

Question B

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**The Center for
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Question B

- How do the structure and dynamics of the planetary boundary layer and the lower troposphere affect ozone and aerosol concentrations in Houston, Dallas, and eastern Texas?
- Elements: background and transport, precursor concentration (wind speed, mixing), entrainment, parcel history

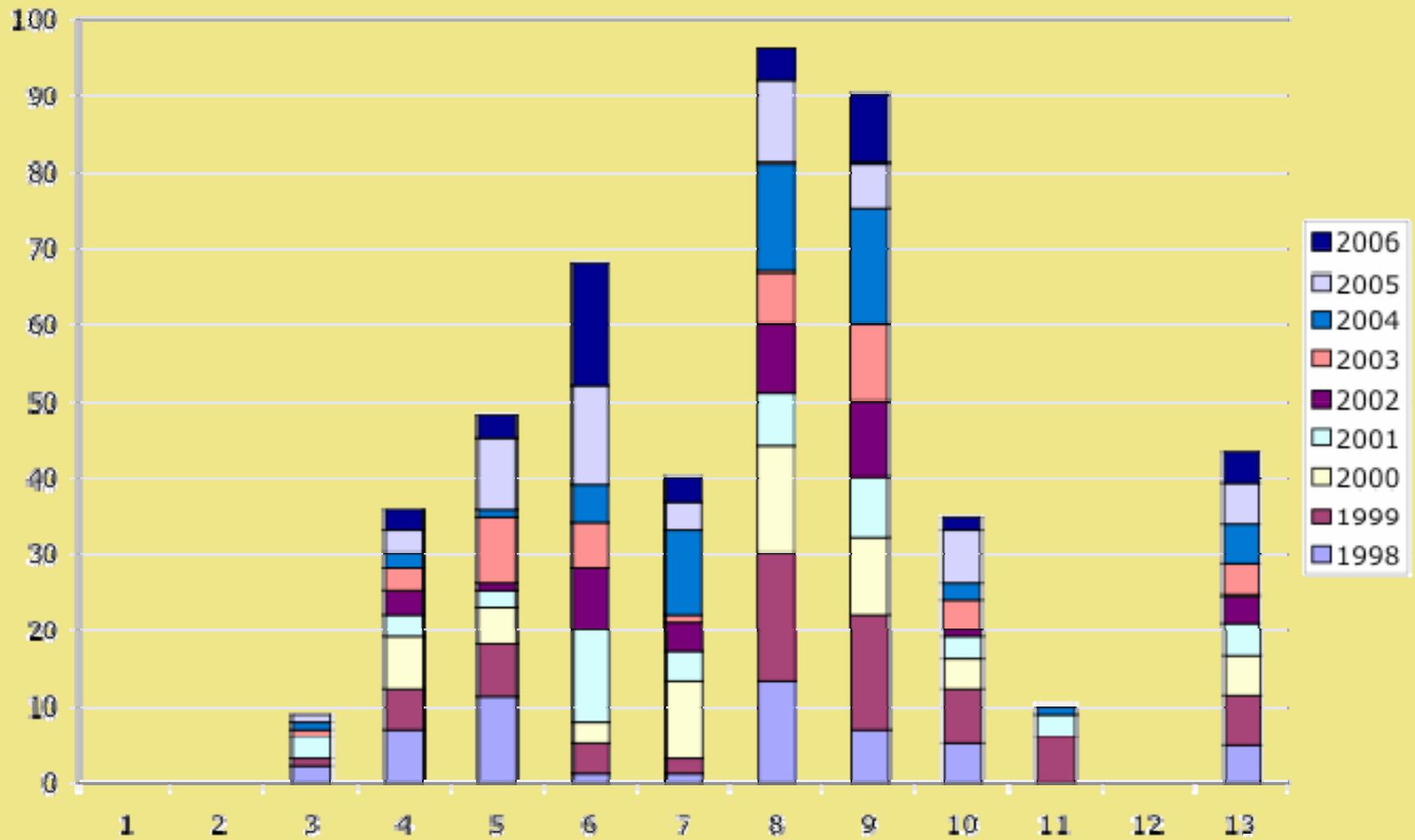


