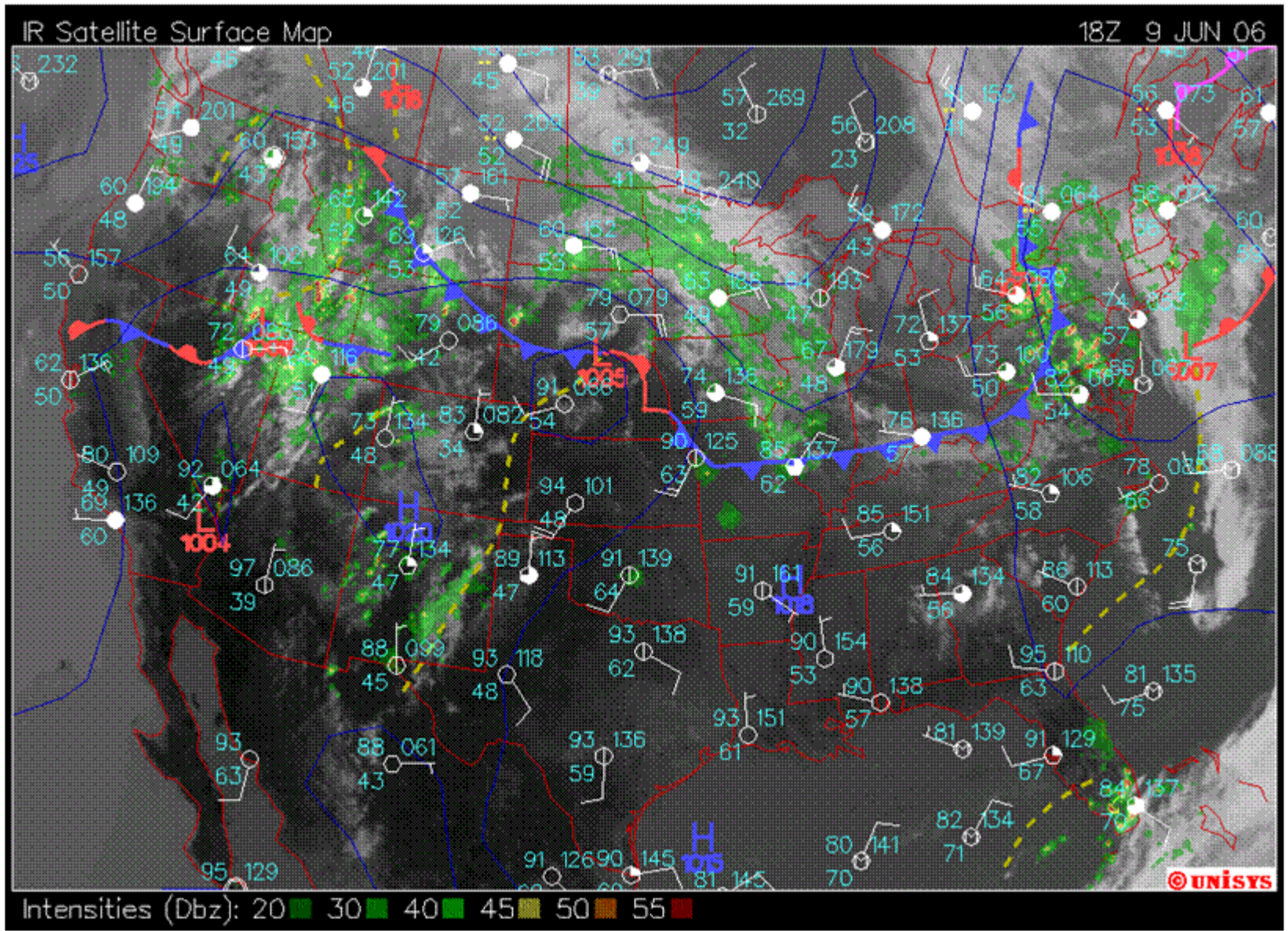


# **Ozone Conceptual Model for the Victoria Area Part 2**

Gary McGaughey  
Cyril Durrenberger  
