# CRITERIA FOR FINDING ELECTRON DIFFUSION REGIONS IN THE SUB-SOLAR MAGNETOPAUSE

- Existence of a non-zero parallel electric field (to allow reconnection to proceed)
- A perpendicular electric field orders-of-magnitude larger than the typical reconnection electric field.
- A structure whose scale size is $\sim c/\omega_{pe} \sim 2$ km
- Large conversion of electromagnetic energy, $\mathbf{j}\cdot\mathbf{E} >> 0$
- Acceleration of electron beams
- $\mathbf{EXB}/B^2$ flow topology change across the boundary

Incidental facts

- current striated
- occur where B is large, n is low, i.e. in low beta regimes on magnetosphere side
- E2/nkT
- Deltan/n big
- Scale size ~1000 km and 10 sec