

The Swelling and Destabilization of a Coronal Mass Ejection "Bugle" by a Newly Emerging Active Region

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Ideally, to study the relationship between coronal mass ejections (CMEs) and changes taking place on the sun we would like to observe the CME and the solar disk below it at the same time. Usually this can not be done. However, there are special events in which both the CME and the pre-event solar disk are well observed. Hundhausen has defined a class of CMEs (called "bugles") characterized by the development of a coronal bright structure which broadens slowly and appears at higher and higher solar altitudes on successive days. After several days the structure erupts as a CME. These events offer the best chance of observing the CME and the changes on the sun.

We will present and discuss data for a bugle that was particularly well observed. Data from the High Altitude Observatory coronagraph/polarimeter on the Solar Maximum Mission were examined to identify periods when a bugle occurred. Solar data from the Big Bear Solar Observatory (BBSO) were examined for corresponding periods. A bugle event occurred June 9-12, 1985 at the same time as the relevant region of the sun was observed at high temporal and spatial resolution. Before the bugle began to swell closed coronal arcades apparently spanned two active regions. The bugle swelled as a substantial new active region appeared between the pre-existing active regions. Apparently new flux was emerging below the large-scale closed coronal arcades that formed the "bugle". Flux continued to emerge and interact for three days while the bugle swelled. Finally on June 12th the large-scale structure destabilized and a CME was observed. Apparently the swelling of the bugle and its destabilization were caused by the newly emerging flux and its interaction with the pre-existing active regions and coronal structures.

1. **1994** Fall Meeting
2. 000016555
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4. SI 102?
5. (a) N/A
(b) 7519,7509,7524
(c) N/A
6. Oral
7. 50% talk at AAS, Stanford
8. \$50 Check enclosed
9. C
- 10 Schedule paper after that by
Martin **and** Feynman
11. No