

Weather Study – Attachment 1

Satellite cloud retrievals and icing analysis performed by the NASA's LaRC using GOES satellite data for 1245 and 1445 CST.

METEOROLOGY

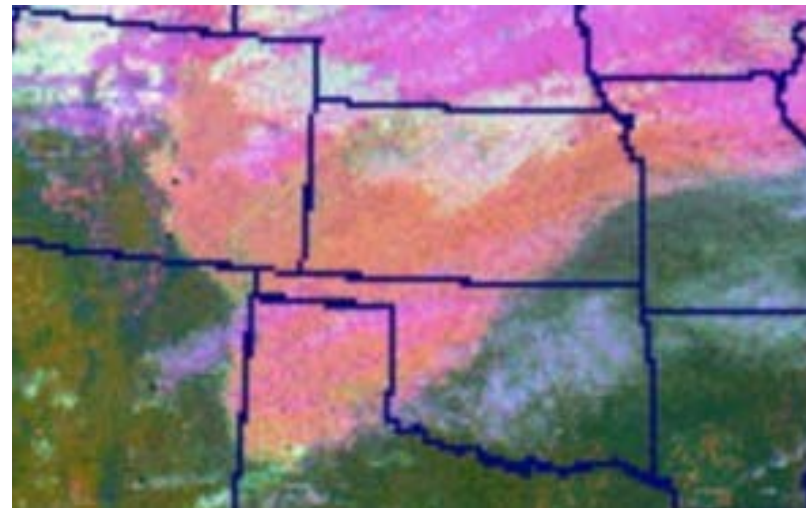
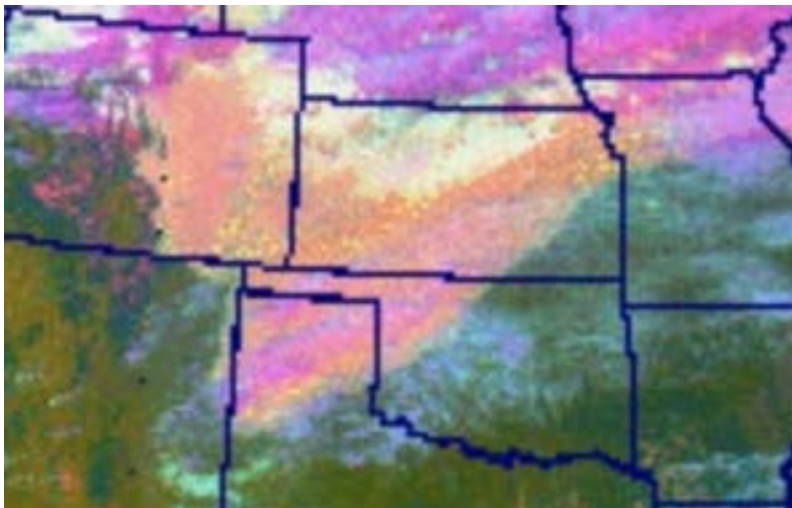
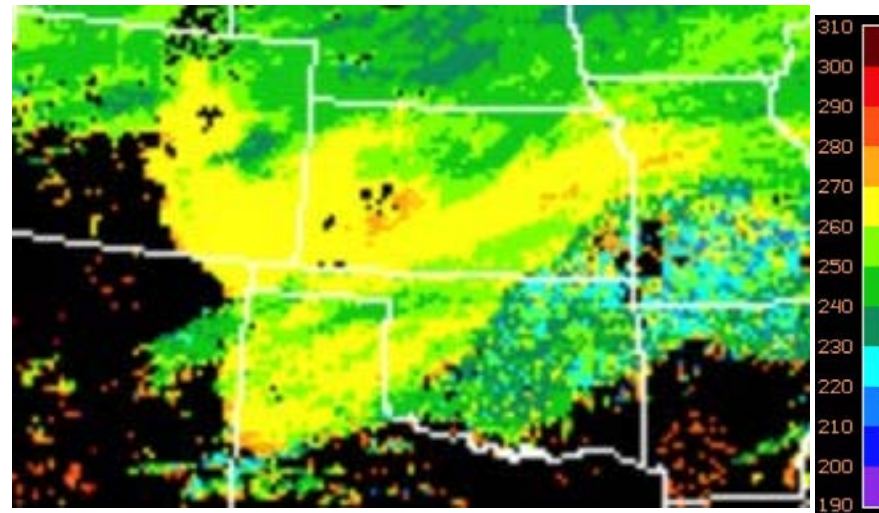
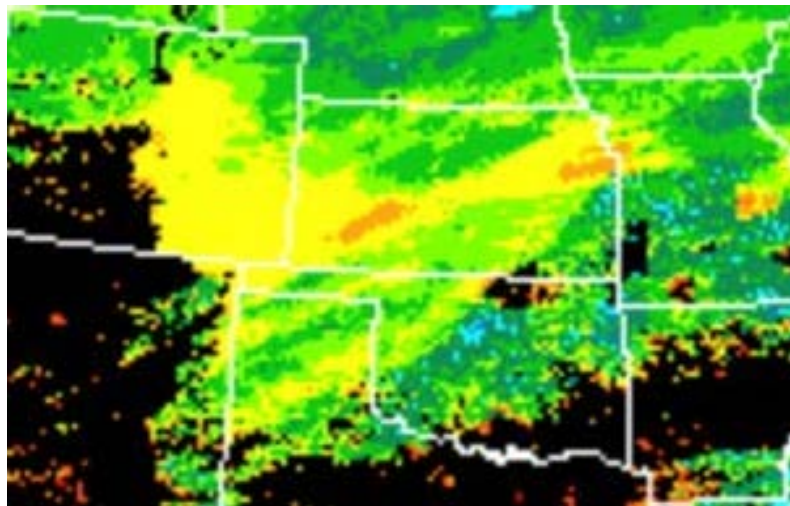
CEN19FA029

