

## **THE CHARACTERISTICS OF BORES AND GRAVITY WAVES ASSOCIATED WITH NOCTURNAL CONVECTION DURING IHOP\_2002**

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The International H<sub>2</sub>O Project (IHOP\_2002) took place over the Great Plains of the U.S. from 13 May to 26 June 2002. The primary goal of this project was to better characterize the water vapor field and to use this information to improve predictions of convective rainfall. Since this area has a nocturnal precipitation maximum we invoked on a study of the moisture inflow ahead of nocturnal convection. Bore/wave disturbances are ubiquitous over this region at night when convection is present with ~26 events. Most events occurred at the end of low-level jet moisture return periods (when convection is present. These disturbances can promote intense lifting with net displacements of up to ~1-2 km. They creating a deeper moist inflow and likely help maintain nocturnal convection at an unfavorable time. Some convective initiation cases are also observed. Peak vertical motions are >1-2 m/s. Surface radars undercount bore/wave events (factor of 2 for spaced antenna vs. a regional radar composite) since the lifting can be limited to heights above the PBL. Thus, ~26 events is likely a severe undercount! These disturbances are (almost) always initiated by convection (slight evidence for both a secondary evening and larger nocturnal initiation) for the later dates in the program and initiation is not by dry fronts. Typical spacings of waves ~10-14 km. Surface data shows evidence of pressure disturbances (.25 – 1.5 hpa) with some wind reversals (closed circulations). The typical duration is ~3-6 hrs with mesoscale to synoptic coverage areas. We are currently investigating whether these bores impact the maintenance of night-time convective events, much as gust fronts maintain convective systems during the day.