Elena McDonald-Buller  
David Allen

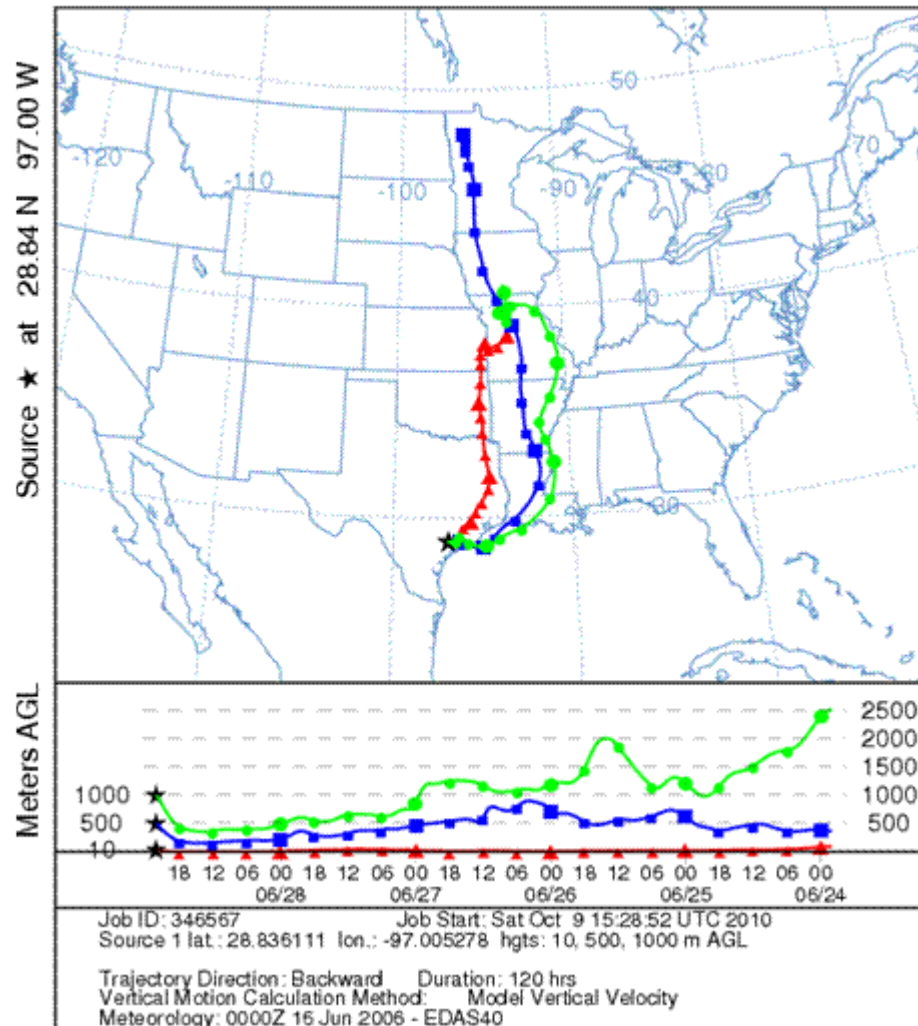
The University of Texas at Austin