*Submitted by: Mike Richards
NTSB, AS-30*

1845 UTC

2045 UTC

RGB

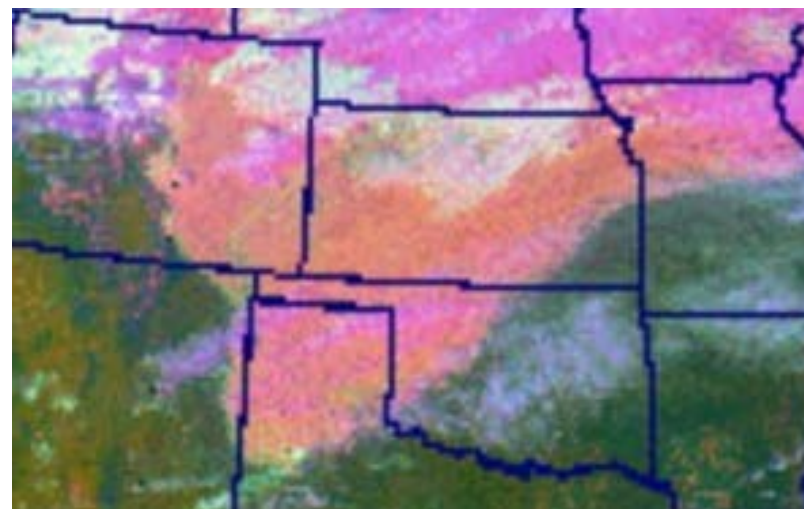
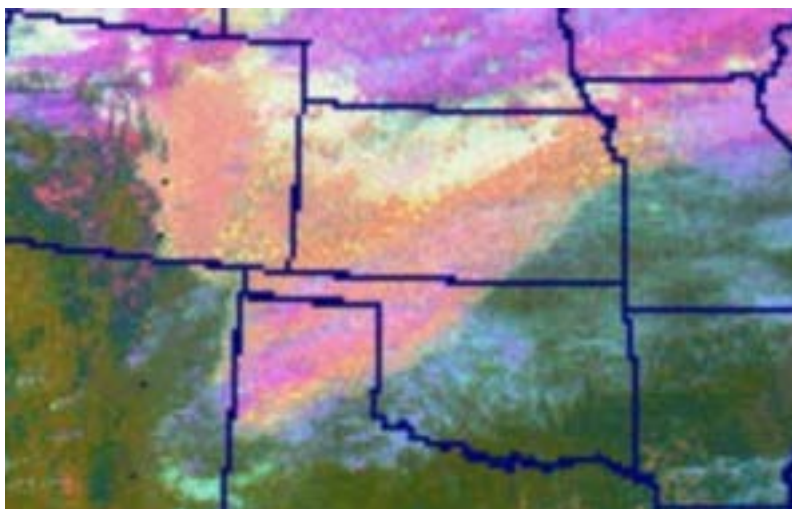
Cloud
Temp
(K)

