the SPI, lack of rain mostly classified below -1.5, in many parts below -2, which indicates extreme drought conditions this June.

A 3-month overview of precipitation conditions, as shown by SPI3, shows the accumulated precipitation amount over the past three months were extremely low across northern areas of the Balkan Peninsula and the central and southern Aegean Sea area, indicating severely to extremely dry conditions. Across the northern part of the region, including Slovenia, Croatia, eastern Hungary, Romania, Moldova and parts of Serbia and Bosnia and Herzegovina, SPI3 stood low mostly on the account of moderate to severe drought in May but mostly extremely dry conditions in June, while the Aegean Sea area received considerably low precipitation level in April and May.

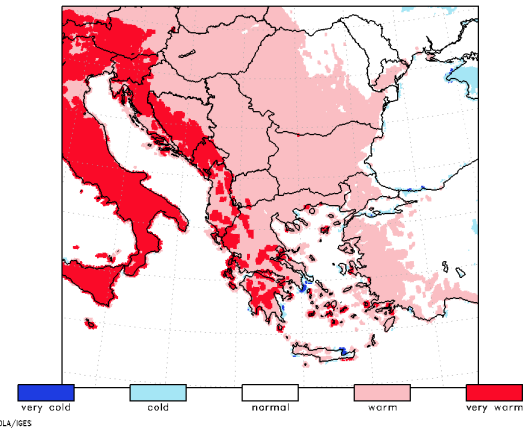
AIR TEMPERATURE AND SURFACE WATER BALANCE

*Figures in this section present anomalies of the **average air temperature** and **accumulated surface water balance** as well as their classified values in percentile classes for a 60-day period **from 1 May to 29 June 2022**.*

AVERAGE AIR TEMPERATURE ANOMALY (°C)
1 MAY – 29 JUNE 2022



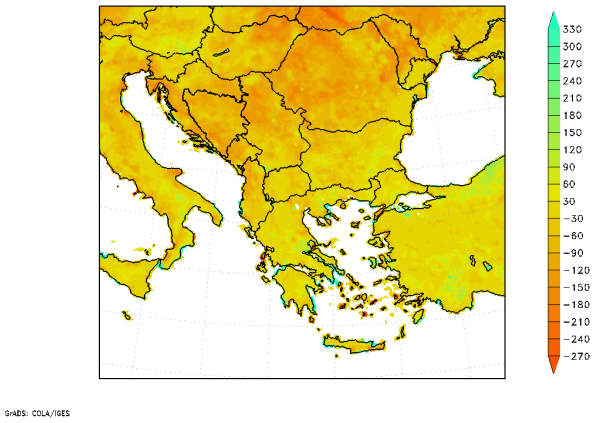
AVERAGE AIR TEMPERATURE PERCENTILE CLASSES
1 MAY – 29 JUNE 2022



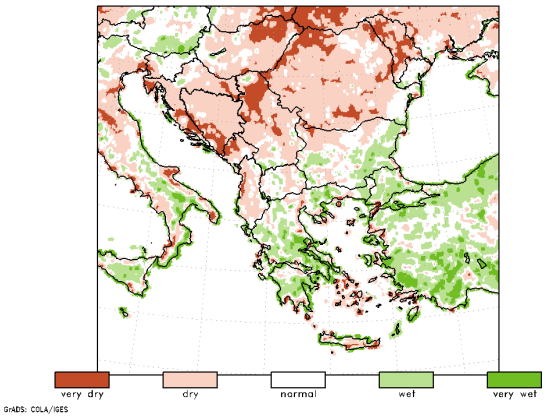
Early days of June were much warmer than normal across the entire region. Anomalies from the average were at least 2 °C above the long-term average, noted in eastern Hungary, Moldova and northwestern Turkey, but over most of the region they ranged 3-4°C above the long-term average, in a belt from southern Bosnia and Herzegovina to western North Macedonia and western Greece mean air temperature was up to 5 °C higher than normal. Mid-June days brought some air temperature relief to the region, above-average air temperature prevailed only over Slovenia and coastal Croatia where mean value stood up to 2 °C higher than normal while the area from Greece to southern Serbia and western Bulgaria as well as over Moldova and eastern Romania experienced colder than normal air temperatures for this time of year as mean values were up to 2 °C below the mid-June average, locally in central Greece even up to 3 °C lower. At the end of June, below-average air temperature dropped further below the late-June average with mean air temperature now between 2 and 4 °C lower than normal. On the other hand, warm air temperature rose well above the average again over western half of Balkan

Peninsula, with mean air temperature again mostly 3-4 °C higher than normal for this time of year in the area western of and including the belt from eastern Hungary to southern Greece, in central Croatia and Bosnia and Herzegovina up to 5 °C higher than long-term average.
A 60-day mean air temperature reveals that the May-June period was on average up to 3 °C warmer than normal in countries along the Adriatic Sea, from Slovenia to northern Albania, classifying this time period among the hottest 5 % of local records. In Hungary, Serbia, North Macedonia and Greece, the May-June period was also warmer than normal, up to 2 °C compared to the long-term, while the 60-day mean air temperature shows no great deviations from the long-term over the rest of the region although intermediate fluctuations of warmer-than-normal and colder-than-normal periods did exist.