Outline

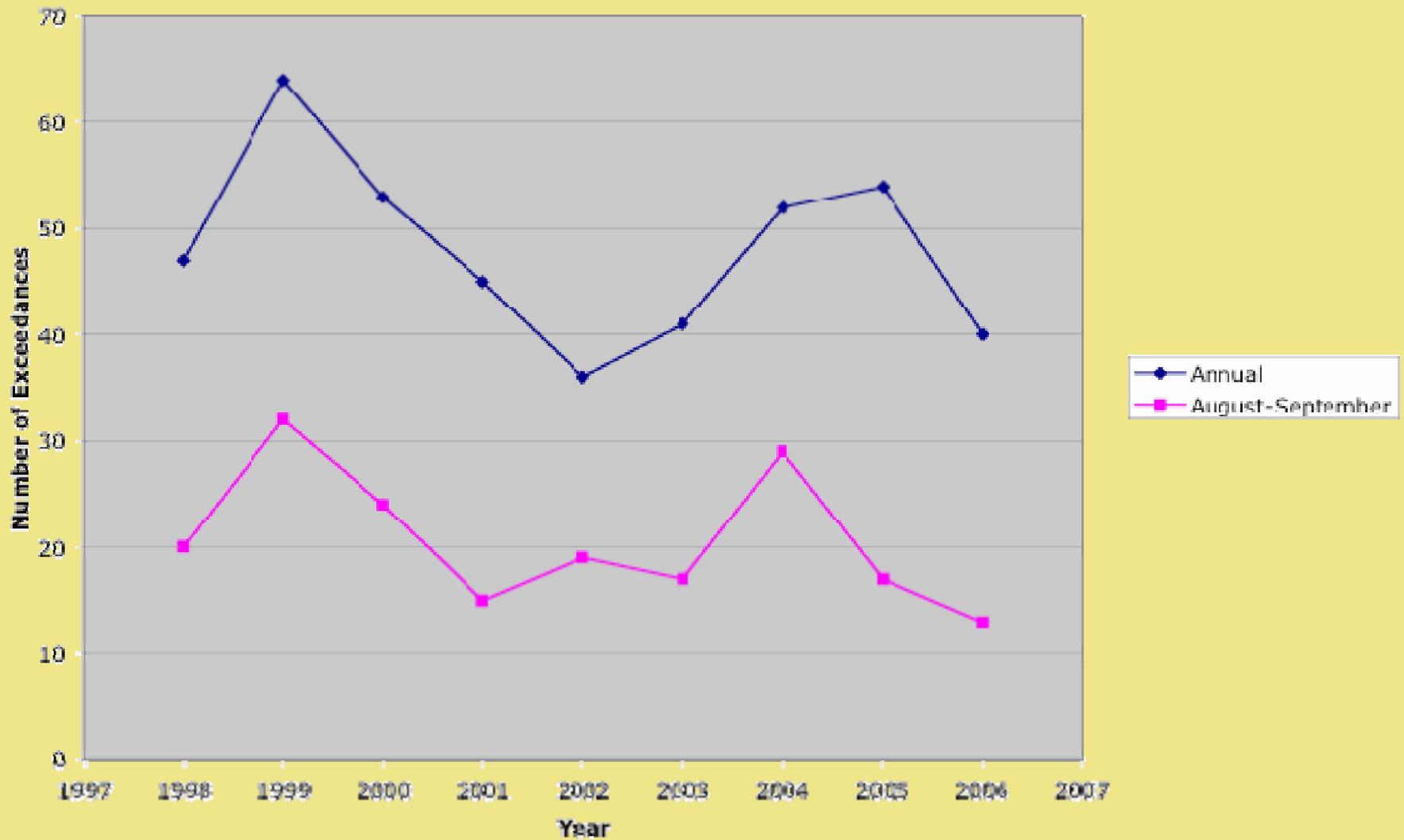
- Overview; Regional Background Ozone
(**John Nielsen-Gammon**)
- Surface-Based Mixed Layer Measurements
(**Wayne Angevine**)
- Horizontal Mixed-Layer Variability
(**Christoph Senff**)
- Mean Wind and Sea-Breeze Effects on Ozone
(**Robert Banta**)
- Background Buildup and Transport in Dallas
(**Lisa Darby**)
- Diurnal Boundary-Layer Structure at UH Campus
(**Bernhard Rappenglueck**)