Cloud temperatures support potential for SLW/icing over much of the area. Low level clouds blanket the area of interest with fairly static cloud properties shown in following slides. Some high clouds streaming overhead mask the icing signal in some areas. For later time periods, some retrieved cloud properties are less reliable due to very low sun.

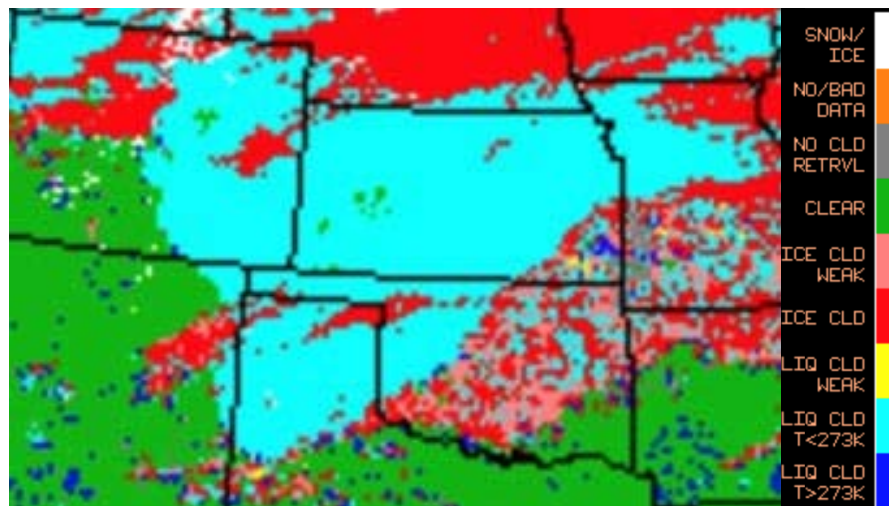
