Limb CME geometry using LASCO observations

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In this work it is presented a study of the geometrical shape of CMEs derived from
LASCO observations. The relationship between CME radial and expansion speeds
is revisited and extended in order to test its validity using a larger range of CME
speeds, from 200 to 3600 km/s. A high correlation between these two speeds has been
found, indicating that this relation is valid for this range of speeds. Vrad-Vexp ratio
from 3 self-similar expanding CME geometrical models are calculated and compared
with the empirical results from LASCO observations. The general conclusion was that
CMEs with angular sizes bellow 80 degrees are on average best fitted by a self-similar
expanding cone with a spherical front of radius equal to the distance between the solar
surface and the front of the CME, while CMEs with angular sizes above 80 degrees are
on average best fitted by a self-similar expanding structure formed by a cone connected
to the half of a sphere of radius equal to the major radius of the cone. These results
suggest that on average the shape of CMEs changes with increasing angular size. The
results presented in this work will be revisited when stereoscopic observations from
STEREO are available.