

# The acceleration error estimates in LASCO CME measures

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Based on the paper that the error estimates for the height measures grows rather fast in the first few solar radii and becomes reasonably flat above 5 solar radii. We show here how to obtain reliable acceleration error estimates for the measures given in the catalog. We show that for the fast CMEs the uncertainties in the accelerations are quite large when compared with the average variation within a particular velocity subgroup of CMEs, and as such only events with very high acceleration can reliably be considered as accelerated. For most events one can not decide if a particular event has positive or negative acceleration. As a consequence and classification that separates CMEs according to acceleration criteria will find similar distributions for accelerated and decelerated CMEs, but that only reflects the fact that the error in determining the acceleration is quit high. On average we find that slower CMEs tend to have a positive acceleration (about  $1 \text{ m/s}^2$ ) at heights above 5 solar radii, while the 5% faster CMEs show an average negative acceleration (about  $-2.5 \text{ m/s}^2$ ) as they propagate from 5 to 30 solar radii.