Seasonal dynamics of agro-meteorological drought in Mberengwa and Zvishavane districts between 2017 and 2020, Zimbabwe

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Abstract

Drought severity is increasing in Southern Africa which is affecting rain-fed agriculture, the main source of livelihood in most countries in this region. The study assessed the seasonal spatio-temporal dynamics of agro-meteorological drought between 2017 and 2020 in Mberengwa and Zvishavane districts. An empirical research design supported by quantitative geographical information system techniques for data analysis was adopted in this study. Remote sensing data and precipitation records from the Meteorological Services Department were main data sources in this study. Microsoft excel 2013, SPI generator and ArcMap 10.5 software were used for data analysis in this study. Results showed that both Mberengwa and Zvishavane districts experienced an increasing trend in spatial coverage of drought from 2017 to 2019 before a slight decline in 2020. From 2017, drought severity increased in terms of spatial coverage with this spatial distribution increasing to almost over ¾ of the wards in both Mberengwa and Zvishavane districts between 2018 and 2020. Since 2017, on a ward level basis, both districts have been experiencing late onset and early cessation of the rain season as shown by increasingly dry October, November and March, months which determine the length of crop growing season in these two districts. Results indicated that the month of March was drier in Mberengwa whilst the month of December was drier in Zvishavane, an indication of more mid-season dry spells in Zvishavane and earlier rainfall cessation in Mberengwa. Drought is worsening in both Mberengwa and Zvishavane districts; hence, long-term drought resilience interventions are required to improve drought resilience of communities in these areas. The study recommends the Government of Zimbabwe and other stakeholders of drought resilience building like CARE International, World Vision among others to prioritise launching of resilience building initiatives in most vulnerable areas whilst guided by fine empirical information on spatial distribution of drought.insignificant in their lives and in national identity construction.