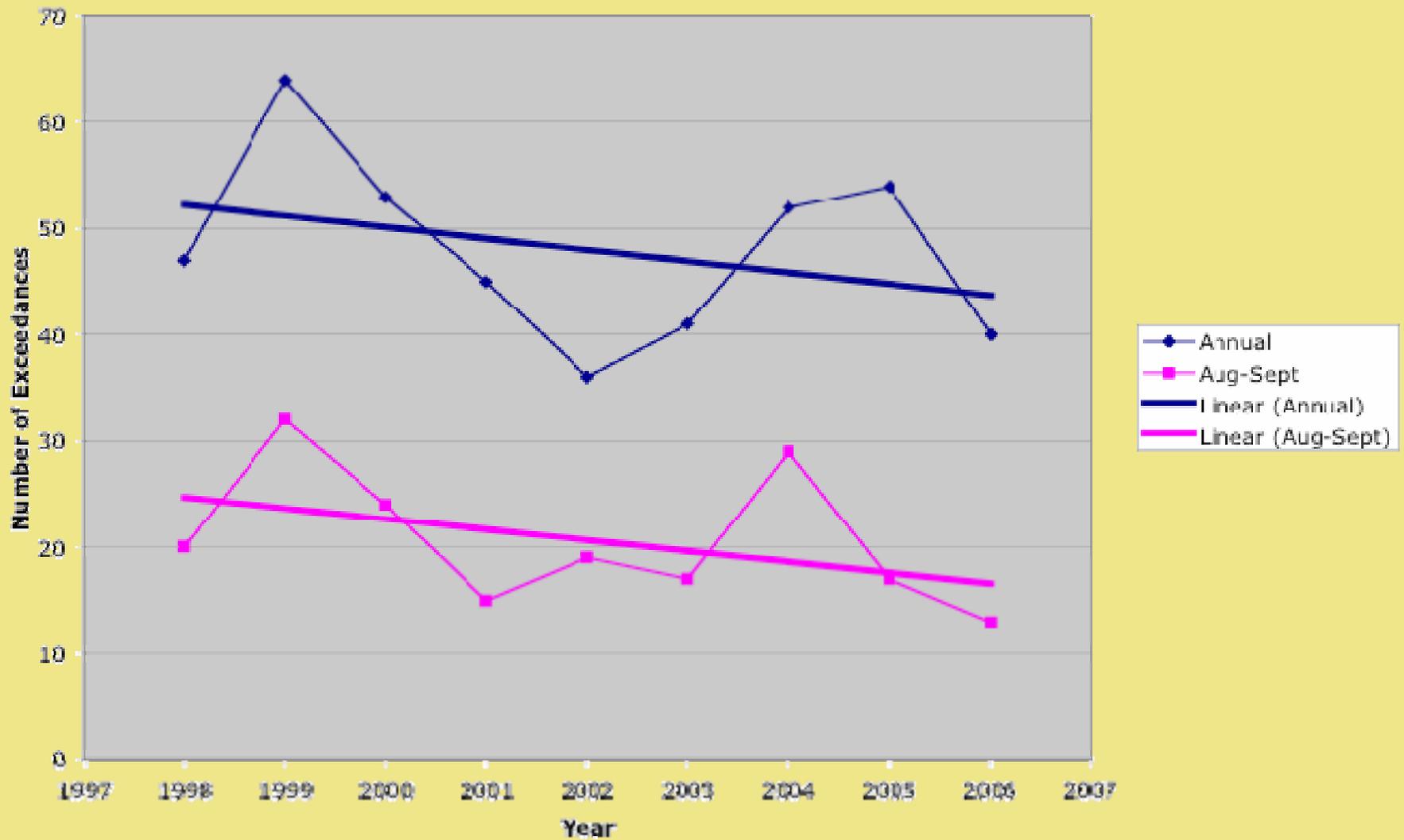
8-h Houston Ozone Exceedance Days, 1998-2006 (thru 10-10)