ACCUMULATED WATER BALANCE ANOMALY (mm)
1 MAY – 29 JUNE 2022



ACCUMULATED WATER BALANCE PERCENTILE CLASSES
1 MAY – 29 JUNE 2022



On the account of dry to very dry May across the region, followed by wet or locally very wet June in Turkey and areas southern of the southern Montenegro-southern Serbia-northern Bulgaria, this part of the region accounted for average or slightly above-average surface water balance over the 60-day period covering May and June. Localised areas with noticeable surplus include central-eastern Greece and southwestern Turkey with 60-day surplus of up to 120 mm where also May brought considerable amount of rain, as well as northern Turkey where very wet conditions were recorded in June, resulting in 60-dy surplus of up to 150 mm. In northern half of Balkan Peninsula, May as well as June were dry to very dry, both accumulating deficit of surface water balance. The highest 60-day deficit from the average, of up to 180 mm, was recorded in northeastern Hungary, northern and western Romania and Moldova, followed by deficit of up to 150 mm over northern half of Serbia and western Slovenia. Accumulated deficit of surface water balance was high also across the rest of the countries along the Adriatic Sea and central Romania, where topsoil level recorded water balance deficit of up to 120 mm, and in North Macedonia and Bulgaria the 60-day accumulations show deficit of up to 90 mm.

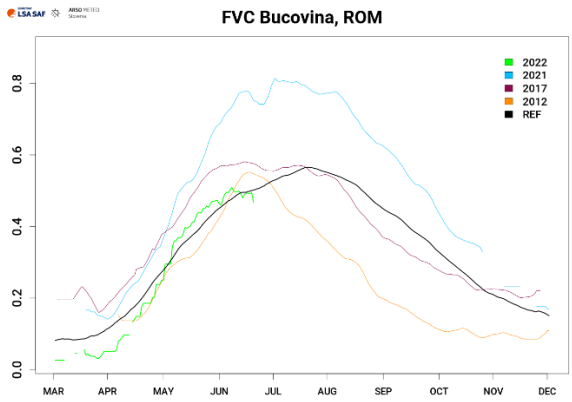
REMOTE SENSING - FRACTION OF VEGETATION COVER

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 lower at the beginning of the growth season, the highest at the full vegetation development, then FVC slowly drops with vegetation senescence. Line shape depends on the sort of vegetation at the given location.

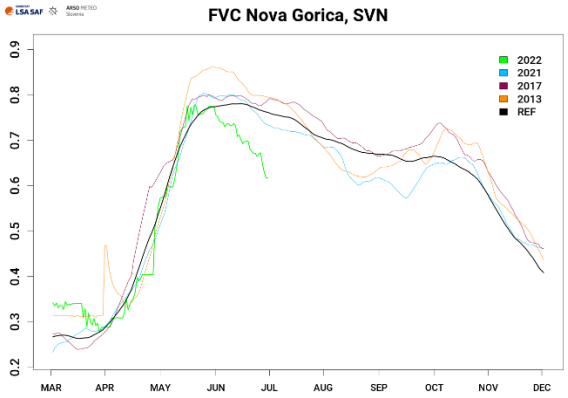
Graphs below present the **vegetation situation** as recorded **on 29 June 2022** at some locations across Southeastern Europe. FVC values for year 2022 are presented as a green line. Graphs also include reference line (2004–2021) in black, and lines in light blue (year 2021), magenta (year 2017) and orange (year 2012, or 2013 for Slovenia) for comparison. Possible missing values or their sharp decline could be a result of a prolonged cloudy weather, extreme weather events, snow blanket or changes to product by product provider.

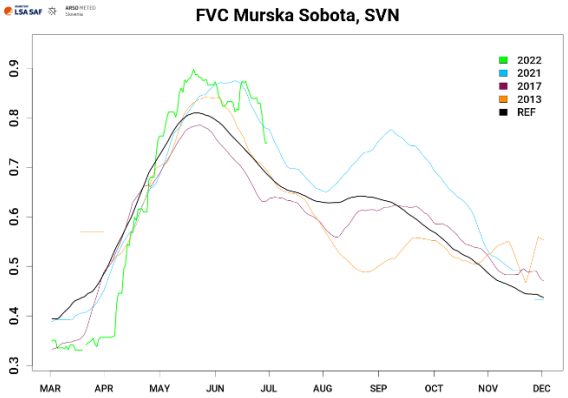
ROMANIA



In Bucovina, northern Romania, vegetation season began slightly later than normal and progressed well throughout April and especially May. June weather conditions did not support further growth and above-average vegetation cover, according to the dropping values of FVC with the coming of June. Level of vegetation cover so far appear average, much lower than last year's well above average level, while the much earlier than normal decline in vegetation development appear similar to the one in year 2012.

