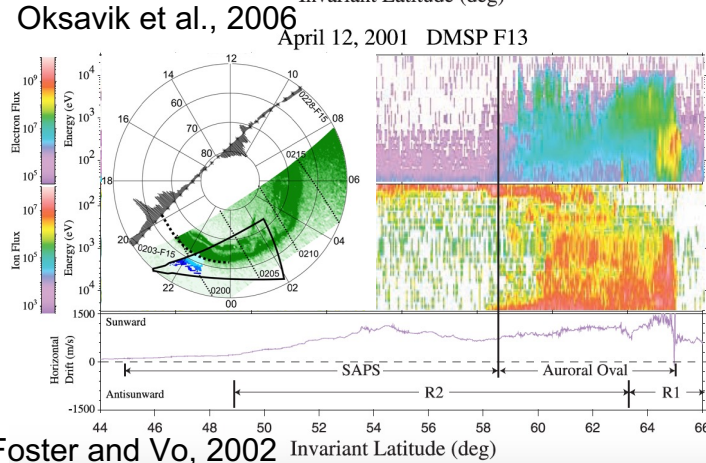
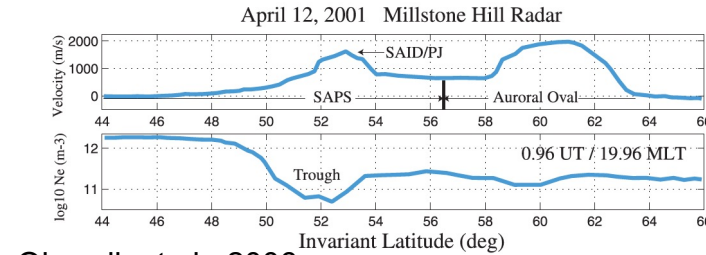
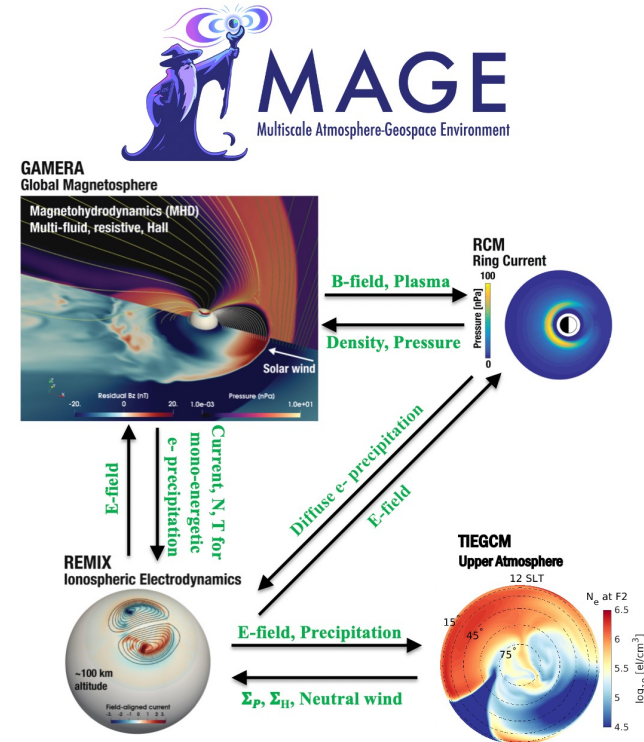


Subauroral polarization streams (SAPS): Intrinsic response of geospace during storm time

- Background:** SAPS are a typical mesoscale structure in the geospace resulting from SW-M-I-T coupling.
- Motivation:** investigate SAPS dynamics with a coupled MIT model to understand the storm time geospace.



