

Low latitude magnetic disturbances caused by
field-aligned currents
connected to the polar regions



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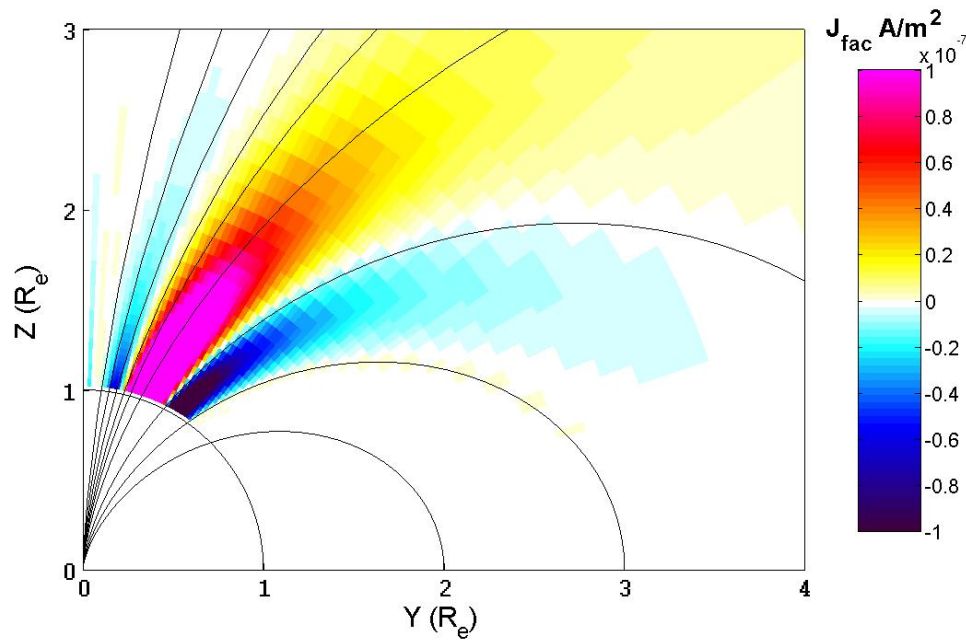


”Unmodeled large-scale external sources are at present the major limitation in internal field modeling...”