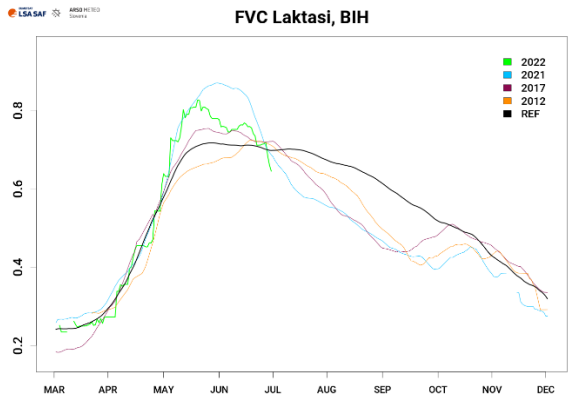
SLOVENIA

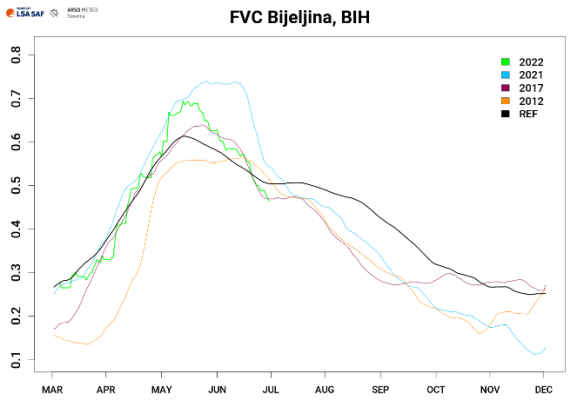


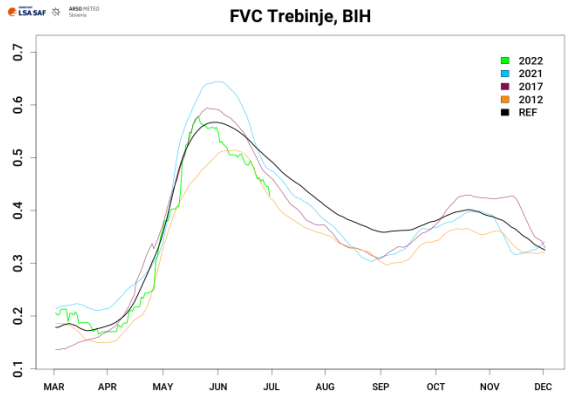


Vegetation development in Nova Gorica, western Slovenia was slightly hindered in late March but with April weather conditions recovered its growth and it followed well its development pattern throughout April and first half of May when it reached its peak value at its usual time. Senescence phase began sharply afterwards, sped up greatly by unfavourable weather conditions, and has since mid-May saw continued decline at the rate much higher than normal. By the end of June, fraction of cover with vegetation is almost 20 % lower than normally for this time of year. On the other hand, in Murska Sobota, northeastern Slovenia, vegetation growth began almost a month later than usual but progressed well once started. By the end of April vegetation cover has already exceeded its reference level and continued well since then. Peak value was exceeded by 10 % and remained similarly above-average throughout the on-going senescence phase.

BOSNIA AND HERZEGOVINA (REPUBLIC OF SRPSKA)



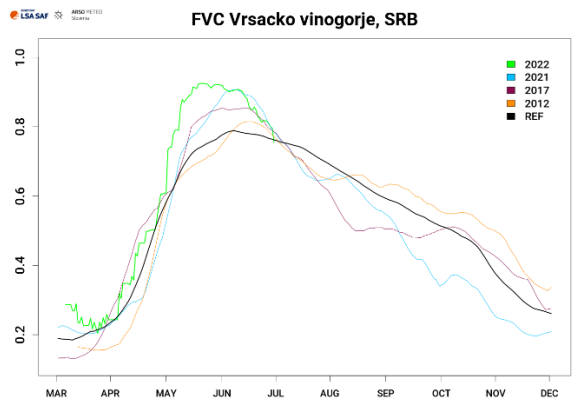


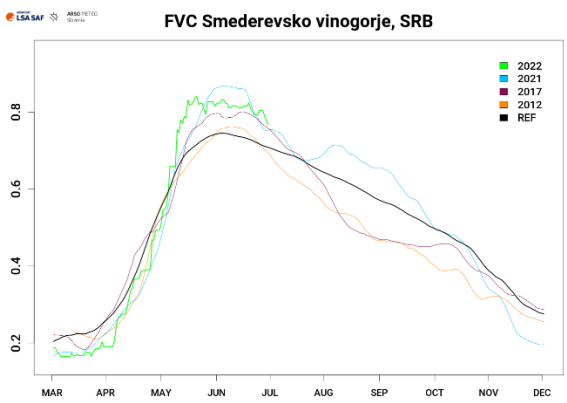


In Laktaši and Bijeljina alongside northern Bosnia and Herzegovina, first two months of vegetation season progressed as usual. Beginning of May would normally see vegetation reach its development peak but weather conditions were favourable for further growth. Peak vegetation cover was in mid-May exceeded for approximately 10 %, similarly as the year before, but late May and June saw rapid decline in values of FVC, at the rate higher than normal. At the end of June, FVC values were already below-average.

First part of the vegetation season progressed as usual also in Trebinje in southern part of the country, although there were no as favourable weather conditions for growth in May as they were in the northern locations. As soon as peak value was reached in mid-May, faction of vegetation cover rapidly declined and continued its early senescence throughout the rest of May and June. At the end of June, FVC values stood approximately 10 % lower than normal.

