

Visible Satellite Shows Blowing Dust on a Windy Day Across Western Nevada Mary M. Cairns and Ray Collins - NWSFO Reno

April 2, 1997 was a windy day across western Nevada. Northeast surface winds of 25 to 35 kts were typical as a strong surface low swirled around southern Nevada. 1km visible satellite imagery from GOES-9 was used in the afternoon to update a transcribed weather broadcast (TWEB) forecast from Reno south to Las Vegas.

The scheduled TWEB was issued for the Reno-Tonopah-Las Vegas (KRNO-KTPH-KLAS #405; note...indents not shown) route at 1935 UTC. Strong surface winds were included due to reports from Reno and local RAWS stations in the portion from Reno to Hawthorne, NV (KHTH). Visible satellite imagery (Figs. [1,2](#), [3,4,5](#), [6,7](#); 1800-2100 UTC) was indicating scattered clouds in the area.

```
TTAA00 KRNO 021935
405 TWEB 022008 KRNO-KTPH-KLAS. ALL HGTS MSL XCP CIGS. KRNO-KHTH
AREAS SFC WND 03025G35KT P6SM SCT090-110...AFT 03Z P6SM SCT-BKN100-
120. KHTH-50NM SE KTPH AREAS SFC WND 36025G40KT ISOLD 3-5SM -SHRA/
-SHSN...WDLY SCT -SHRA/-SHSN SCT-BKN080-100 BKN130-150 LCL MTN TOPS
OBSCD...AFT 03Z P6SM SCT -SHRA BKN080-100 BKN110-130 LCL MTNS OBSCD.
50NM SE KTPH-KLAS LCL 5SM -SHRA...SCT -SHRA SCT-BKN070-090 LCL MTNS
OBSCD...AFT 01Z SCT -SHRA SCT-BKN080-100 BKN130-150 LCL MTNS OBSCD.
```

By 2130 UTC the looping of the 1km visible satellite imagery clearly showed an area of blowing dust ([Fig. 8](#); 2130 UTC). This area originated in the Carson Sink area east of Reno and was blowing dust from the northeast over the TWEB route to the Sierra Nevada mountains. The TWEB was amended to include areas of blowing dust. The blowing dust continued throughout the afternoon and into the evening hours (Figs. [9,10](#), [11](#); 2200-2300 UTC).

```
TTAA00 KRNO 022145 AMD
405 TWEB AMD 022208 2144Z KRNO-KTPH-KLAS. ALL HGTS MSL XCP CIGS.
KRNO-KHTH AREAS SFC WND 03025G35KT AREAS 1SM BLDU SCT090-110...AFT 03Z P6SM
SCT-BKN100-120. KHTH-50NM SE KTPH AREAS SFC WND 36025G40KT ISOLD 3-5SM
-SHRA/-SHSN...WDLY SCT -SHRA/-SHSN BKN080-100 BKN130-150 LCL MTN TOPS
OBSCD...AFT 03Z P6SM SCT -SHSN SCT-BKN080-100 BKN110-130 LCL MTN TOPS
OBSCD. 50NM SE KTPH-KLAS LCL 5SM -SHRA...SCT -SHRA SCT-BKN070-090 LCL
MTNS OBSCD...AFT 01Z SCT -SHRA SCT-BKN080-100 BKN130-150 LCL MTNS OBSCD.
```

This example has shown how high-resolution satellite imagery can help to identify features previously not discernable. In addition, the imagery can provide input to improving forecasts.

Figure 1 (1800-2100 UTC)

