Title:	Shrinking equatorial plasma bubbles
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Abstract:	The formation of equatorial plasma bubbles (EPBs) associated with spread F irregularities are fairly common phenomenon in the postsunset equatorial ionosphere. These bubbles grow as a result of eastward polarization electric field resulting in upward E × B drift over the dip equator. As they grow they are also mapped to low latitudes along magnetic field lines. The EPBs are often observed as airglow depletions in the images of OI 630 nm emission. On occasions the growth of the features over the dip equator is observed as poleward extensions of the depletions in all-sky images obtained from low latitudes. Herein, we present interesting observations of decrease in the latitudinal extent of the EPBs corresponding to a reduction in their apex altitudes over the dip equator. Such observations indicate that these bubbles not only grow but also shrink on occasions. These are the first observations of shrinking EPBs. The observations discussed in this work are based on all-sky airglow imaging observations of OI 630.0 nm emission made from Panhala (11.1°N dip latitude). In addition, ionosonde observations made from dip equatorial site Tirunelveli (1.1°N dip latitude) are used to understand the phenomenon better. The analysis indicates that the speed of shrinking occurring in the topside is different from the bottomside vertical drifts. When the EPBs shrink, they might decay before sunrise hours.
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