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Geodetic sensing of mass variations due to climatic conditions

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The Earth Surface undergoes continuous deformation due to surface mass variations. These mass variations are primarily caused by the hydrological cycle, snowfall, ice melt and glacial isostatic adjustment (GIA). Modern geodetic sensing techniques like the Global Navigational Satellite System (GNSS) can sense these mass variations with unprecedented accuracy. Therefore, the GNSS positioning time series provides a unique opportunity to study these mass variations and their causes.

In this study, we have used the GNSS time series from the region of Africa and Antarctica to analyse the mass variations. Conditions like draught and ice melting characterise these two regions. Therefore this current study will look at the signals of these two physical conditions. The results obtained are discussed and analysed.