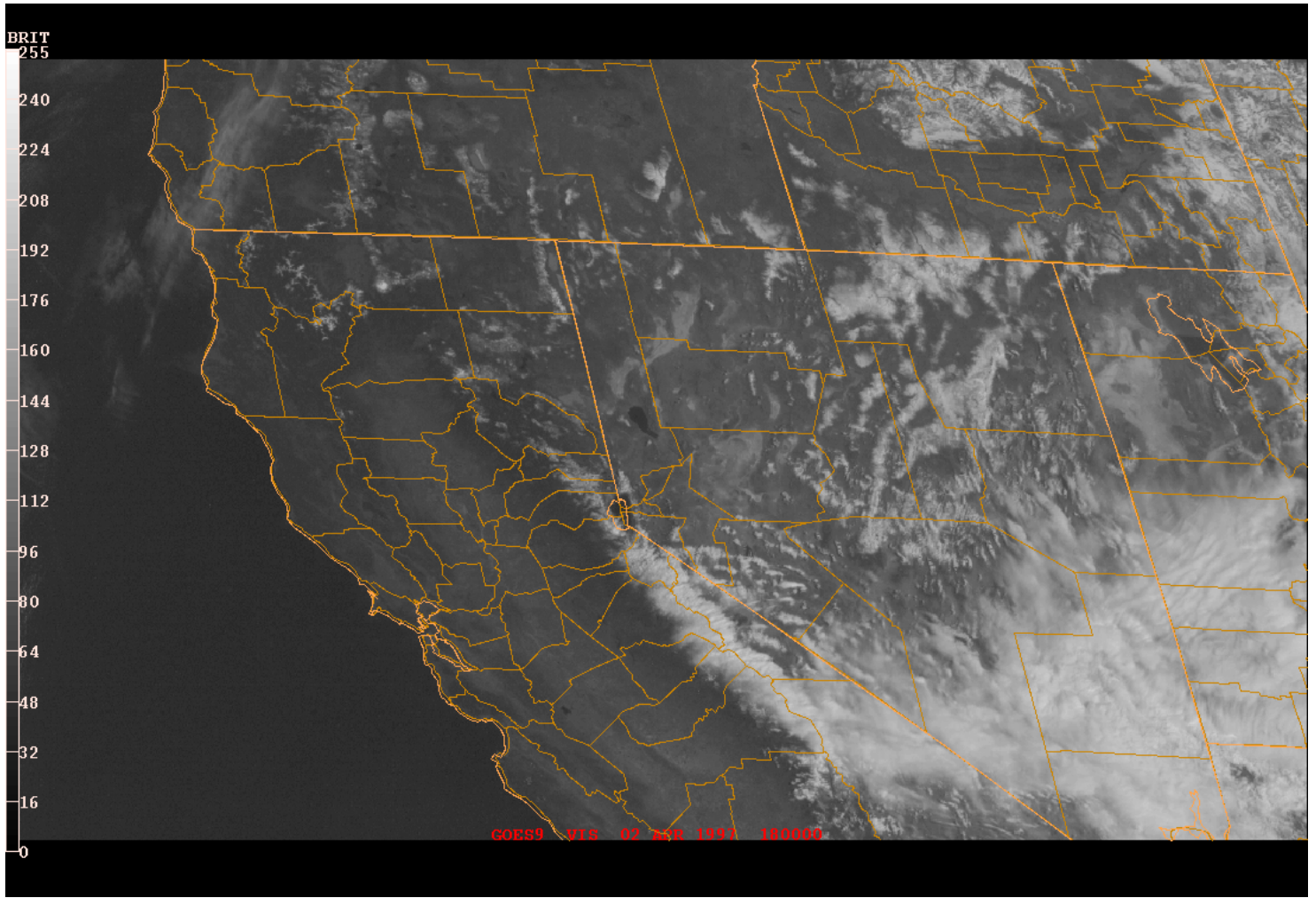


Figure 2 (1800-2100 UTC)

