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Extreme Drought of 2018 in the Czech Republic

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In last 10 years the Czech Republic as well as other parts of Central Europe have been repeatedly affected by hot and dry weather leading to the prolonged episodes of drought (e.g. 2010; 2012; 2015; 2017). The last year, 2018, was another year in a row when drought conditions were severe and brought significant impacts across different economy sectors. Similar as in recent years there were three aspects leading to drought conditions in 2018:

1) warm winter of 2017/2018 with decreased extent, thickness and presence of snow cover,
2) rapid onset of the spring season in April with monthly mean temperatures in April and May from 3.2 to 4.8 °C above the long-term mean and precipitation deficit over 30%,
3) hot and dry summers with heatwaves and extended periods with little or no precipitation.

The year 2018 have been the warmest on the record since 1961 and probably also since 1775 when the beginning of the longest air temperature series in the Czech Republic is dated. Except of February and March, all months of 2018 were warmer than the normal. The total precipitation deficit in 11 months of 2018 reached ca 40% with only January and September being wetter than the normal.

The combination of warmer and drier weather in the first half of 2018 quickly led to the soil moisture deficit that was significant already during the spring season. Extreme drought conditions remained till the end of the year. Drought affected the whole growing season and had serious impact on the crop yields, with financial loss higher than 500 million USD. The occurrence of wildfires grew up to 5 times in 2018. The number of wildfires could be even higher if the weather wasn't rather less windy in 2018. Strong impact was also observed in watercourses and ground water levels, leaving some municipalities in the Czech Republic without water supply. The drought evolution within the year is presented by products of operational drought monitoring system called InterSucho (www.intersucho.cz) where not only soil water content but also condition of vegetation and impacts on crops and yields of major commodities can be studied in daily/weekly steps.