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A further contribution to the seasonal variation of weighted mean temperature

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Abstract: The weighted mean temperature T_m is a variable parameter in the Global Navigation Satellite System (GNSS) meteorology and the Aske-Nordius zenith wet delay (ZWD) model. Some parameters about the T_m seasonal variation (e.g. the annual mean value, the annual range, the annual amplitude and semi-annual amplitude, and the long-term trend) were discussed before. In this study, some additional results about the T_m seasonal variation on a global scale were found by using the T_m time series at 309 global radiosonde sites. Periodic signals of the annual and semi-annual variations were detected in these T_m time series by using the Lomb-Scargle periodogram. The annual variation is the main component of the periodic T_m in non-tropical regions, while the annual variation or the semiannual variation can be the main component of the periodic T_m in tropics. The mean annual T_m almost keep constant with the increasing latitude in tropics, while it decreases with the increasing

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