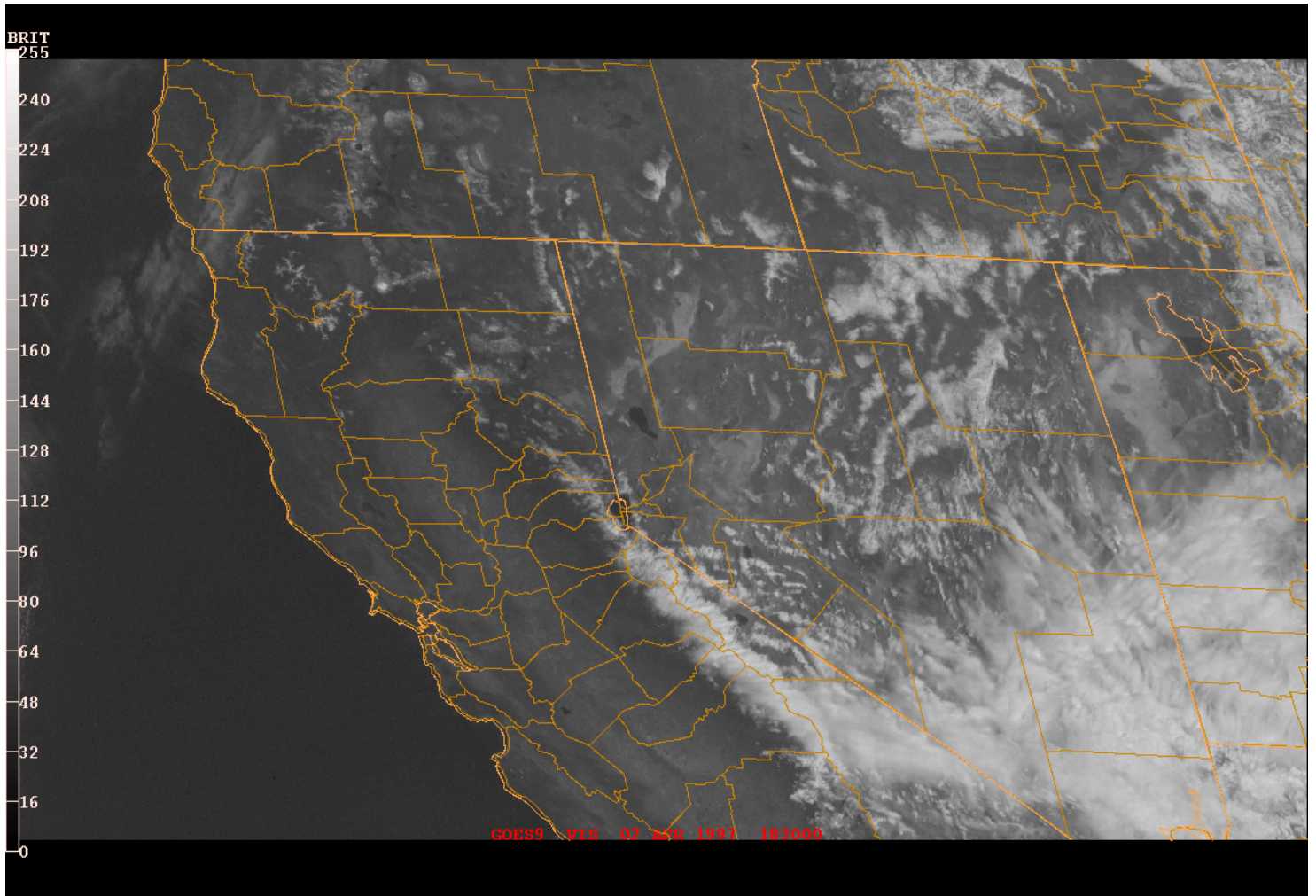


Figure 3 (1800-2100 UTC)

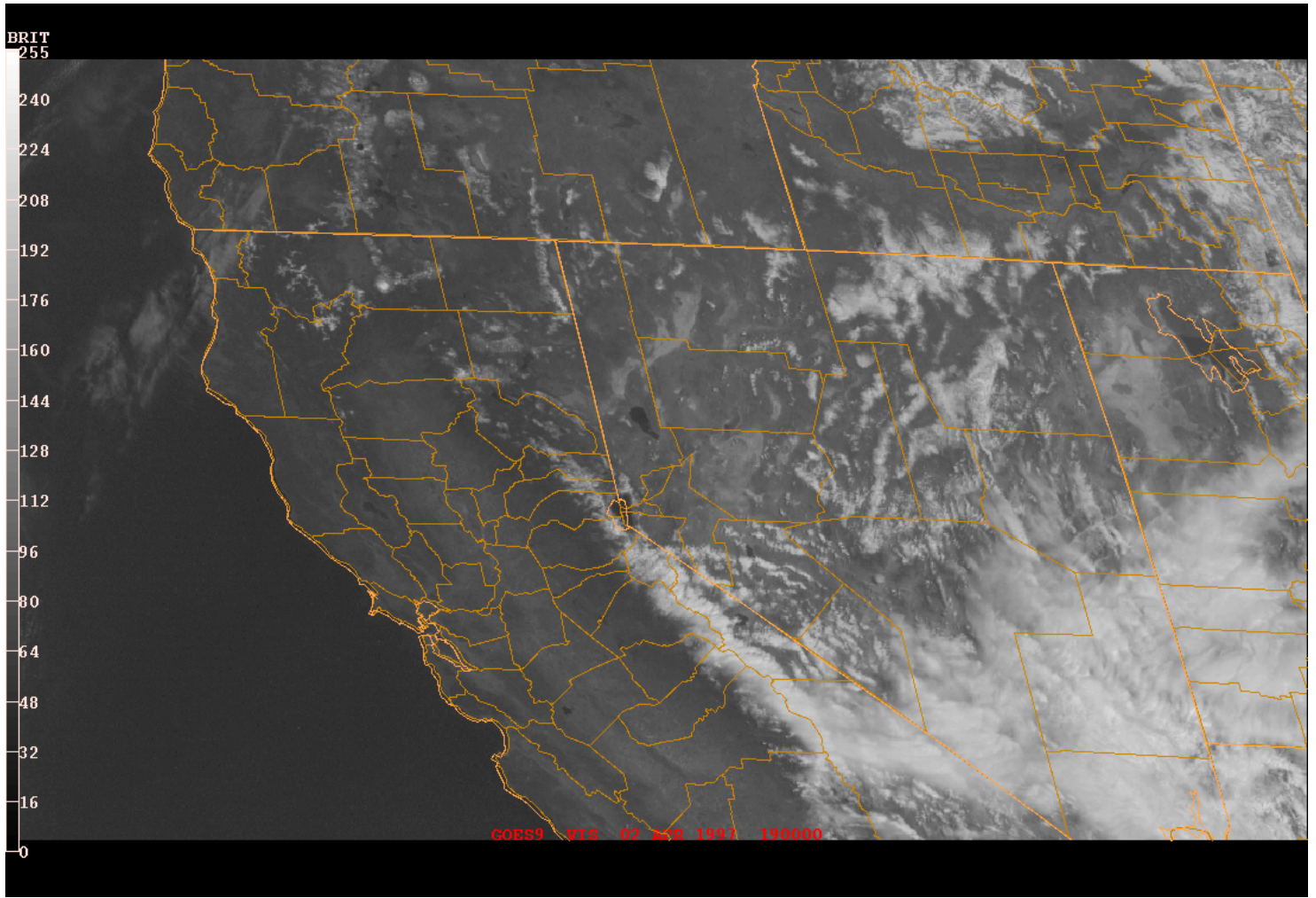


Figure 4 (1800-2100 UTC)