8-h Houston Ozone Exceedance Days



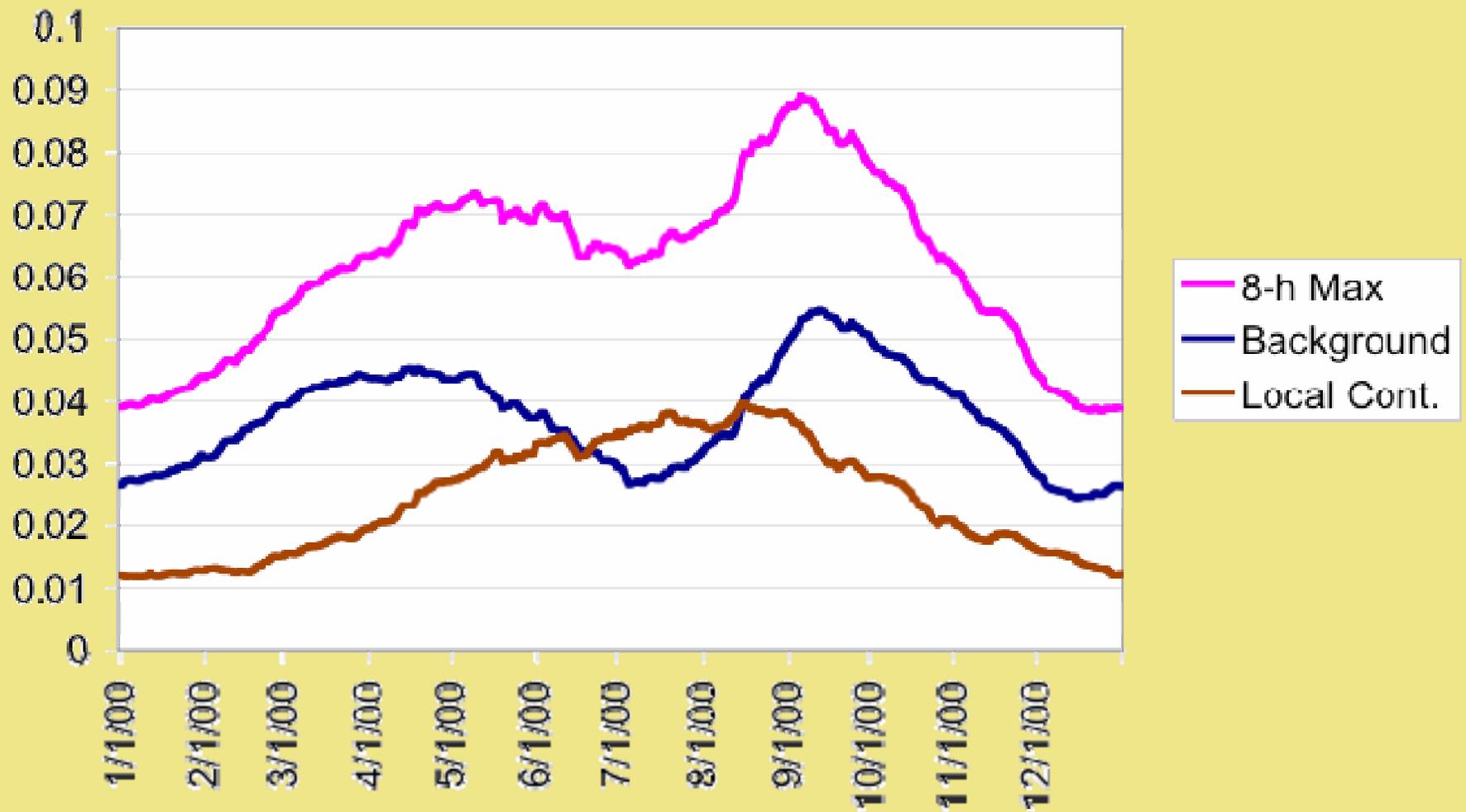
8-h Houston Ozone Exceedance Days

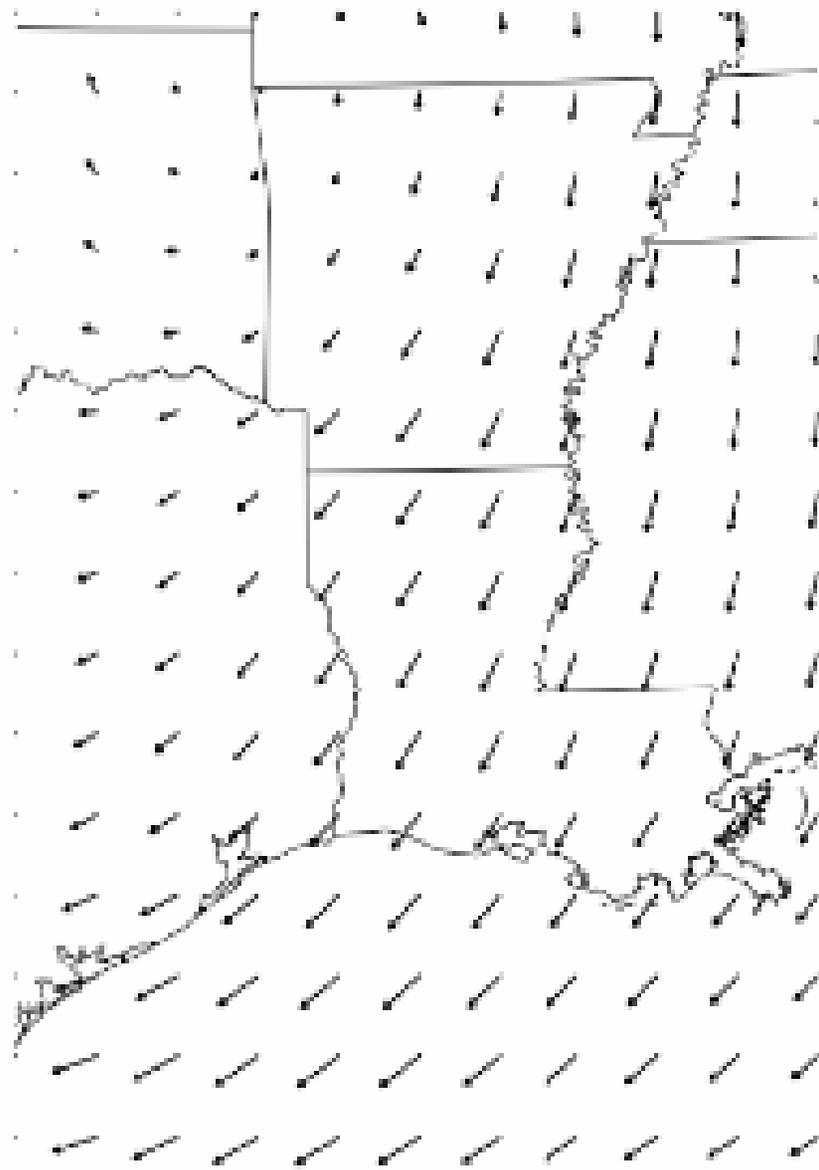


