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# Different Stages of Evolution of Prominence and the Associated CMEs

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## Abstract

We study different stages of the evolution of large quiescent prominence, mainly considering its dynamic and thermal instabilities occurred near the boundary of coronal hole and away from it, based on Ha and EUV images and magnetograms; in order to identify a critical condition (such as a minimum distance between the boundary of coronal hole and prominence, emergence of a new magnetic flux or magnetic reconnection) linked to the instability and general evolution of prominence and formation of associated non-flare Coronal Mass Ejections (CMEs). In addition, we analyze the correlation between each evolutionary stage of prominence and the geoeffectiveness of associated different CMEs. Our observations indicate a peculiar activity of filament associated with the emergence of a new magnetic flux; also suggest an important involvement of nearby coronal hole in the general evolution of prominence (and vice versa), which in turn is correlated to dynamics and geoeffectiveness of associated non-flare CMEs.

**Keywords:** Prominence, coronal hole, coronal mass ejection, magnetic flux, geomagnetic storm

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