# June 9 Surface Weather

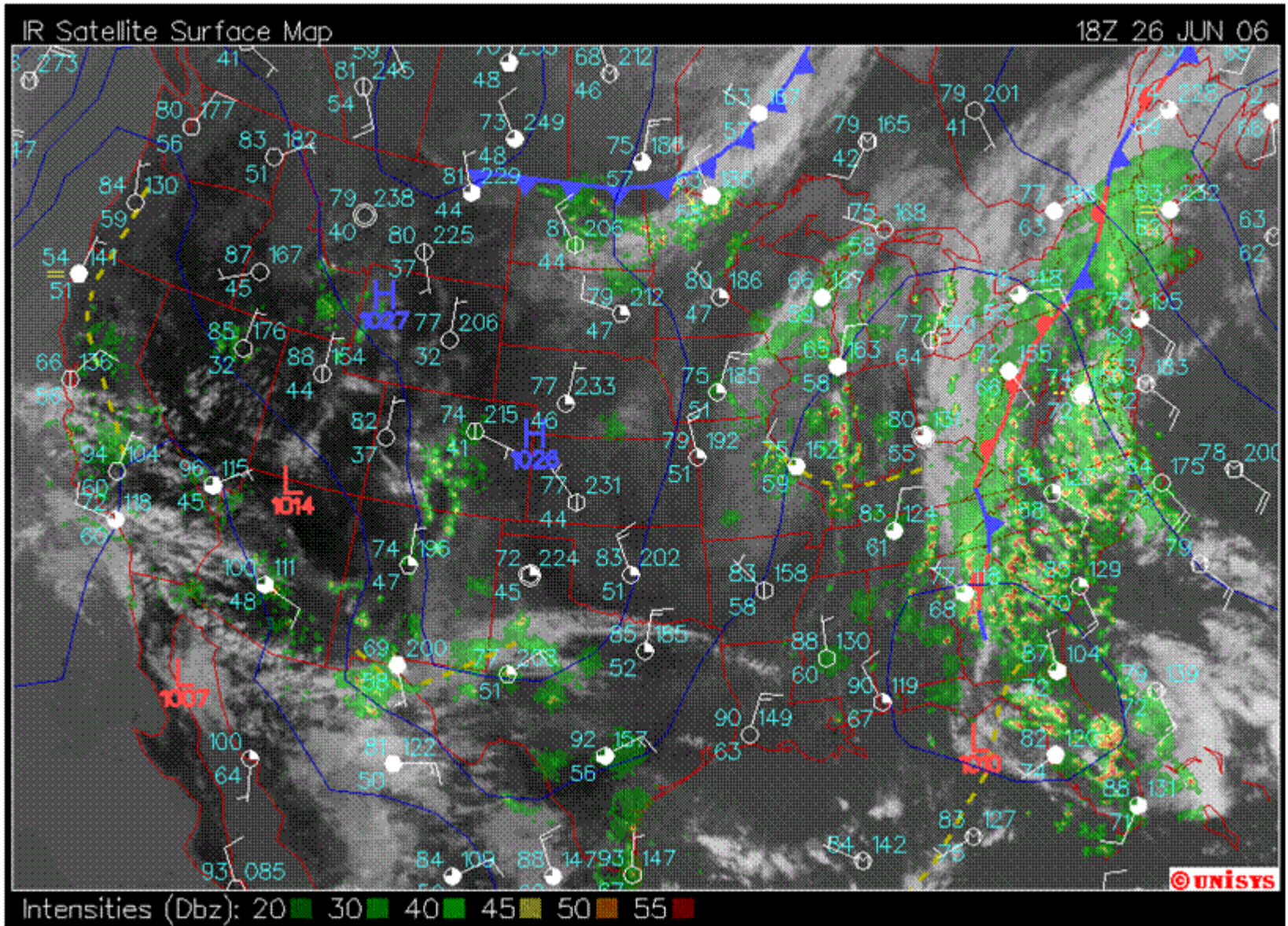


# HYSPLIT Back-Trajectories for June 28<sup>th</sup>