SERBIA

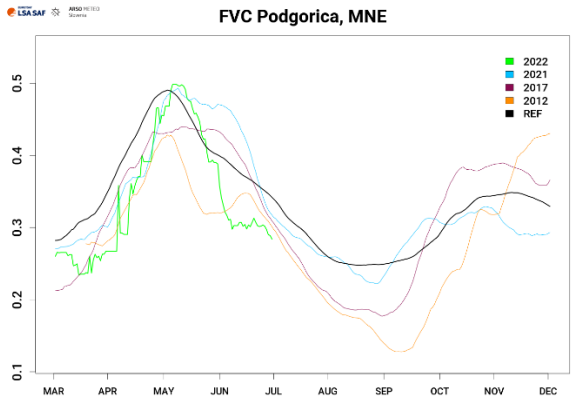




After an initial set-back to vegetation development early in the season in Vrsacko vinogorje, northeastern Serbia, it progressed well throughout April and May and by the mid-May well exceeded the average peak values by up to 15 %. Throughout the rest of May and June, level of vegetation cover declined at the higher rate than normally although FVC remained above-

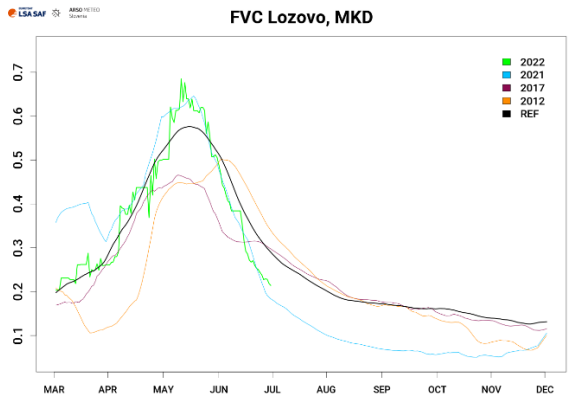
average until the end of June when the drop of FVC values met the average. In Smederevsko vinogorje, central Serbia, vegetation season started in early April, slightly later than normal but then similarly as in Vrsacko vinogorje followed well its reference level of cover and exceeded the peak value in early May by approximately 10 %. The decline of values that followed was in Smederevsko vinogorje less rapid than at the other location, by the end of June it dropped for less than 5 % since its peak value in mid-May, standing above-average at the end of June.

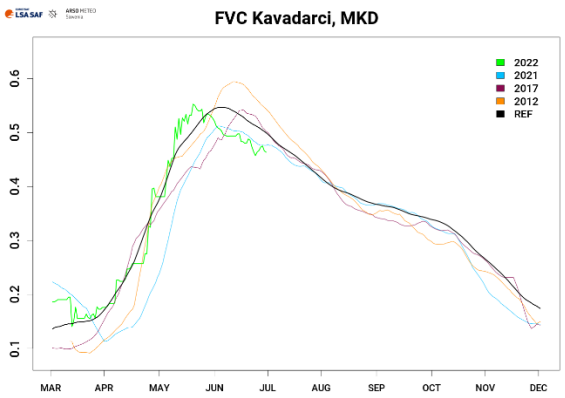
MONTENEGRO



This year, vegetation development in Podgorica, southern Montenegro, began in late March which is approximately 3-4 weeks later than normal. It progressed well throughout April, reaching its average peak value in early May only slightly later than normal. Its further development through the senescence phase progressed at the rate much higher than normal throughout May, especially in its second half and throughout June when level of vegetation cover dropped rapidly below the long-term average.

