

Response to Referee 1

1. Expanded introduction
2. We deleted one of the examples in Fig 5. Then in all cases the plasma was very low and no uplift proceeded them.
3. Added reference for more typical events.
4. Size is the crucial factor.
5. We have Chapin and Kudeki and Oppenheim et al. in list.
6. The radar measures drift velocity.:
7. Deleted confusing sentence.
8. Added.

Response to Referee 2

Paragraph 1: We deleted one of the examples in Fig. 6

Aspect (1): The plasma was very low as we have noted and natural events simply cannot occur. With the 4 examples now shown there is no chance for a natural event and hence they are truly rare.

Paragraph 3: The modest uplift before the event would not have decreased the collision frequency or increased the eastward E field enough to increase the growth rate significantly.

Aspect (2): The more important factor for mapping is the size of the perturbation E field. From the size of the initial region it is clearly large enough to map up to the equatorial F region.

Additional comments:

1. We choose to leave the figure in since not everyone has thought about slit cameras or read Woodman and LaHoz.
2. Fixed
3. The plasma is turbulent from at least 10 km and often much larger and hence does fill the flux tube.
4. The drifts are averaged from 200-400 km. The modest uplift before the event would not have decreased the collision frequency or increased the eastward E field enough to increase the growth rate significantly.
5. Now reduced to 2 more events.
6. This would require a full simulation, which is beyond our scope.
7. Fixed.
8. Fixed.
9. Fixed.
10. Deleted confusing comments.
11. Fixed.
12. Changed to Ey.
13. We have used local values in our calculation so the statement is correct.