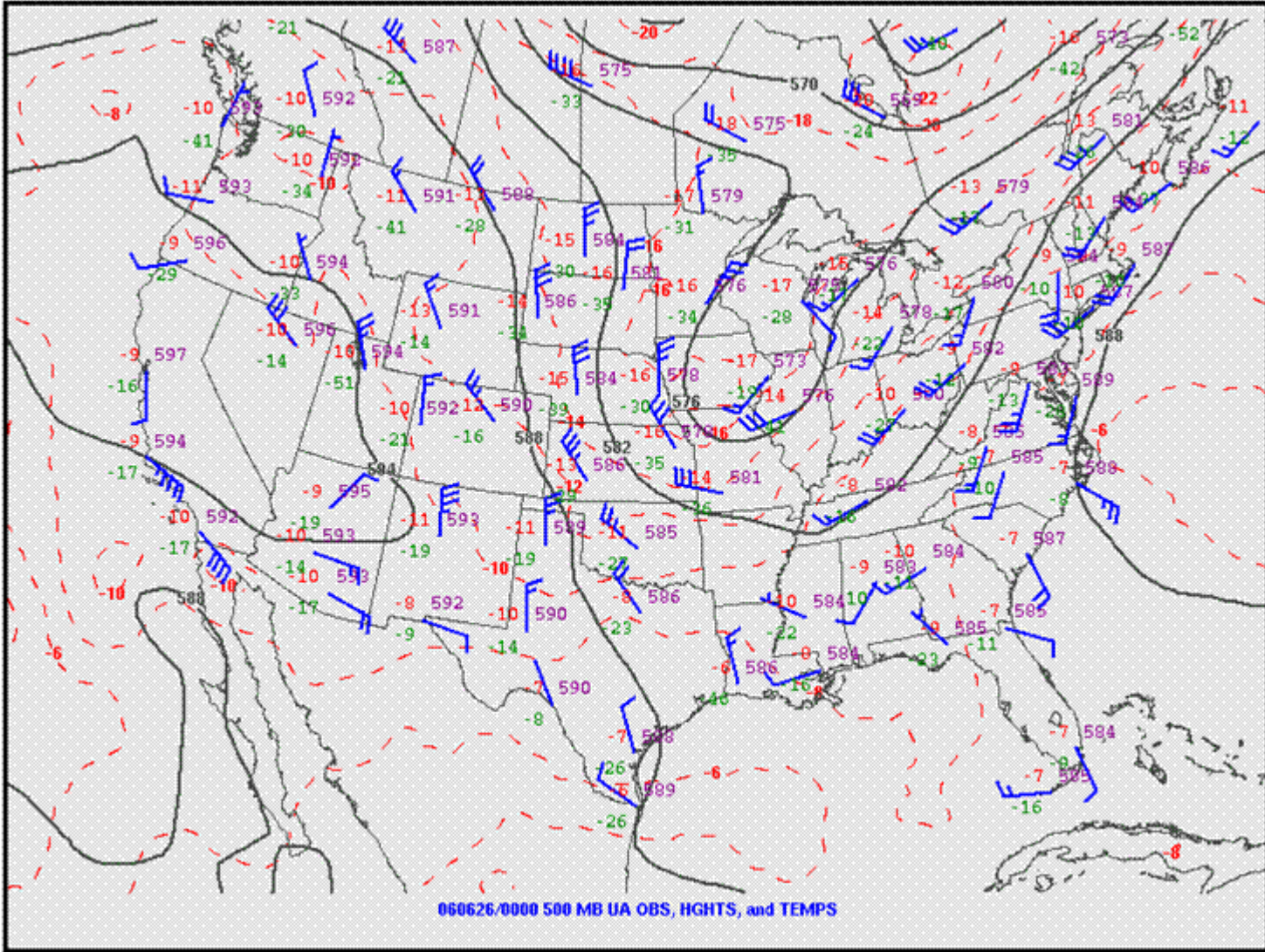
NOAA HYSPLIT MODEL  
Backward trajectories ending at 2200 UTC 28 Jun 06  
EDAS Meteorological Data



