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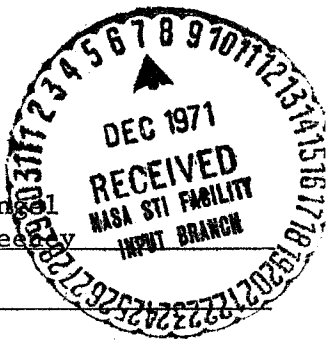

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SUBJECT: (Talk) (Speaker)

(Paper) Letter to JGR: The Asymmetric Ring Current: A Perspective

(Report)

1. It is requested that the subject item be approved for:

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The Asymmetric Ring Current: A Perspective

Robert A. Langel and Ronald E. Sweeney

Dessler (private communication) has pointed out that, due to an oversight, Langel and Sweeney (1971) failed to reference the earlier paper by Cummings (1966). Cummings analysis indicated that a model asymmetric ring current can be devised which is capable of explaining the main features of the low and mid-latitude disturbance fields (Dst and Ds) during magnetic storms.

The existence of asymmetry in low and mid-latitude disturbance during magnetic storms has been known for some time (e.g. Chapman, 1952; Sugiura and Chapman, 1960).

The suggestion of an asymmetric ring current was also made by Akasofu and Chapman (1964). However, their current configuration seems untenable since they proposed ring current closure through the ionosphere in the evening sector and Langel and Sweeney (1971) have shown that the evening sector Ds is not ionospheric.

Cummings attributed the greater disturbance at evening local times to a partial ring current such as the one proposed by Fejer (1961). Cummings analysis is based solely on magnetic field data from the earth's surface.

Since surface data alone is incapable of distinguishing between ionospheric and magnetospheric sources, experimental confirmation of the existence of a partial ring current has been furnished by magnetospheric magnetic field measurements (e.g. Cahill, 1966) and by our results from low altitude

satellite magnetic field measurements (Langel and Cain, 1968; Langel and Sweeney, 1971).

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