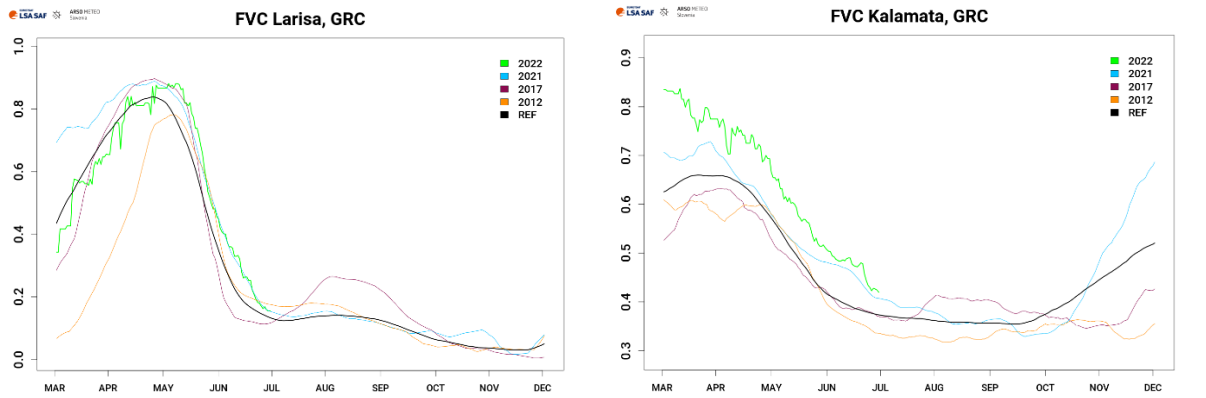
NORTH MACEDONIA





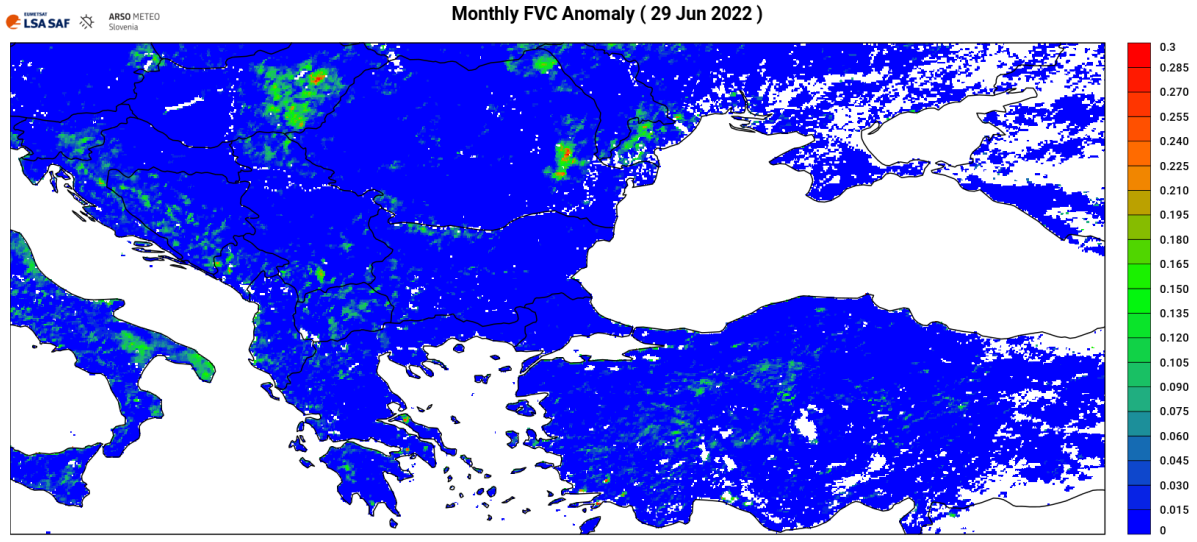
Vegetation in Lozovo, central part of North Macedonia appeared to have an average first half of vegetation season. It began well in March and continued as normal through to May and even exceeding its average peak value by approximately 10 % in mid-May. Weather that followed did not prove favourable, as vegetation senescence throughout the rest of the month and June occurred at the much higher rate than normal. FVC values dropped below the average by the end of May and continued their decline throughout June, standing approximately 10 % under the average. Similar development pattern can be observed for Kavadarci in the south of the country, as vegetation development in first half of vegetation season followed well its reference growth from March to mid-May, while unfavourable weather conditions from mid-May onward hindered its progress and resulted in early vegetation senescence and under-average vegetation cover from mid-May to June.

GREECE



Vegetation at the two locations in Greece do not show any noticeable negative anomalies from their usual pattern of development. In Larisa, central Greece, vegetation development was only slightly behind its regular development but otherwise followed well its usual rate and level of development from March to May. Its peak value was reached only about a week later than normal, and even afterwards the senescence phase continued at its usual rate. At the end of June, FVC values were near-average. Weather conditions in early spring appeared favourable for vegetation growth in Kalamata, southern Greece as FVC values were greatly above-average in a period prior to and at the peak of vegetation season, exceeding it by 10-15 %. From mid-April onward, senescence phase also progressed at its usual rate although due to higher level of vegetation cover at its peak value, also FVC values remained up to 10 % higher throughout its senescence phase in May and June.

Figure below shows negative anomaly of **accumulated 30-day FVC values** as recorded **on 29 June 2022** in comparison to the past 18 years (2004-2021), and is used experimentally.



June accumulations of negative anomalies in FVC shows the level of vegetation cover was up to 25 % lower than normal for this time of year over most of eastern half of Hungary, in far northern Romania and along its south-west. Accumulated anomalies of up to 15 % were present also all along the Dinaric Alps, Albania, North Macedonia and central-western Turkey.

DROUGHT IMPACT REPORTS

HUNGARY

According to the Huingarian Meteorological Service, soil moisture level was critically low in vast part of eastern half of Hungary at the end of June. The moisture content of soils decreased below the critical 40% in the upper half-meter soil layer, and in the eastern part of the country it did not reach even 30%. In many places, topsoil cracked open for a size of a hand, and with alfalfa yield also severely affected [1, 2, 3].

By the end of the June, drought damage has been reported on almost 230,000 ha of agricultural land in Hungary. Based on the reports of drought damage received so far by the Ministry of Agriculture, 80 % percent concerned autumn-sown grain crops including winter wheat and barley, and were concentrated in the counties central and eastern Hungary, with the most serious and extensive drought damage is in the counties of Bekes, Csongrad-Csanad and Jasz-Nagykun-Szolnok [4, 5, 6, 7]. Due to forced ripening of barley, farmers had to harvest earlier than normal in many places. According to representatives of Csabai Raktarszotvetekezet in southeastern Hungary, yield in such dry conditions of the past months ranged between 3 and 5 t/ha, compared to the last year average of 8-10 t/ha in these areas [8]. The yield of autumn wheat was barely half of last year's, and the many small grains also affected the supply of seeds, according to the Bekes county directorate of the National Chamber of Agrarian Economy. Maize and sunflower also developed very poorly due to the lack of rainfall. The plants were half as big as they usually are at this time, and not only their leaves but also their roots were drying, which in many places is equivalent to extinction [9, 10]. Domestic cherry growers were faced with a poor cherry harvest this year. Although cherry trees were spared the forst and ice in spring, it was due to prolongued drought that up to 20-40 % of the total crop ended up below the salable size. Due to the poor juice extraction, the small cherries could not be used by the slush industry, neither was the brandy industry able to do anything with such a large quantity and the quality of the small cherries [11]. The high average temperature and low relative humidity of the past months dried out the biomass, and with no significant rainfall the risk of fire increased significantly in four counties in central and southern Hungary: Bacs-Kiskun, Bekes, Csongrad-Csanad and Jasz-Nagykun-Szolnok [12]. In late June, fifty hectares of primeval grassland and shrubby areas on the border of Turkeve, central-eastern Hungary burned down due to the drought. The severe drought also caused bushfires in Jasz-Nagykun-Szolnok County [13].