1845 UTC

2045 UTC

RGB



PHASE

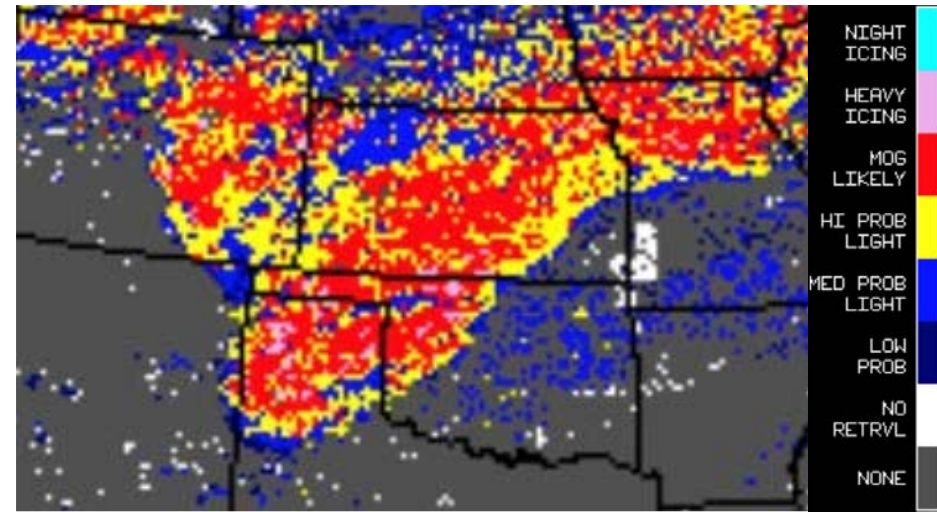
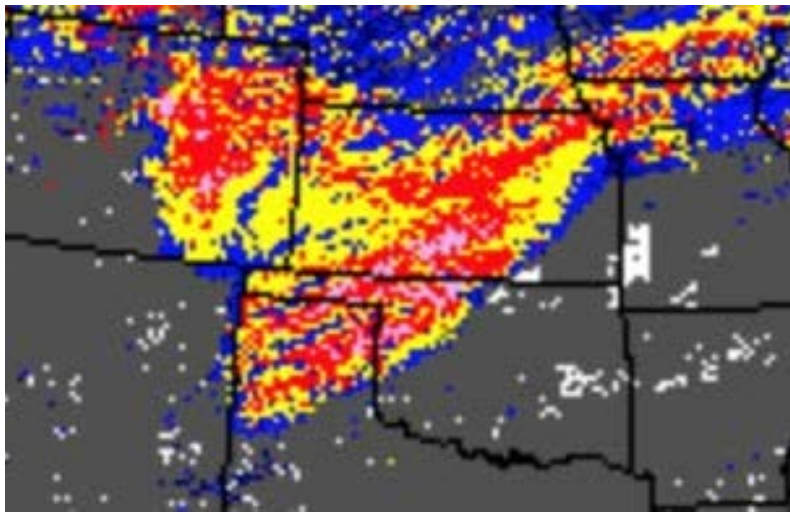
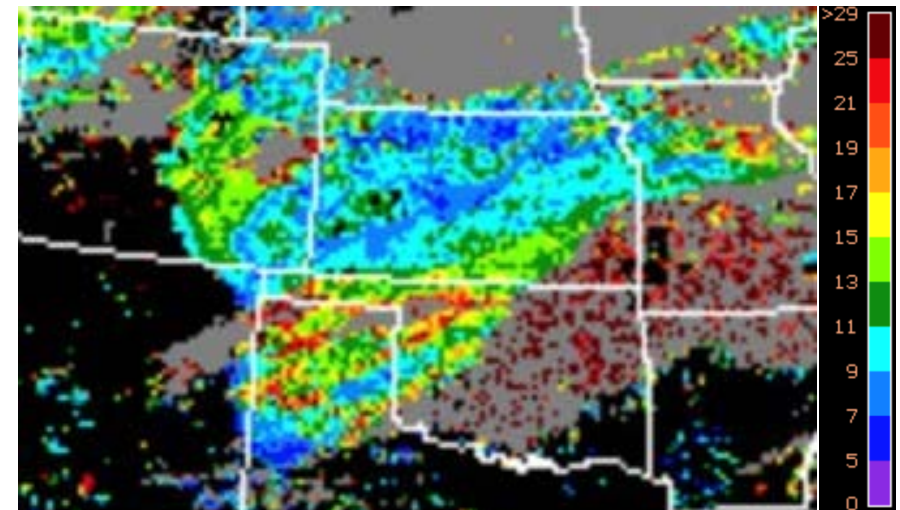
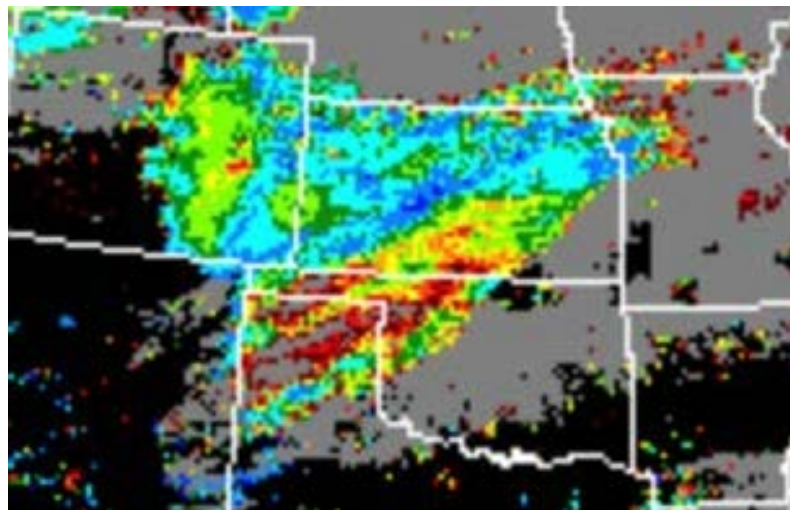


Large area of low level SLW clouds blanket the area. Some glaciated higher level clouds streaming over the top of the SW clouds in parts of Texas, OK panhandle