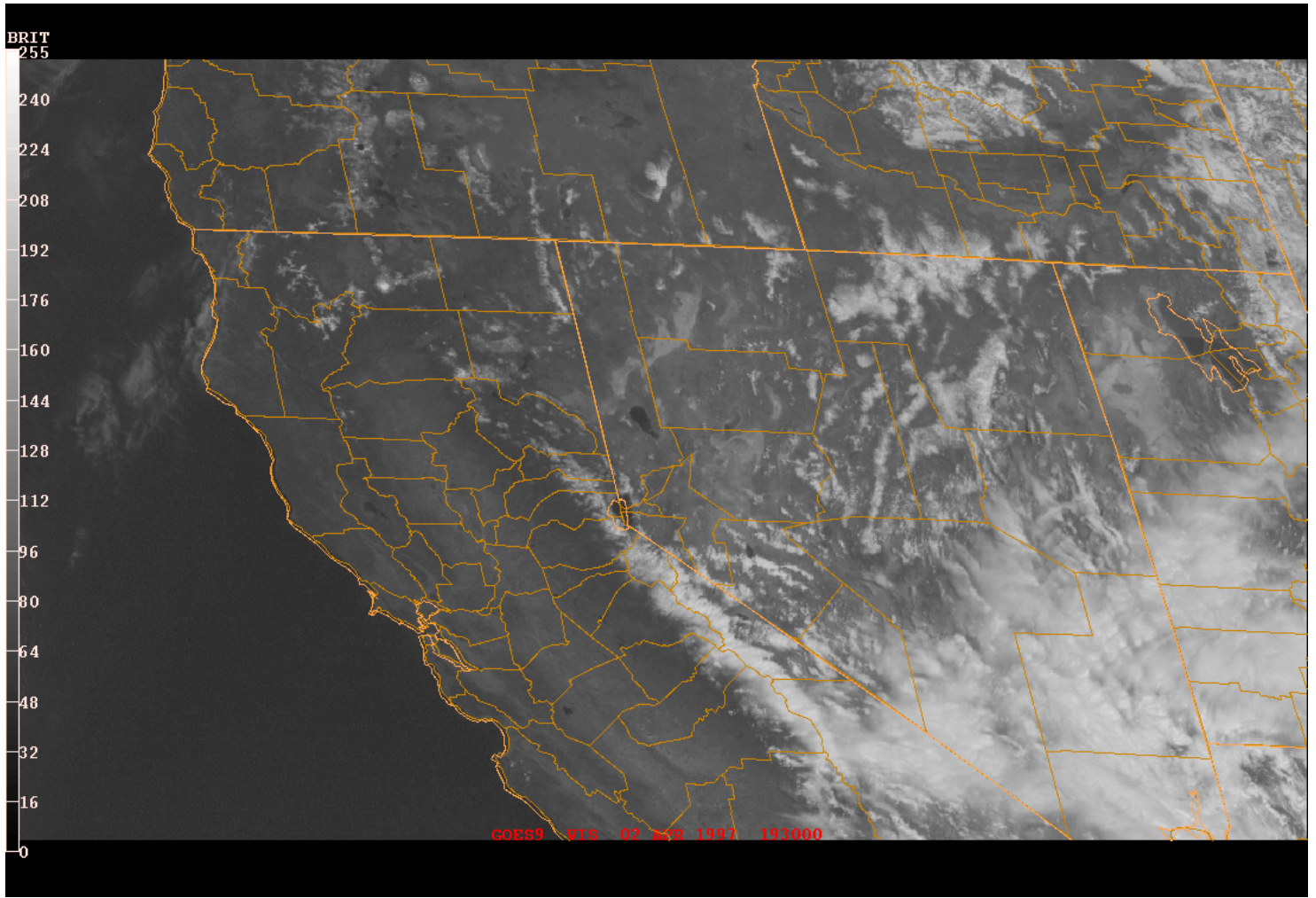


Figure 5 (1800-2100 UTC)