In addition to drought in the topsoil, there were reports of decreasing groundwater level as well, with detected quality and quantity problems [14]. According to the Hungarian Aquaculture and Fisheries Interprofessional Organization, drought was causing severe stress to freshwater ecosystems, especially fish ponds were struggling with a serious water shortage. Due to the rainless winters of the last two years, the ground water also receded deeply, and because of this - with the exception of flash floods - all moisture is immediately absorbed by the "hot and thirsty" soil [15, 16]. Fewer Hungarian fish may reach the market, as due to the drought many lake farms were forced to reduce production. The lack of water caused a more serious problem in the sector this year than ever before: it affected almost a quarter of all domestic lake farms, and with several lakes completely dried up. According to the director of the Hungarian Aquaculture and Fisheries Association, Transdanubia did not receive adequate winter precipitation, so the producers already started the year with water levels of the lakes

lower than normal. It was followed by dry spring and early summer of additional lack of rain, meaning a significant decrease in production is expected in the affected farms this year and an inevitable increase in the price of fish [17]. The prolonged drought and the warm summer weather led to water shortages in some areas of Hungary. For this reason, ten settlements in Pest County, central Hungary and the water supplier DMRV asked consumers to reduce consumption. In addition, the municipalities of some cities ordered watering bans [18].

[1] https://www.agroinform.hu/szantofold/ez-a-gazda-most-keszul-kitarcsazni-a-napraforgot-gyozott-az-aszaly-57312-001?utm_source=hirkereso&utm_medium=cpc&utm_campaign=HIRpromo&utm_content=57312
[2] https://www.agroinform.hu/idojaras_hirek/idojaras-agrometeorologia-57409-001?utm_source=hirkereso&utm_medium=cpc&utm_campaign=HIRpromo&utm_content=57409
[3] https://berek.hu/2022/06/19/brutalis-aszaly-katasztrofalis-allapotban-a-foldek/
[4] https://agroforum.hu/agrarhirek/agrarkozelet/eddig-csaknem-230-ezer-hektar-mezogazdasagi-teruletre-jelentettek-aszalykart/
[5] https://hirtv.hu/hirtv_gazdasagi_hirei/nagy-istvan-katasztrofalis-termeskieses-varhato-2548368?utm_source=feed&utm_medium=rss
[6] https://168.hu/penz/rohamosan-sivatagosodik-el-az-alfold-238938
[7] https://nepszava.hu/3161892_aszaly-elelmiszer-magyarorszag-export
[8] https://www.agroinform.hu/szantofold/arpaaratas-bekes-megye-betakaritas-57137-001?utm_source=hirkereso&utm_medium=cpc&utm_campaign=HIRpromo&utm_content=57137
[9] https://piacesprofit.hu/gazdasag/nagyon-megviselte-az-aszaly-a-foldeket/
[10] https://index.hu/gazdasag/2022/06/30/aszaly-aratas-buza-kukorica-napraforgo/
[11] https://magyarnemzet.hu/gazdasag/2022/06/keseruen-kezdodik-a-meggyszezon?utm_source=hirkereso&utm_medium=referral&utm_campaign=hiraggregator
[12] https://berek.hu/2022/06/22/itt-a-tuzgyujtasi-tilalom/
[13] https://www.hellovidek.hu/gazdasag/2022/06/24/sulyos-aszaly-sujtja-az-orszagot-otven-hektaron-kapott-langra-a-bozot-az-alfoldon
[14] https://hirado.hu/belfold/gazdasag/cikk/2022/06/01/egyre-nagyobb-gondot-okoz-a-magyar-gazdaknak-az-aszaly#
[15] https://infostart.hu/gazdasag/2022/06/28/a-halastavak-kiszaradoban-a-halaszok-elverzoben-magyarorszagon
[16] https://haszon.hu/megorizni/piacok/halagazat-halaszat-aszaly
[17] https://magyarnemzet.hu/gazdasag/2022/06/veszesen-fogy-a-viz-a-halastavakbol?utm_source=hirkereso&utm_medium=referral&utm_campaign=hiraggregator
[18] https://www.borsonline.hu/aktualis/2022/06/megkongattak-a-veszharangot-sok-videki-telepules-kuzd-vizhiannyal?utm_source=hirkereso&utm_medium=referral&utm_campaign=hiraggregator

SLOVENIA

Severe drought in the topsoil level, drought in surface waters, and in some places also of groundwater was present in most of the western half of the country and Spodnji Posavje, eastern Slovenia. Agriculture production of winter durum was not greatly affected, while due to prolonged period of scarce precipitation since last December with the exception of April, the impacts of hydrological drought in surface waters and groundwaters were most prominent in the country [1, 2]. Due to very poor snowcover in the last winter, when only half of the usual precipitation fell and in some places even less, the water situation was most worrying in the southwestern part of the country and in the country's Alpine area. Lack of snowmelt and community's dependace on rain and storm, which were scarce since mid-May, meant hydrological drought and threat of water shortages [3].