1845 UTC

2045 UTC

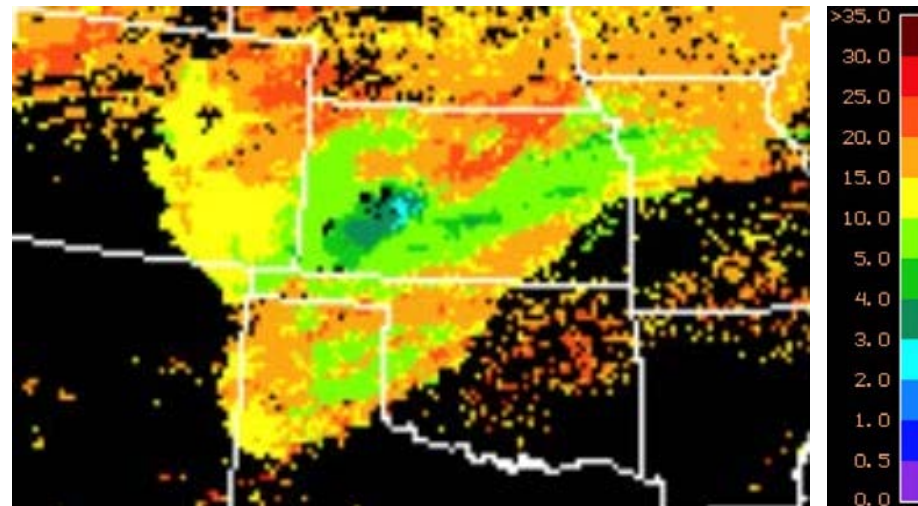
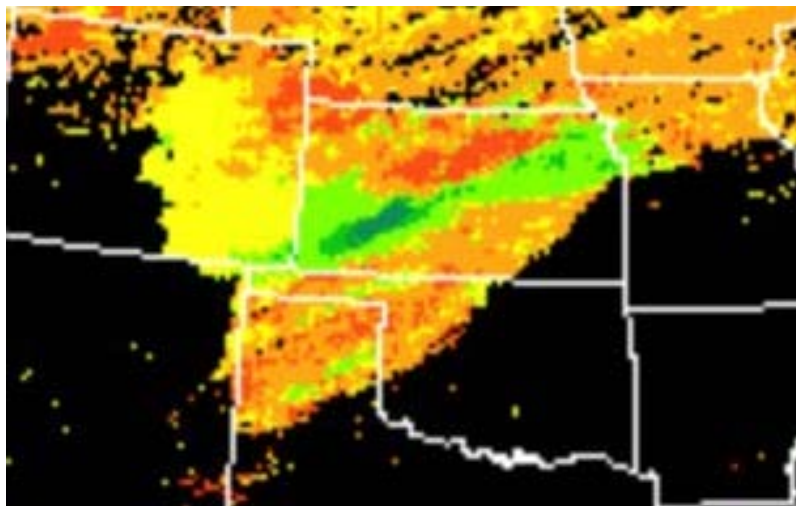
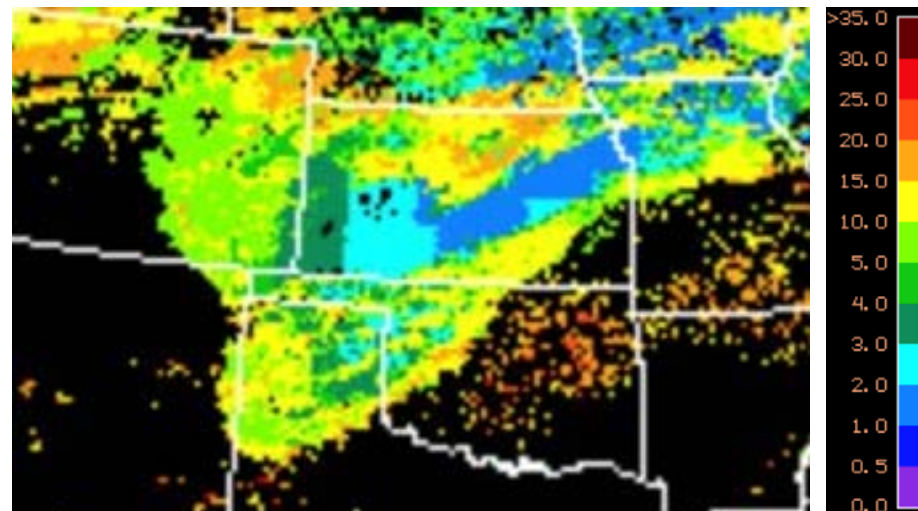
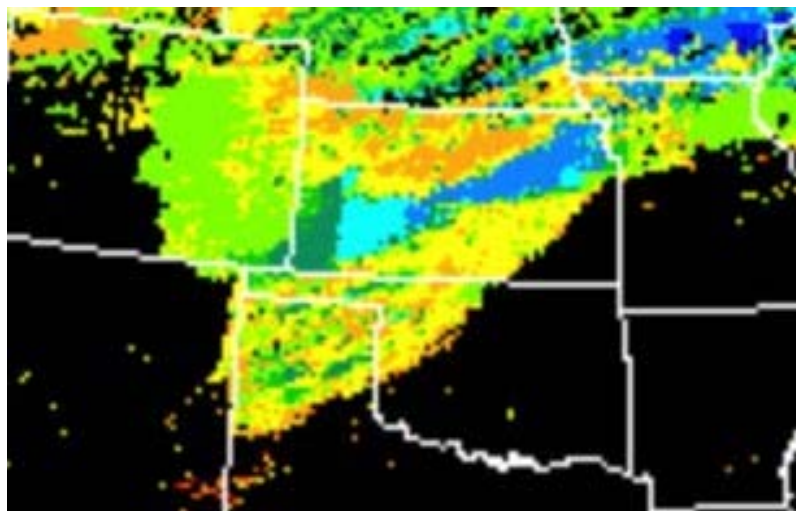
Icing