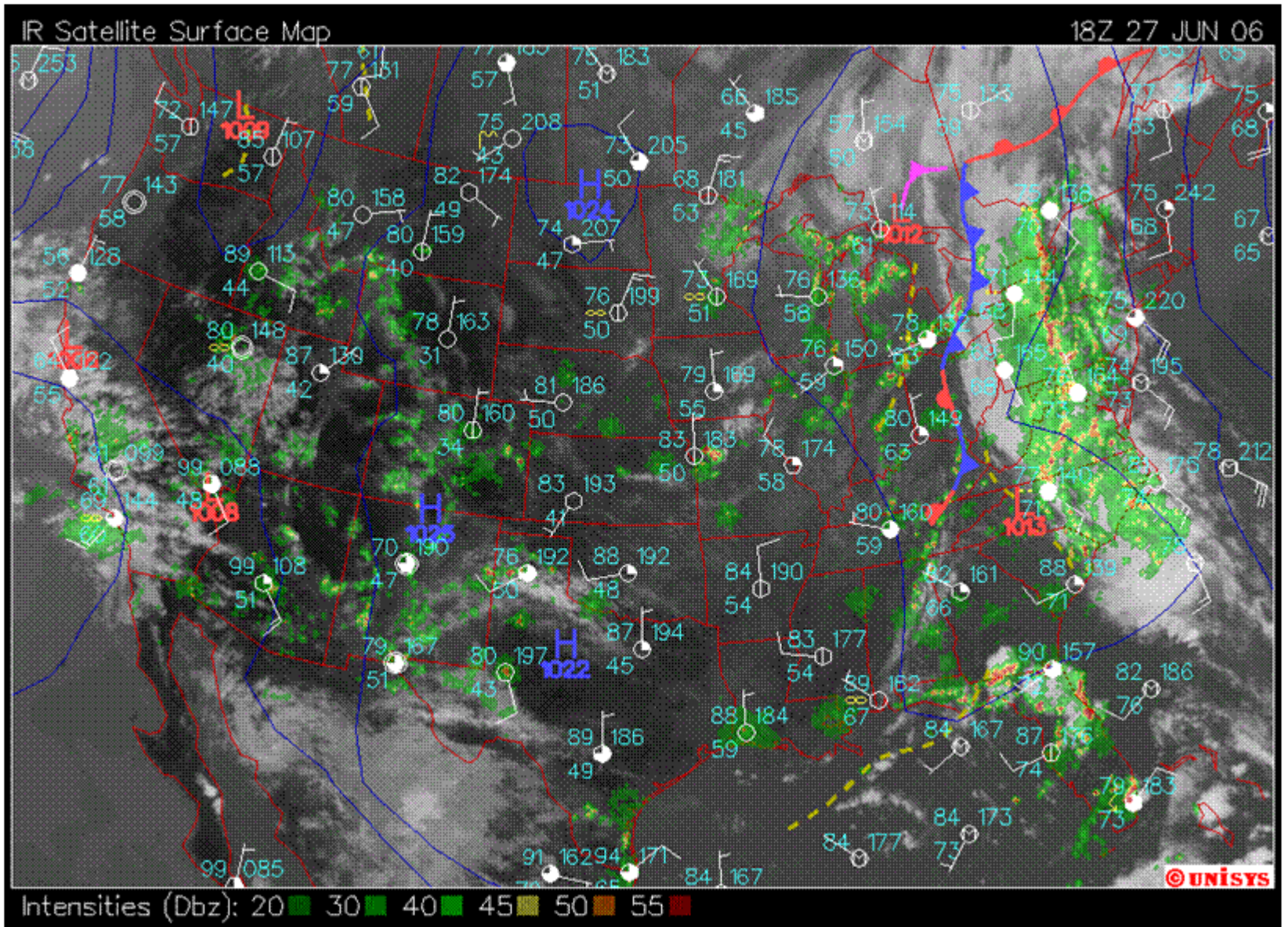
# June 26 Surface Weather



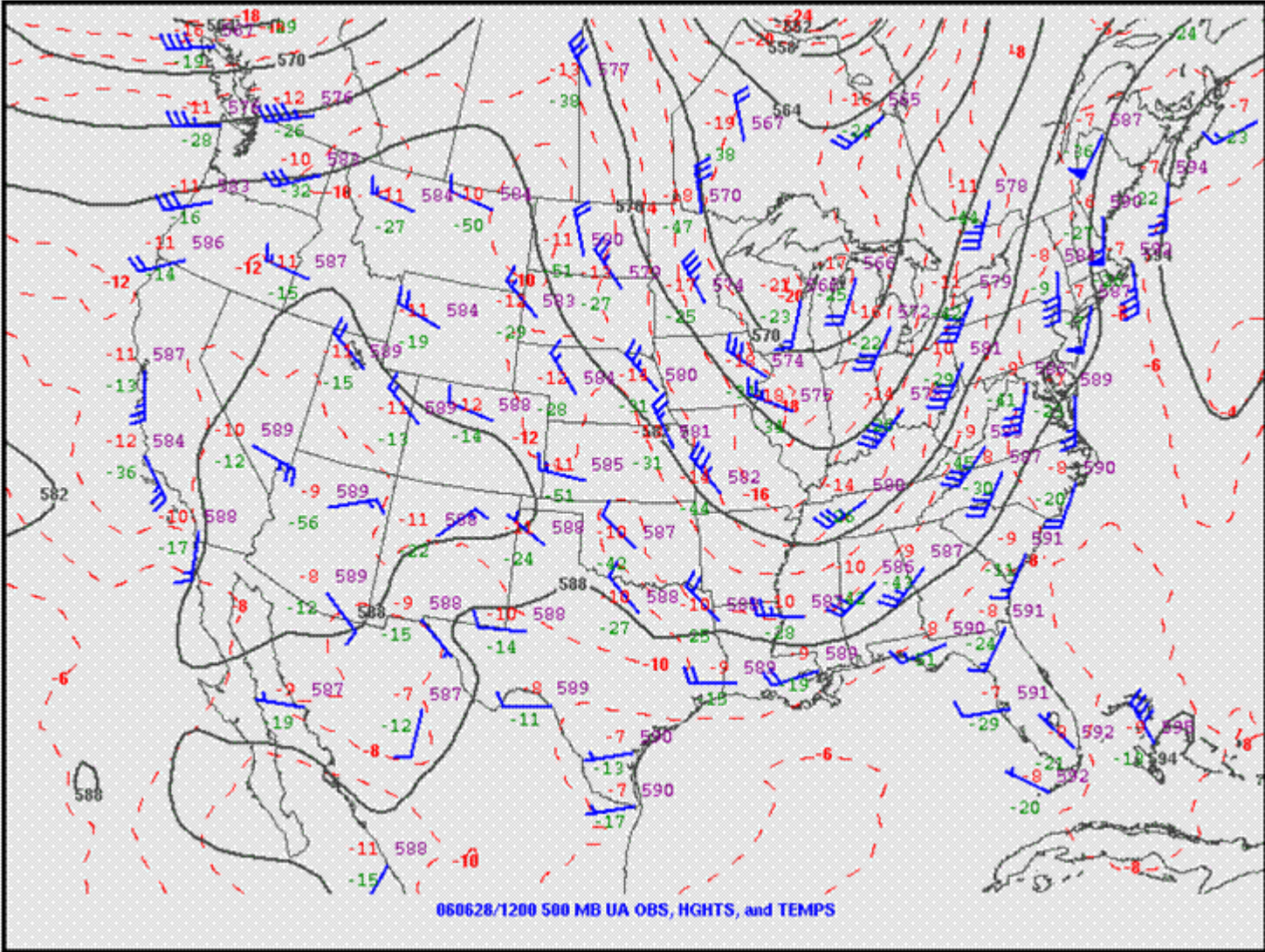
# June 26 Upper Air



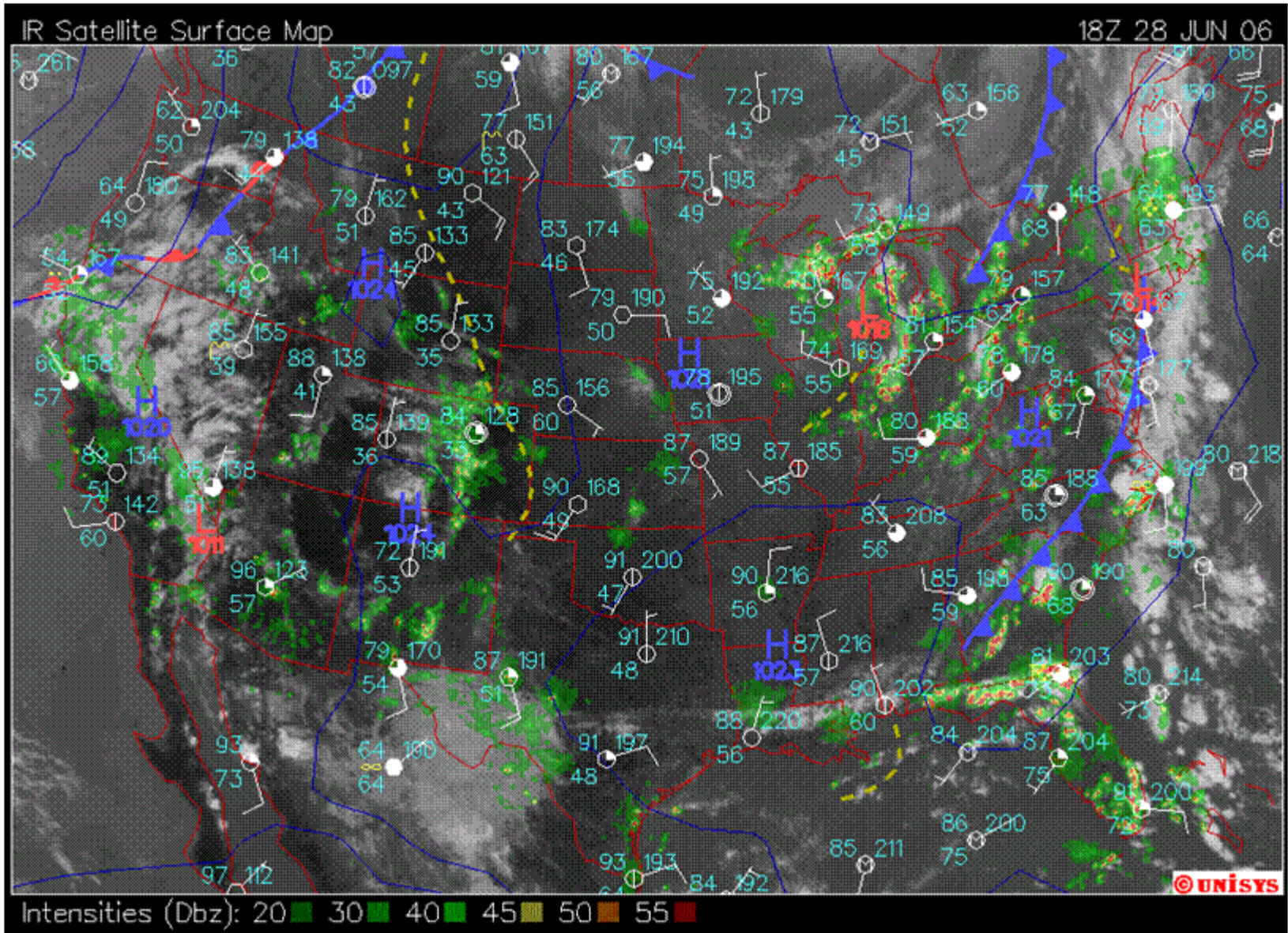
# June 27 Surface Weather



# June 28 Upper Air



# June 28 Surface Weather





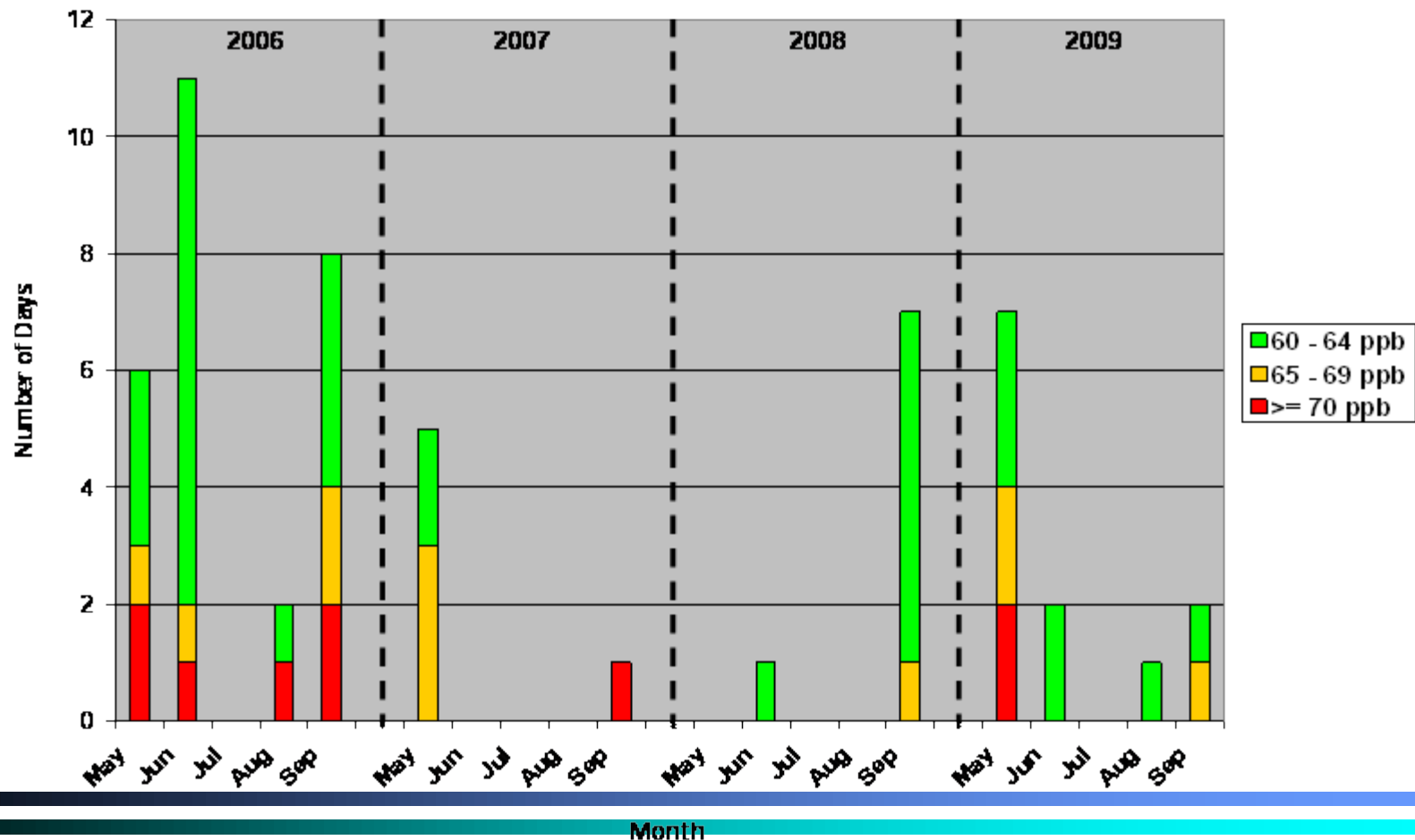
# June 2006 Large-Scale Weather Summary

- High ozone occurred over most of eastern Texas during two general periods:
  1. The first half of June was dominated by high pressure at the surface and aloft. Light wind speeds and warm temperatures and ample sunshine were favorable for high ozone near the surface. In addition to ozone formed from local emissions sources in Texas, the back-trajectories were consistent with the transport of background ozone into Texas from continental areas located in the SE US.