8-h Houston Ozone Exceedance Days

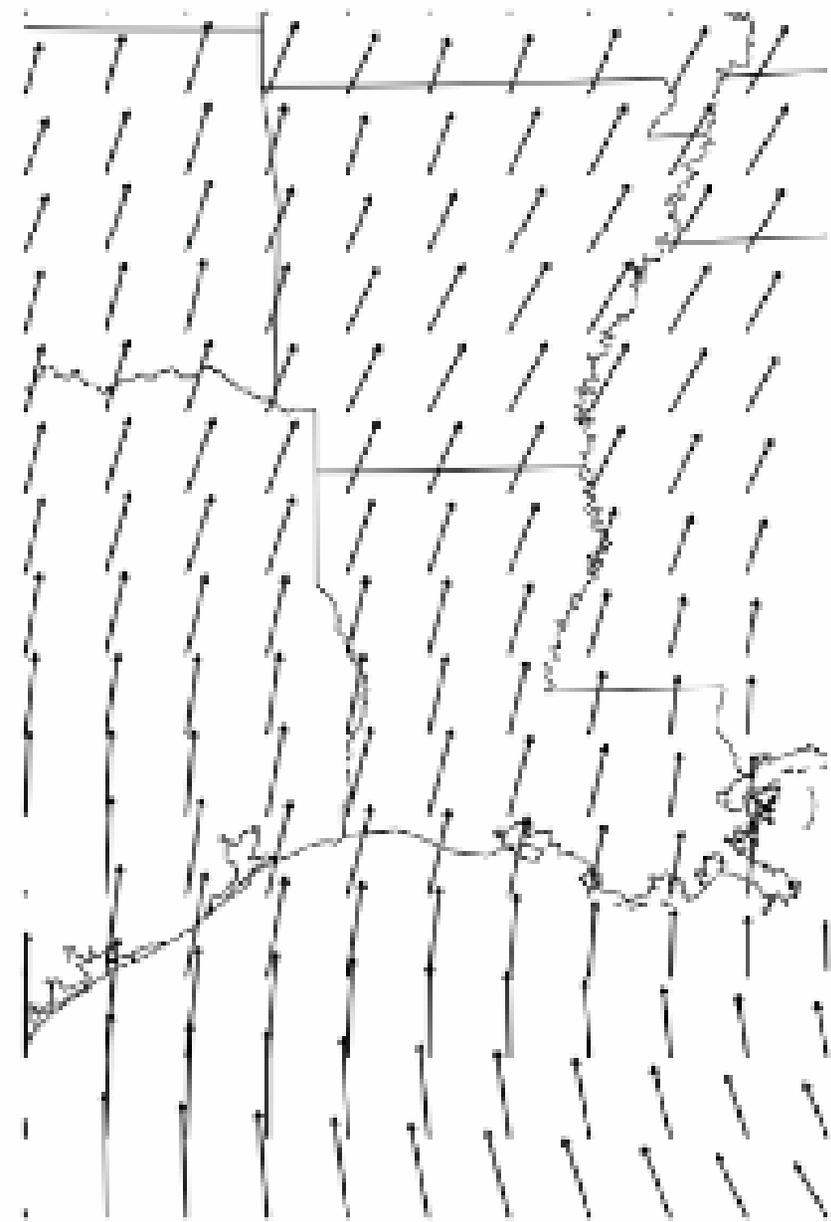


HGA 8-h Ozone on Days Without Precipitation





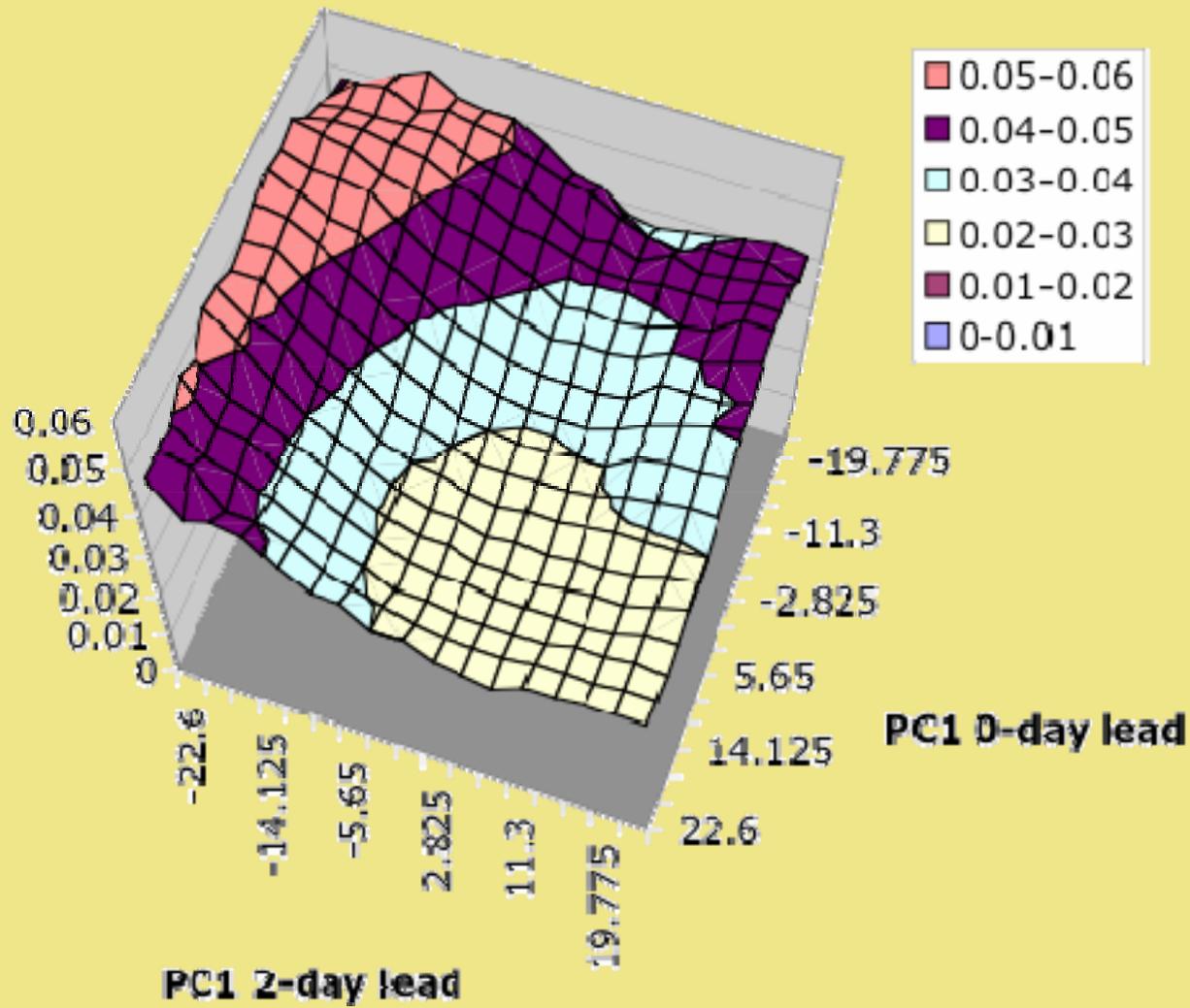