REFE
(um)

Satellite icing analysis (top) shows widespread icing potential, high probabilities (yellow and red) and some potential for MOG conditions (red). Pink areas indicate some potential for heavy icing based on large effective radius retrievals (SLD proxy) but many of these look to be ice cloud contaminated (due to undiagnosed overhead thin cirrus) and unreliable.

1845 UTC

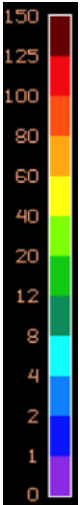
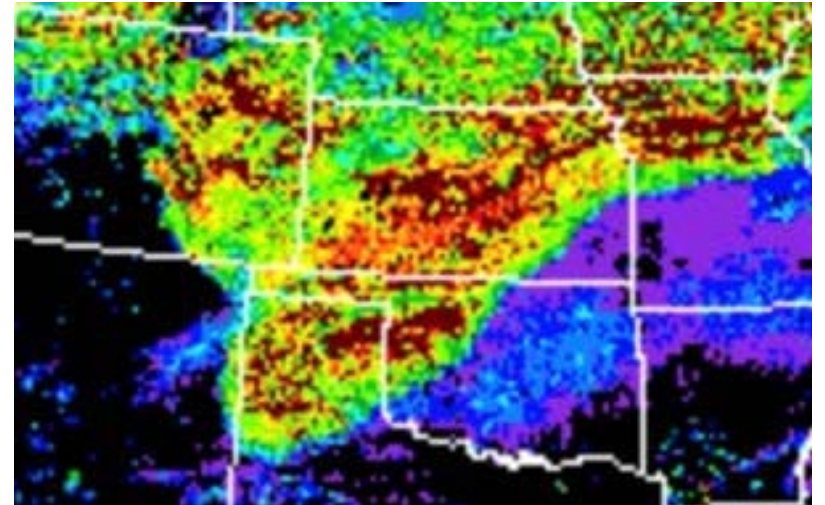
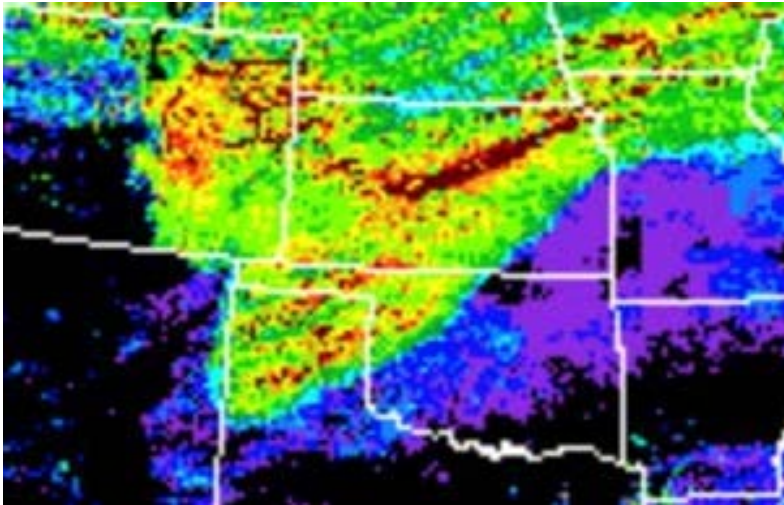
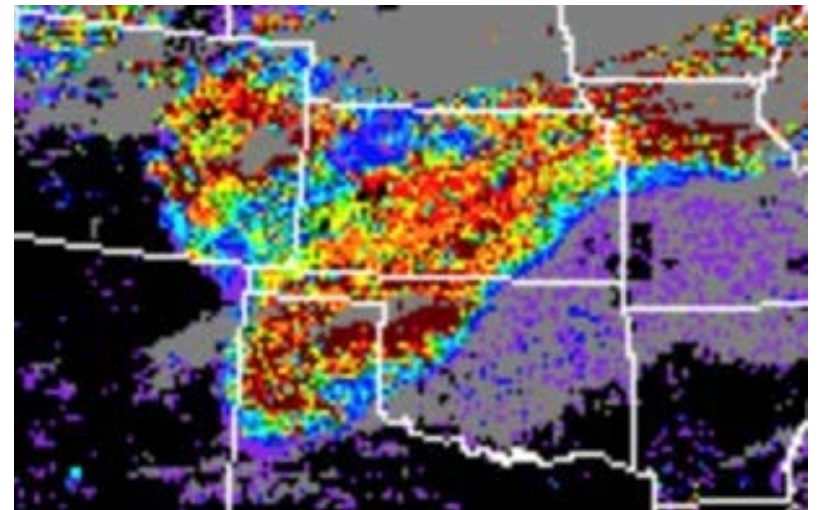
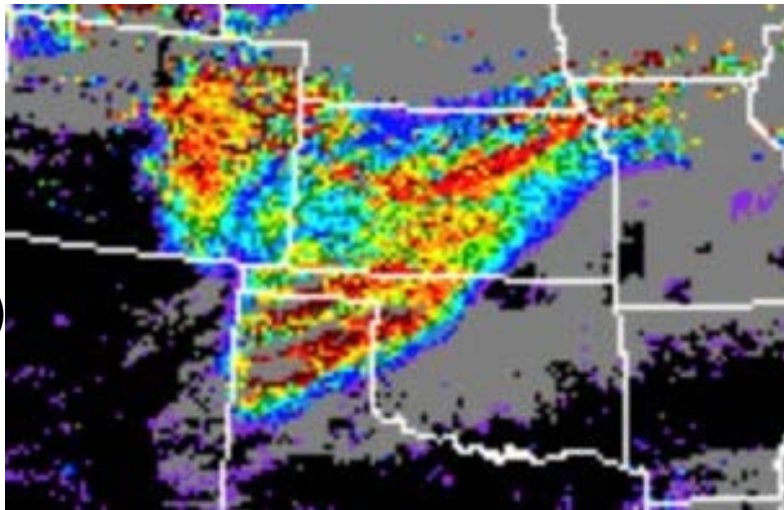
2045 UTC

ICING
TOP
(Kft)ICING
Base
(Kft)

Icing potential appears to be confined to layer between 2-10 kft area wide. Icing tops range from 4-8 kft over SE KS. Icing base analysis a little chunky due to use of gridded ancillary data. Higher icing altitude estimates over panhandle areas probably overdone due to poor interpretation of the multi-layer clouds in the area.

1845 UTC

2045 UTC

Cloud
Optical
DepthLWP
(g/m²)

Large optical depths and LWP in eastern CO. Moderate values in SW Kansas. Extreme values over panhandle probably overestimated due to low sun angle and cloud heterogeneity.