



USGS Definitive and Near-Realtime One-minute Dst index

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We present a low-latitude disturbance index with a one-minute time resolution, the USGS One-Minute Dst. Two versions of the index are produced - definitive and near-realtime - which utilize definitive and preliminary data, respectively, and data from different combinations of observatories. The definitive index uses data from the same 4 stations as the Kyoto Dst, Honolulu, San Juan, Kakioka, and Hermanus, while the near-realtime index uses data from Honolulu, Guam, and San Juan. The method for both uses a combination of time and frequency space analyses to identify and remove stationary periodic solar quiet signals and longer time scale secular variation components from the horizontal intensity magnetic field time series of the individual observatories. After they are isolated, disturbance signals from low-latitude observatories are combined to produce the USGS Dst index. Comparisons of the definitive USGS Dst with the Kyoto Sym-H index, which is also one-minute time resolution but uses data from mid-latitude stations, shows that Sym-H displays more extreme deviations than the USGS Dst during times of geomagnetic disturbance. Comparisons with Kyoto Dst and USGS 1-hour Dst are also made.