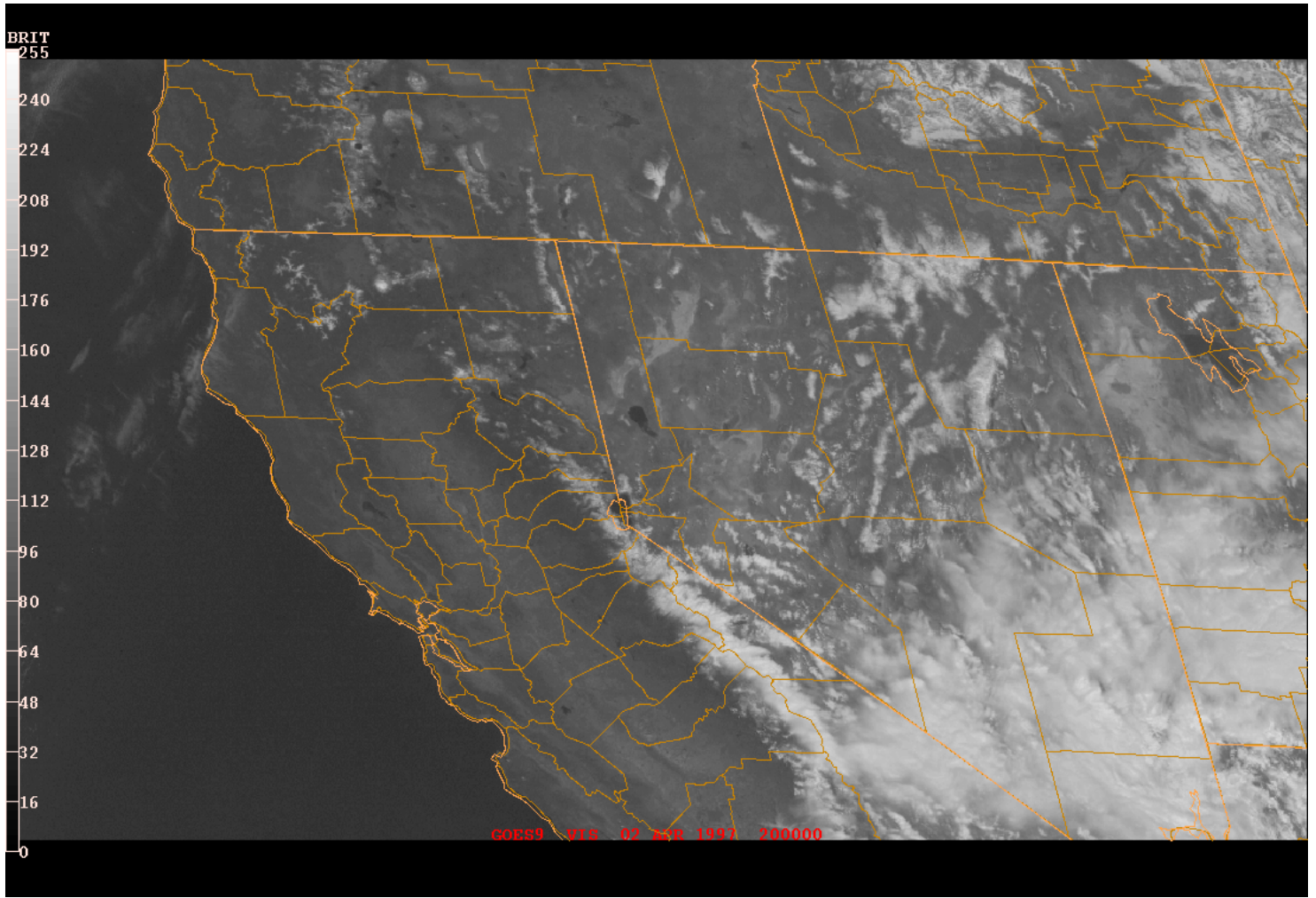


Figure 6 (1800-2100 UTC)