Due to the persisting dry conditions, the Administration for Civil Protection and Disaster Relief declared a high risk of fire for the natural environment over the Ajdovscina area in late June, which was by the end of the month extended over the entire country [4]. Due to dried out Cerkniscica stream in Cerknica, southwestern Slovenia, the fishing family Cerknica formed a permanent group at the end of June for the rescuing of fish and for collecting dead fish from the intermittent lake Cerknica and its tributaries [5]. The spring of Rizana River which presents a source of water supply for the entire Slovenian Istria, southwestern Slovenia, completely dried up by the end of May already. The Rizana water supply company warned that they were ensuring drinking water supply and biological minimum for the survival of fish and other organisms in the river by pumping the groundwater, and by buying water from the Croatian Istrian water supply company and the Karst water supply company. The director of the Rizana Water supply company reported in late June that the supply of drinking water was at its critical level, as the on-going hydrological drought was putting even groundwater levels at risk of drying up, while at the same time the number of users in summer months increases on the

account of tourism and temporary (weekend) residents. The first water consumption bans have already been introduced in the Vipava valley and the Kanal municipality in the country's west, where in settlements which were connected especially to smaller, surface water sources, were already encountering disruptions in drinking water supply [6, 7, 8, 9].

[1] https://www.rtvslo.si/okolje/izrazita-kmetijska-susa-in-susa-povrsinskih-voda-v-zahodni-polovici-drzave/632082
[2] https://meteo.arso.gov.si/uploads/probase/www/agromet/bulletin/drought/sl/
[3] https://n1info.si/novice/slovenija/sloveniji-zaradi-pomanjkanja-padavin-grozi-velika-susa/
[4] https://www.rtvslo.si/okolje/zaradi-susnih-razmer-za-celotno-drzavo-razglasena-velika-pozarna-ogrozenost/632802
[5] https://rdcerknica.si/novice/novoustanovljena-resevalna-ekipa-za-cerkniscico/
[6] https://www.delo.si/novice/slovenija/izvir-rizane-je-bil-ze-maja-suh/
[7] https://www.rtvslo.si/okolje/izrazita-kmetijska-susa-in-susa-povrsinskih-voda-v-zahodni-polovici-drzave/632082
[8] https://www.delo.si/novice/slovenija/z-vodo-v-istri-se-ni-drame-je-pa-kriticno/
[9] https://www.rtvslo.si/radio-koper/prispevki/novice/zaradi-suse-omejena-poraba-pitne-vode/632758

CROATIA

According to the reports of the Osijek Agricultural Institute, a deficit of wheat has appeared in those areas that import it, and at the same time, the costs of wheat production have increased, especially for mineral fertilizers, so that the price of mercantile wheat on the market was quite high. This production year had very dry periods with a large moisture deficit, which was reflected in the appearance of the crops. Crops were very good despite drought, but some did not have enough spikes per unit of surface area and were in addition shorter, so yield expectations were 10-15% lower than last, record year. The daily air temperature increased, especially in the last decade of June, when it exceeded 35 °C at many stations, so the plants experienced temperature stress. However, the cattle were also exposed to heat stress not only in the dwellings, but also in the pastures. The cattle's appetite was reduced, and the need for water was increasing.

Nature conspired against farmers with a long dry period and high temperatures, especially at coastline. All those without a regulated irrigation system, which present most of them, were in problems. Threatened were olive groves, orchards, vineyards and mandarin plantations, where yellowing of leaves and shrivelling of fruits, which could fall off if the dry soil is not irrigated, are already visible. Unlike the rest of Dalmatia with no water for irrigation, the Neretva valley "lies" on water, however the intrusion of the sea into the Neretva River occurred due to low water level in the river, which was not good for watering agricultural crops. It is known to significantly reduce the yields of cabbage, watermelons and tangerines. The lack of water even in the deeper layers of the soil was best visible along the Adriatic, where the olive fruits were small due to the drought.

Extracted from:
https://meteo.hr/klima.php?section=klima_pracenje&param=spi&el=prspi
https://meteo.hr/klima.php?section=klima_pracenje&param=ocjena
https://meteo.hr/proizvodi.php?section=publikacije&param=publikacije_publikacije_dhmz&el=bilteni (preliminary report; publication is in preparation)
https://meteo.hr/klima.php?section=klima_pracenje&param=spi&el=karte_suse&Week=220331

BOSNIA AND HERZEGOVINA

Dry weather conditions and June heatwave left negative impacts on many agricultural crops. According to the president of the FBiH Farmers' Association, there were no official data yet but it was quite certain that yields would be far lower than planned if such dry weather continues. The president of the Association of Associations of Agricultural Producers of the Republika Srpska explained that reduced application of mineral fertilizers due to spring drought would certainly bring lower yield than expected. The imapcts of dry first half of the year was visible on wheat yields, and it appeared certain also corn yield would be lower than

expected as the crop entered the blooming phase requiring water but weather did not offer much or any at all. Apart from wheat and corn, most damage by on-going drought was visible on grass fields, which will directly affect the livestock sector [1, 2].