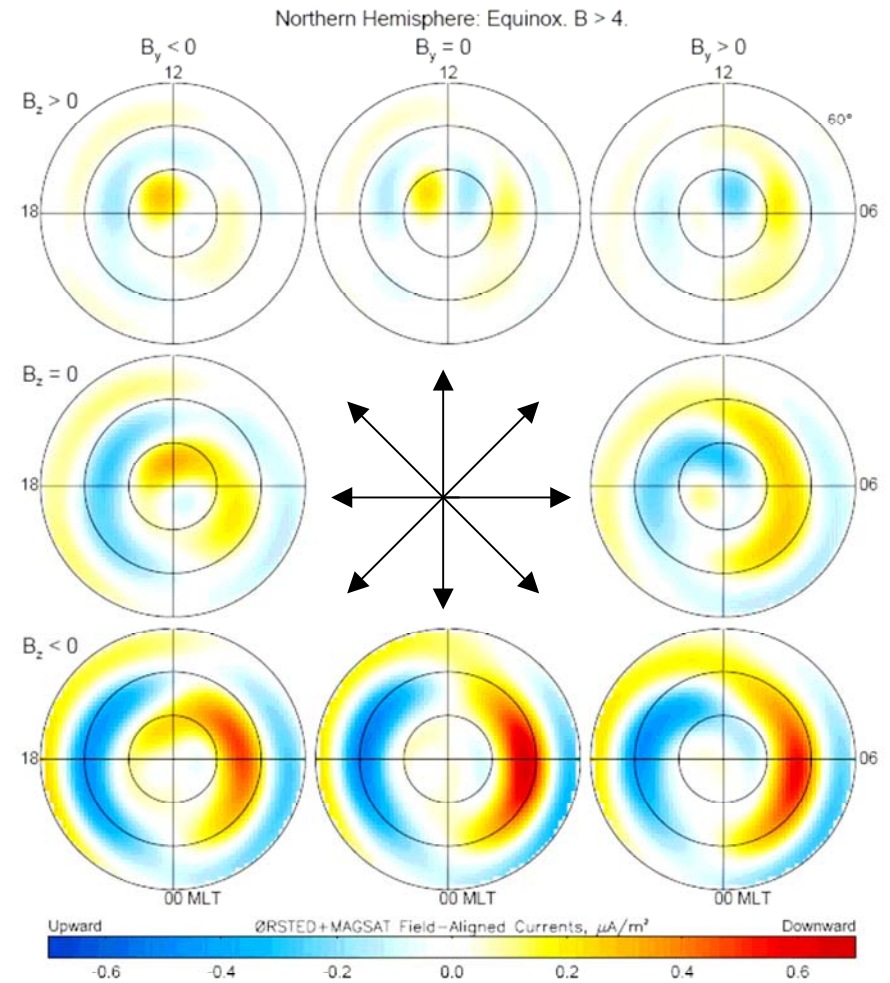


3D statistical model of high-latitude FACs

Upward continuation of FACs



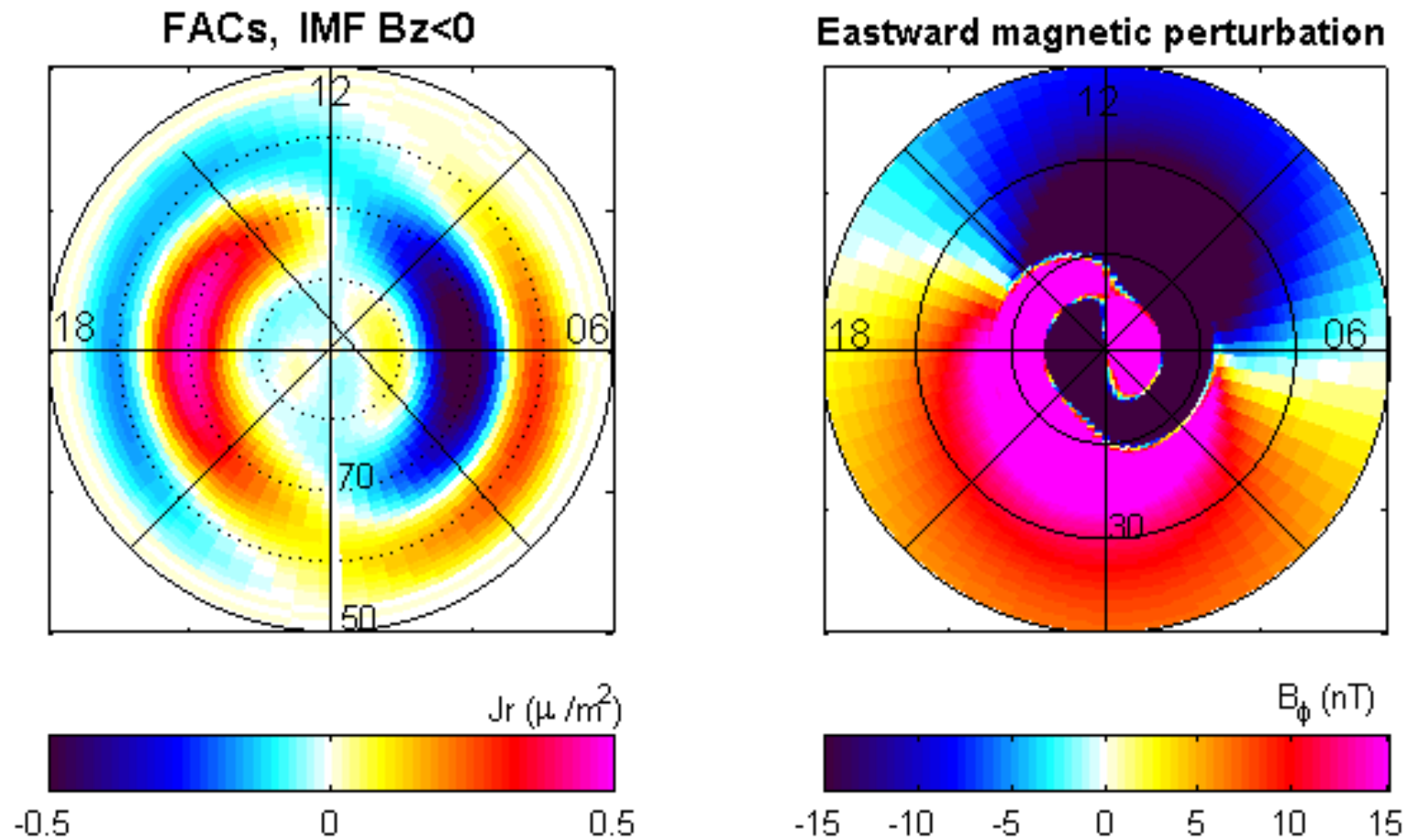
IMF-dependence



Papitashvili et al., GRL 2002



Leakage of ΔB to mid- and low latitudes



Conclusions

- High-latitude FACs create significant magnetic perturbations at mid- and low latitudes.
- IMF variation of the FAC-pattern can explain the main IMF-By and Bz related magnetic perturbations observed at mid- and low latitudes (after subtraction of RC ΔB).
- We should develop methods to include this contribution in the internal/comprehensive field modeling based on Swarm.