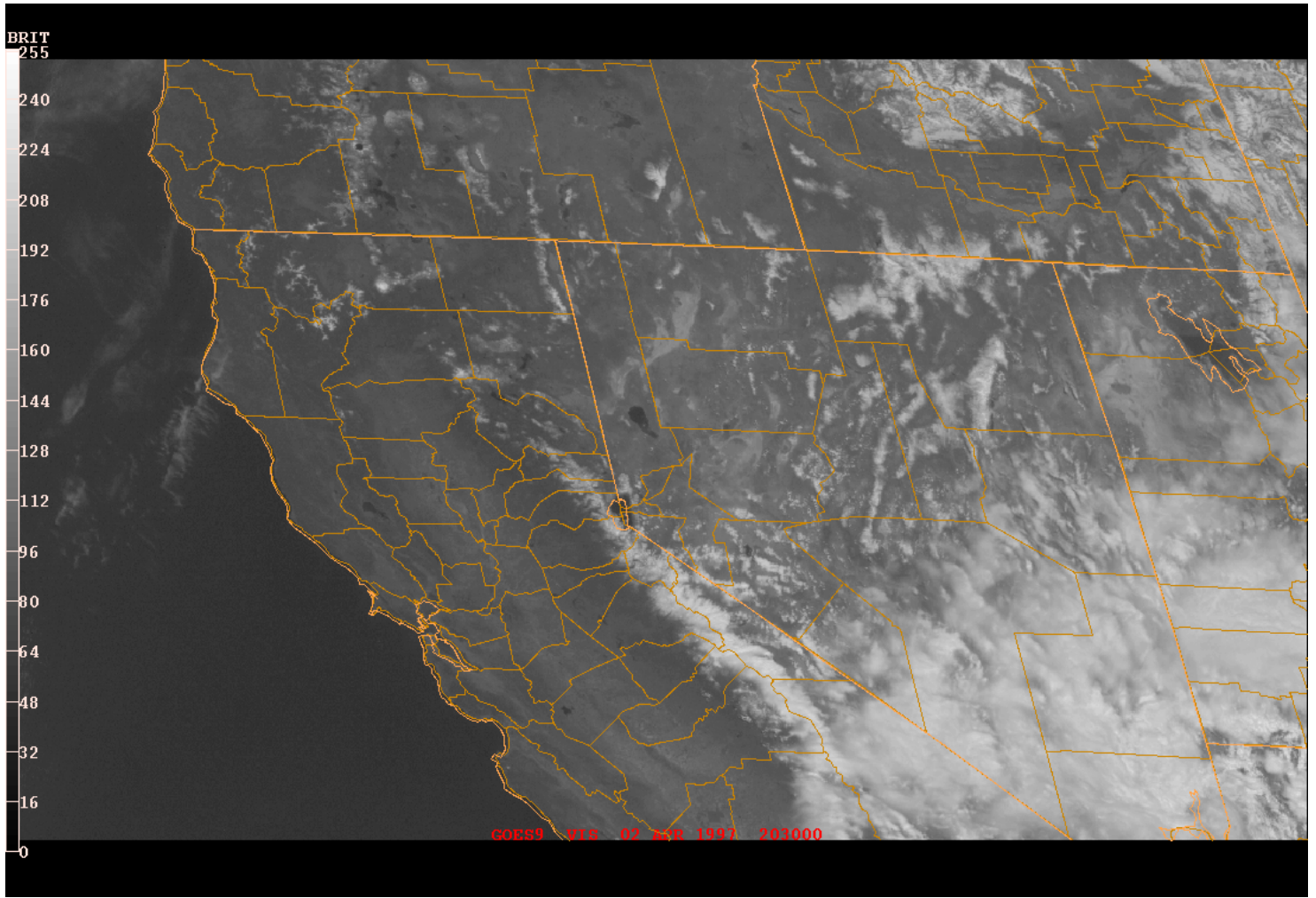


Figure 7 (1800-2100 UTC)

