Statistical Mapping of Magnetic Topology at Venus

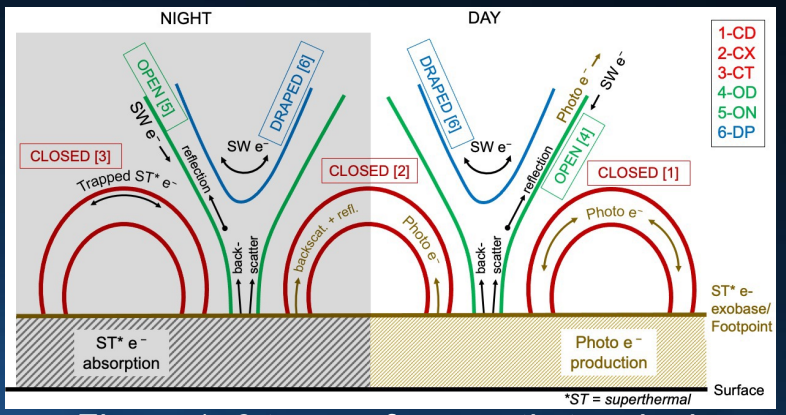

Figure 1. 6 types of magnetic topologies inferred at Venus

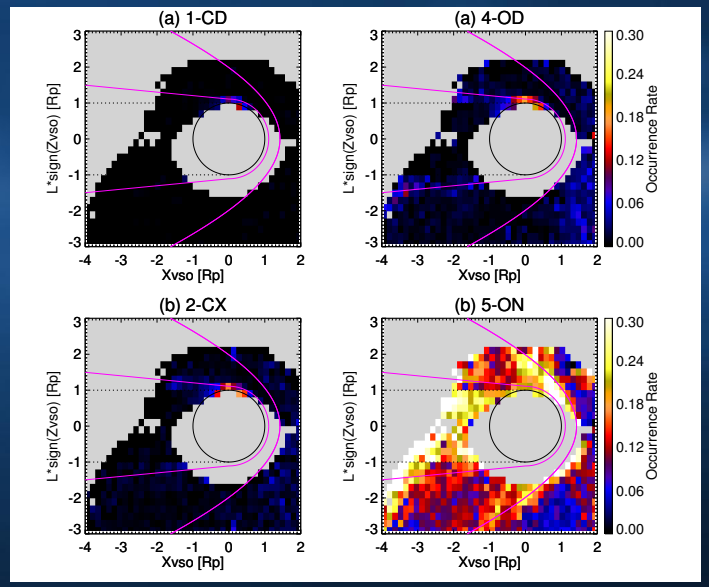

Figure 2. Occurrence rates of closed and open magnetic topologies

This study provides the first characterization of statistical distributions of different magnetic topologies at Venus

- Venus has insignificant intrinsic magnetic fields and its magnetic environment consists of the solar magnetic field lines draping around the planet, or the so-called induced magnetosphere. However, some of the draping magnetic fields could penetrate deeply into the Venus collisional atmosphere, producing complex magnetic connectivity in the near Venus space environment.

- This study provides a technique to determine the magnetic connectivity with automated procedures by using electron and magnetic field measurements obtained from the Venus Express (VEx) mission (Figure 1)

- This study provides the first characterization of the statistical distributions of different magnetic topologies at Venus. The closed and open topologies have high occurrence rates at low altitudes while the draped topology dominates other regions (Figure 2). The findings of this study further our understanding of the Venus magnetosphere.

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