Common Fall Pattern



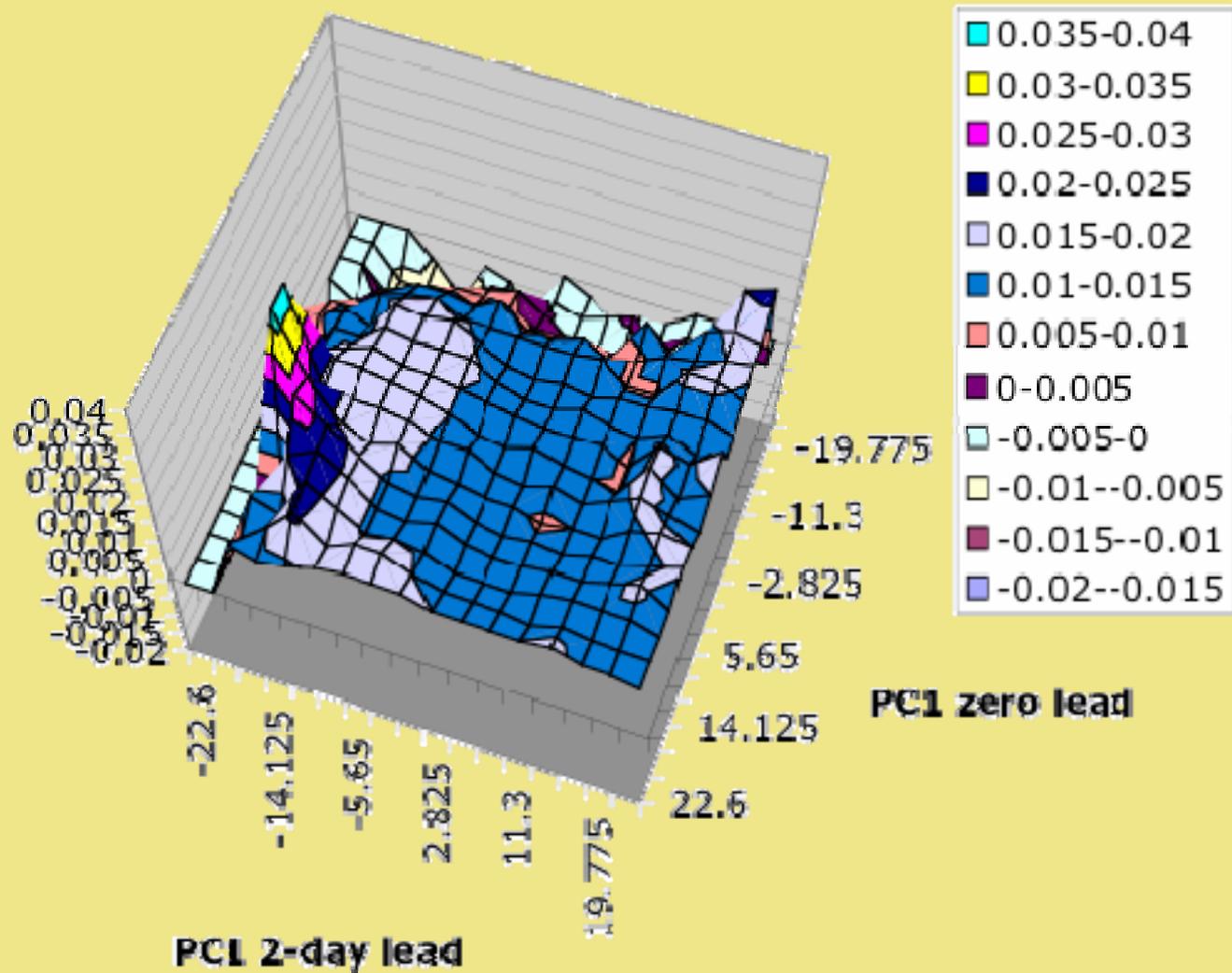
Common Spring Pattern

5.0 m/s →

Houston Background Ozone



HGA Background Ozone Difference (AprMay-JunJul)



Background Summary

- Seasonal ozone variations due primarily to regional background
- Transport from central-eastern US associated with high background ozone
- Hemispheric background contributes extra 10-18 ppb in springtime
- Aug-Sept Houston ozone exceedances declining; other exceedances steady (real?)