  2. High ozone during late June occurred throughout eastern Texas following the passage of a cold front through the state. The surface ridge of high pressure built into Texas behind the front and was associated with the long-range transport of background ozone from continental areas located to the north of Texas. High pressure was not centered over Texas aloft.
- The overall weather patterns above are typical of the types of conditions that have occurred when high ozone was measured at CAMS 87 in the past.

# Photochemical Model Development

- Based on the results of the conceptual model, we recommended that Victoria join TCEQ and other NNAs in the development of the June 2006 episode.
- Although ozone concentrations were not particularly high in Victoria during June 2006, the period was relatively active compared to other times during recent years 2006 – 2009.

Monthly Numbers of High Ozone Days at CAMS 87



# Photochemical Modeling Recommendations Based on the Latest Conceptual Model

- **1. Develop the June 2006 episode for the Victoria area.** This is recommended by TCEQ. This episode covers high ozone events typical of early summer, which includes about half of the types of high ozone events that have historically occurred. The performance must be evaluated on its ability to replicate the concentrations measured in areas upwind of Victoria to evaluate the model's ability to quantify concentrations transported into the Victoria area.
- **2. Develop an episode for September 2006 for the Victoria area.** TCEQ has performed development work on this episode for the Houston area. This episode should be extended to cover central Texas so that high ozone events typical of late summer are included in the modeling for 2006. The performance must be evaluated on its ability to replicate the concentrations measured in areas upwind of Victoria to evaluate the model's ability to quantify concentrations transported into the Victoria area. September, as well as June, are representative of recent years and can leverage the robust datasets collected during TexAQS II.
- **3. Use the May - September 2002 episode for weight of the evidence analyses.** This episode has already been developed by Victoria and used for ozone transport studies. Use of the May - September 2002 period allows for the direct calculation of future design values. Since the future design value is directly calculated, it will not be necessary to use the relative reduction factor approach based on modeling from a previous year such as 2006 or 2008 as will be used with the episodes from 2006.
- **4. Use the September 13-20, 1999 episode for weight of the evidence analyses.** This episode would provide additional information on the effectiveness of proposed controls and would allow direct comparison with the effectiveness of previously modeled controls.