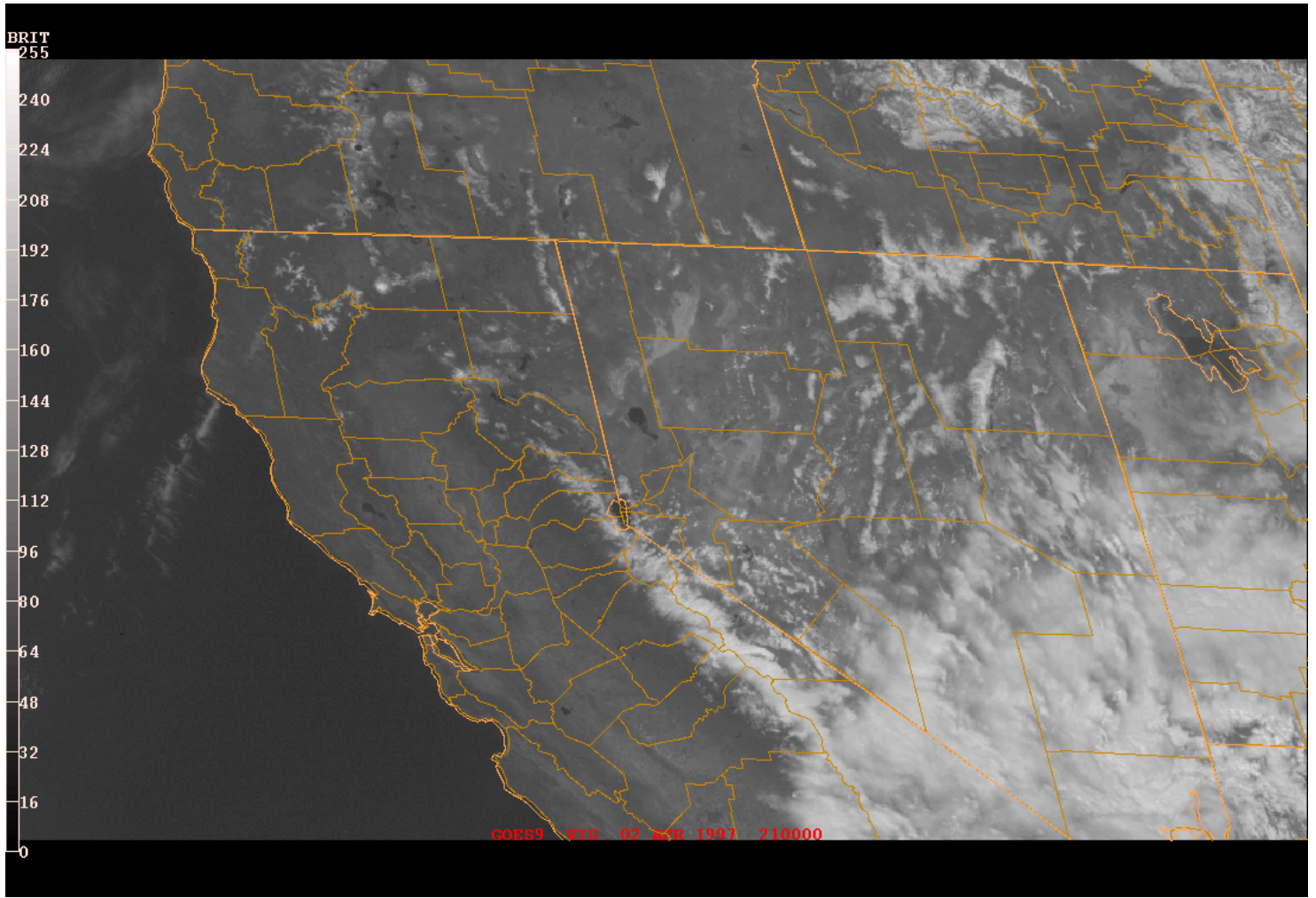


Figure 8 (2130 UTC)