[1] https://www.nezavisne.com/ekonomija/agrar/Poljoprivrednici-nisu-optimisti-u-vezi-s-prinosom-psenice/724321
[2] https://www.akta.ba/vijesti/bih/150092/susa-uzima-danak-u-bih-sad-je-vrijeme-da-drzava-reaguje

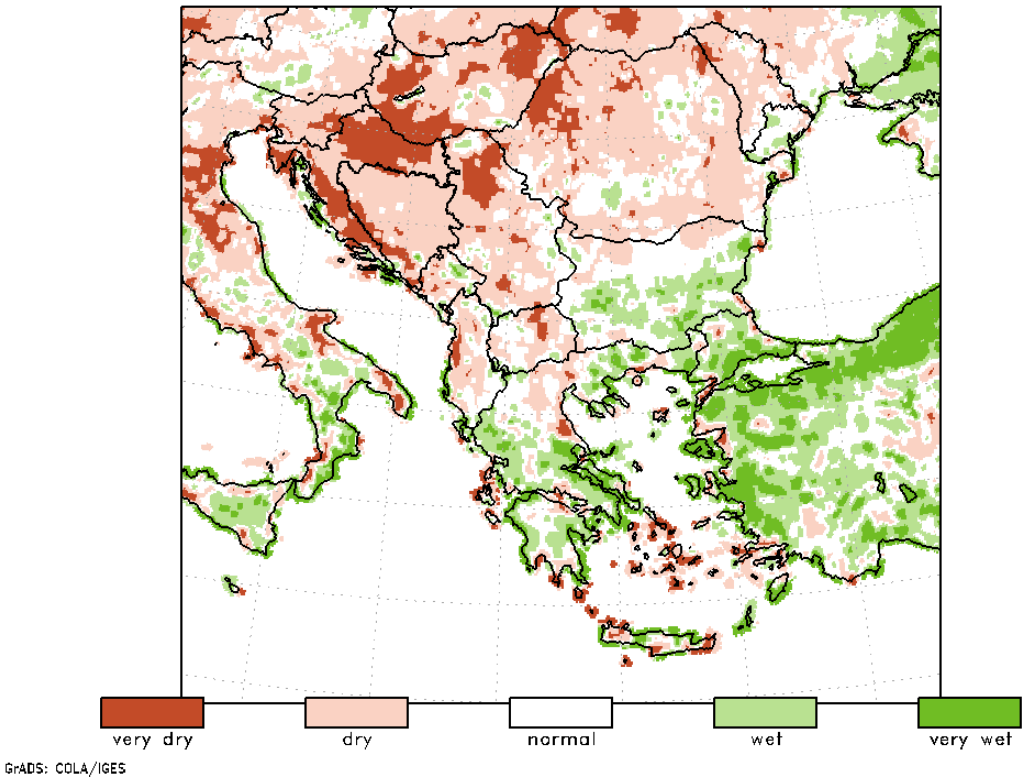
SERBIA

Due to the drought and heat, corn yield could be significantly reduced. In many fields the soil appears cracked and the impacts of lack of rainfall could already be seen on the crops, firstmost on soybeans and corn. Irrigation was increasingly necessary, which increased water consumption during drought [1, 2]. In the view of preventive measures for drought, the City Council of Uzice, western Serbia issued an Order prohibiting use of drinking water for non-priority water use, such as watering yards, gardens, orchards, agricultural crops. The existing water reserves were sufficient for regular supply, but use of drinking water for watering crops could be seriously reduce water reserves, as was the case in the previous period [3].

[1] https://www.rts.rs/page/stories/sr/story/13/ekonomija/4894051/kukuruz-rod-susa.html
[2] https://www.rts.rs/page/stories/sr/story/13/ekonomija/4839885/banat-psenica-susa-prinos.html
[3] https://www.blic.rs/vesti/drustvo/ko-zaliva-bastu-ostaje-suvih-slavina-i-bez-50000-dinara-u-uzicu-nova-pravila/jzpp2m4

OUTLOOK

Figure below presents model simulations of the **60-day accumulated surface water balance anomaly** in historical percentile classes for the time period **from 10 June to 8 August 2022**.



The area exposed to dry to very dry weather conditions will continue to cover a wider northern half of Balkan Peninsula, including Montenegro, Albania and North Macedonia. In the following days, very dry conditions are expected to shift from central and northern Balkan Peninsula to its northwestern quarter, covering mostly Hungary, northern Serbia but also most of Croatia. The severity of unfavourable surface water balance conditions is expected to ease over Moldova and southern Romania, from very dry to dry, and normalize or even become wet over western half of Bulgaria. At the same time, Greece and Turkey are expected to contine experiencing mostly wet surface water balance conditions, over western Turkey even very wet conditions, classified among the wettest 5 % for this time of year.

Methodology

DMCSEE Drought monitoring bulletin is based on numerical weather prediction (NWP) model simulations over SE Europe, SPI index calculations, remote sensing 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 averages 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 DMCSEE model climatology is computed with NMM for the time period between 1 January 1991 and 31 December 2020. European Centre for Medium Range Weather Forecast (ECMWF) ERA5 dataset (http://www.ecmwf.int/en/forecasts/datasets/reanalyses-datasets/era5) is used 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 with long-term averages 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 2021). Information on drought impacts are obtained from only freely available online reports of national authorities and media newspapers.