



## **Whistler mode signals due to Venus lightning: Magnetic field control of access to the ionosphere**

**C.T. Russell** (1), T.-L. Zhang (2), and M. Delva (2)

(1) ESS and IGPP, UCLA, Los Angeles CA 90095 (Contact [ctrussel@igpp.ucla.edu](mailto:ctrussel@igpp.ucla.edu)); (2)  
Space Research Institute, Graz Austria

Venus Express detects burst of whistler-mode signals of duration 0.25 to 0.5 s at periapsis in the Venus ionosphere. In order to determine the rate of occurrence of lightning in the atmosphere we need to know what controls access of the signals to the spacecraft. We examine the orientation of the magnetic field at periapsis for each pass and find that the magnetic field in the lower ionosphere in the regions near periapsis is generally steady horizontal. However, on occasion there are brief excursions of the field orientation from the horizontal. When these excursions exceed about 15°, whistler mode signals are seen about 25% of the time while no whistler signals are seen for nearby horizontal magnetic fields. This observation helps us refine our estimate of lightning occurrence at Venus and is a further indication that the waves seen propagate in the whistler mode from a source in the atmosphere.