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Drought monitoring and forecasting in 2012 in Serbia

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Abstract: Drought monitoring and forecasting in the Republic Hydrometeorological Service of Serbia (RHMSS) encompass calculations of different drought indices (the most applicable are the Standardized precipitation index (SPI) and Palmer's Z index) and other moisture condition parameters. Calculations of current and forecasted values of indices are based on statistical techniques. Operatively, SPI values are calculated on the basis of precipitation amounts recorded on meteorological stations in previous 30, 60 and 90 days (time step of calculation is one day) and in previous 1,2,3,4,5,6,9,12 and 24 months (time step is one month). Experimental soil moisture measurements and registrations, for 4 stations in Serbia, are carried out from 2009 hourly and at 6 different depths up to 1m. Forecasted SPI values are calculated for ten-day and one month periods on the basis of ECMWF/RHMSS precipitation forecasts. Moisture indices, parameters and other related products regularly occur in the RHMSS bulletins and on the RHMSS internet page, which enables its wide application. During summer 2012 the used drought indices and soil moisture measurements were efficient in showing the development and intensity of drought in the territory of Serbia. By the end of June 2012 drought indices showed the first sign of drought in some part of the country and measurements of soil moisture indicated that moisture in surface layers was in the zone of severe drought. Mid-July indices and measurements of soil moisture indicated extreme drought in great part of the country. As drought continued through August, at the end of the month soil moisture measurements showed that moisture entered the moderate drought zone in the deeper layers as well. The SPI forecast enabled a timely issuing of warnings related to the occurrence of meteorological and agricultural drought in Serbia during summer 2012 for all relevant institutions.