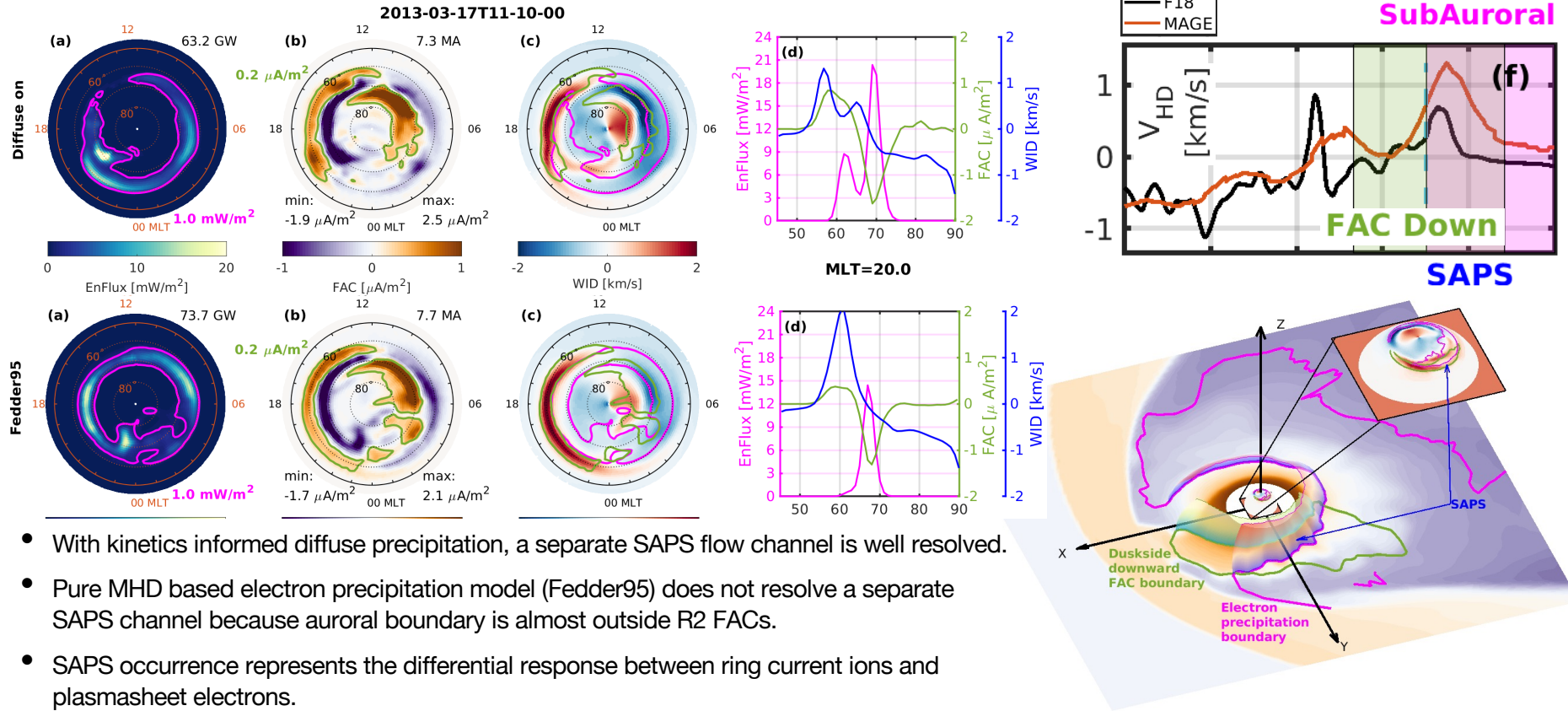
Foster and Vo, 2002



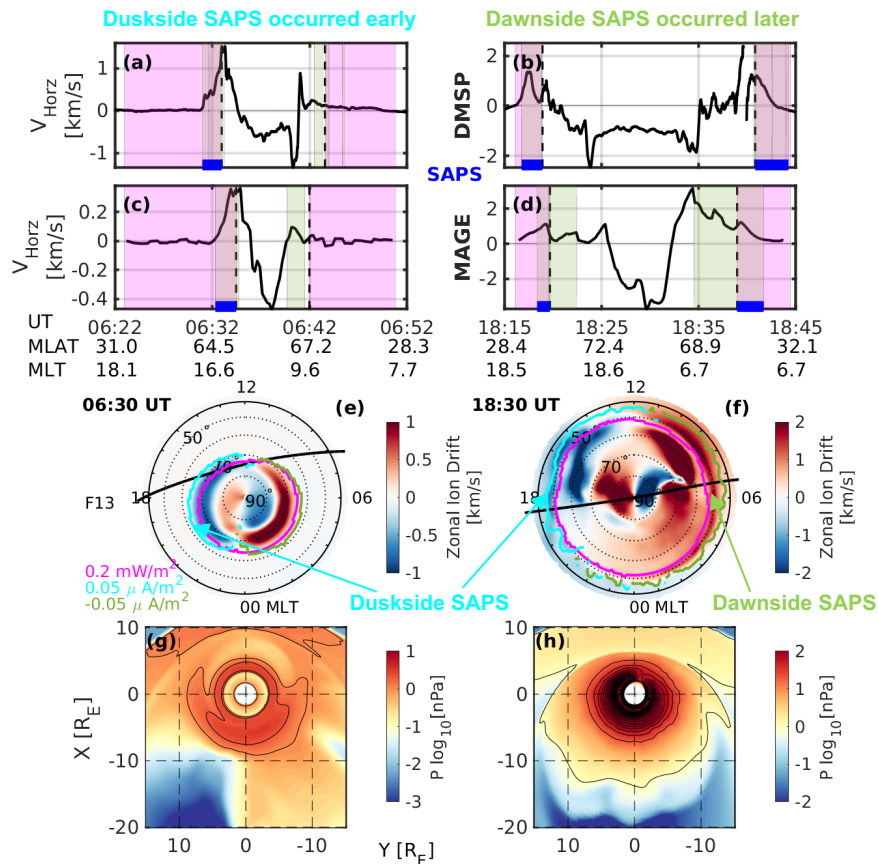
Pham+2021; Lin+2021

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1. NCAR/HAO; 2. NCAR/ASP; 3. JHU/APL; 4. Rice U; 5. VT; 6. Dartmouth; 7. AFRL; 8. BU.

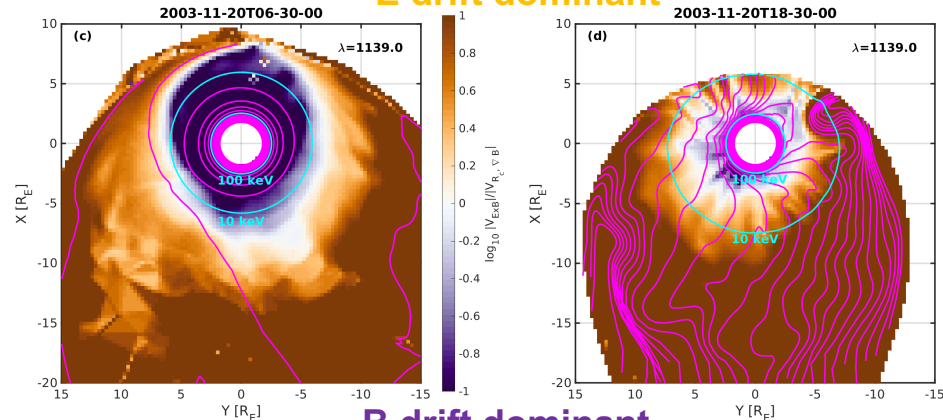
SAPS and diffuse electron precipitation (Lin et al. 2021JA029792)



Dawnside SAPS (Lin et al., 2022 (10.1002/essoar.10510932.1))



E drift dominant



- Eastward subauroral plasma flows were identified in the dawnside during a super storm on 20 Nov 2003 [Horvath and Lovell, 2021; Huang et al., 2021].
- Dawnside SAPS only occur during the main phase and early recovery phase when the convection was strong.
- Ions switch from B drift to E drift dominant, thus can effectively build up at dawn to intensify R2 FAC.
- Dawnside SAPS represent the competition between E and B in ion transport to the inner magnetosphere.