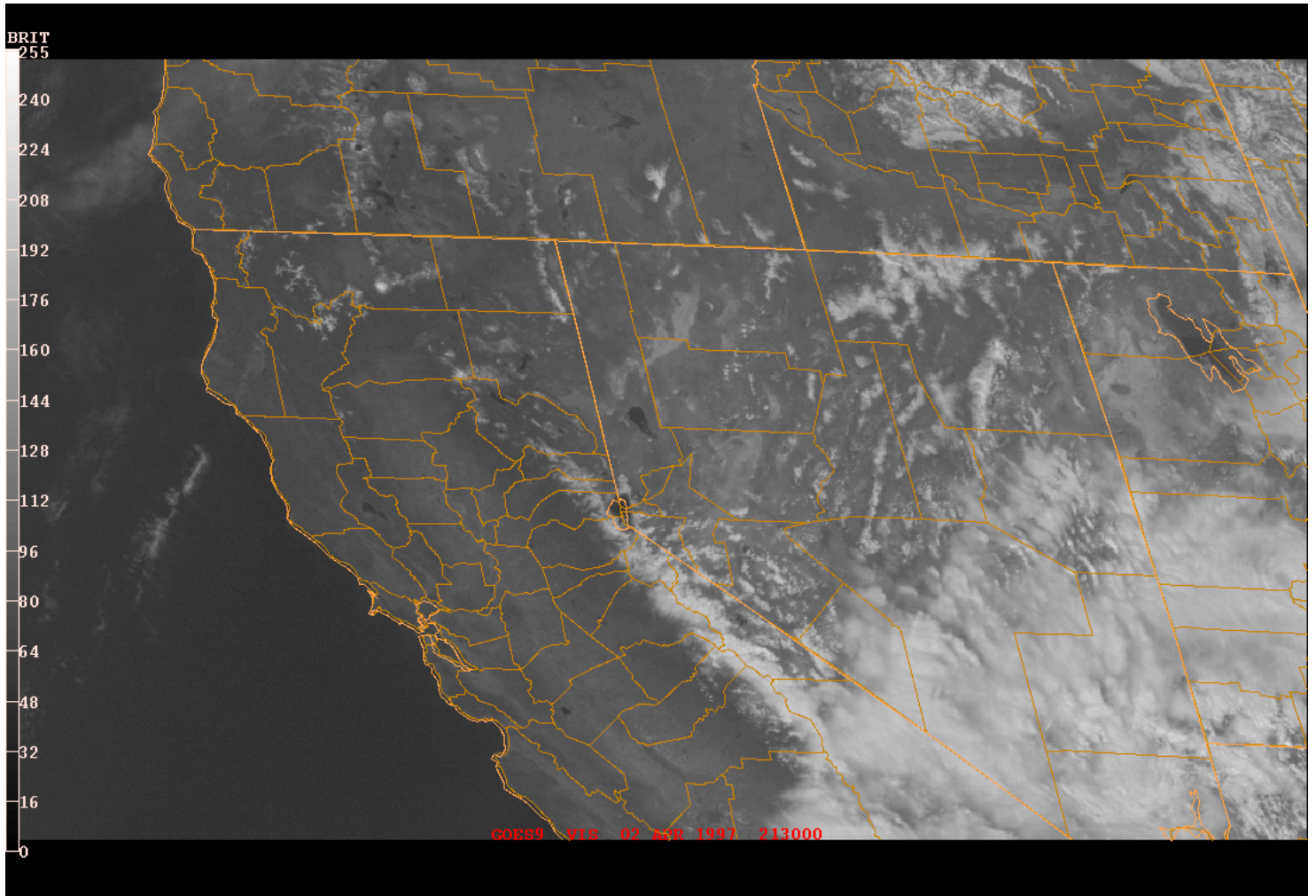


Figure 9 (2200-2300 UTC)

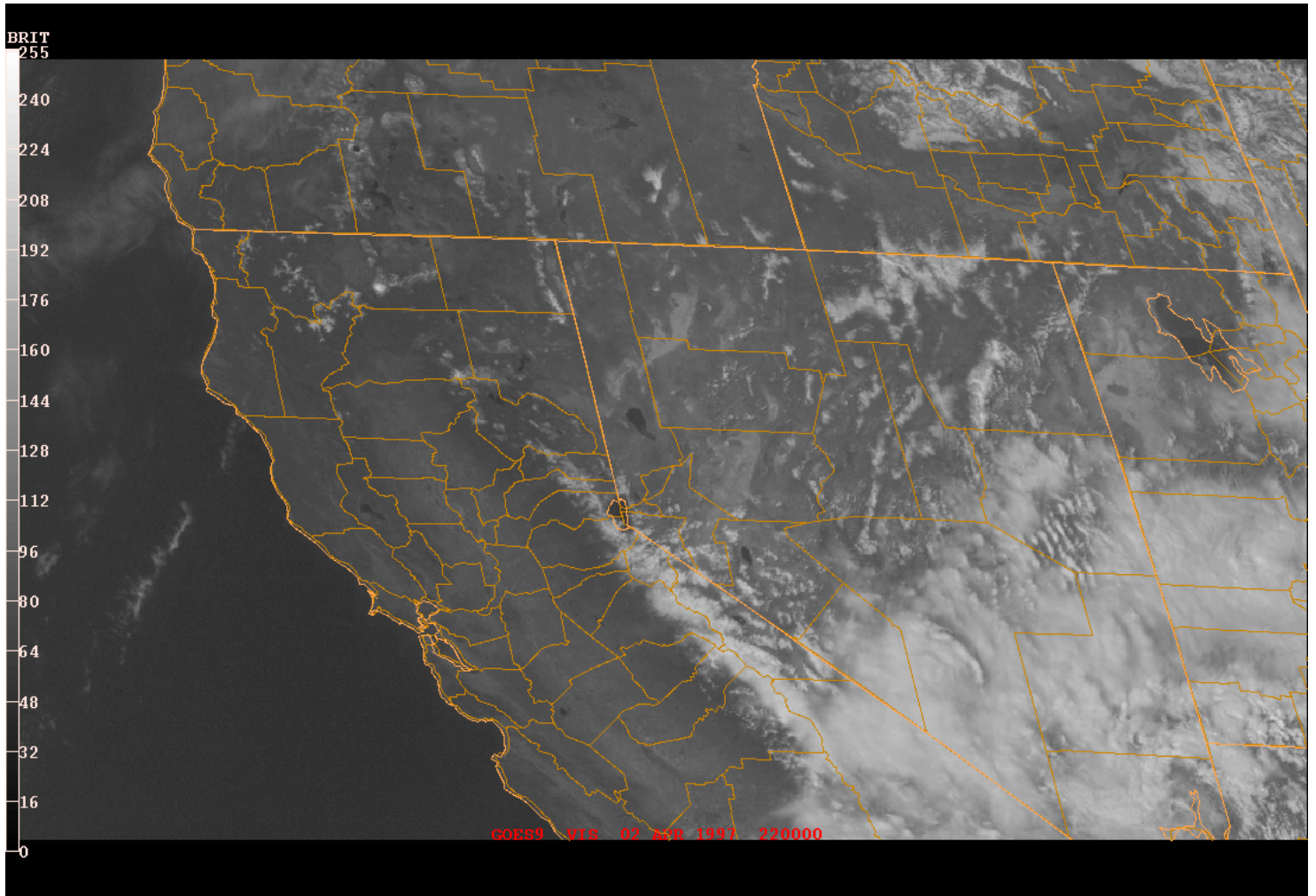


Figure 10 (2200-2300 UTC)

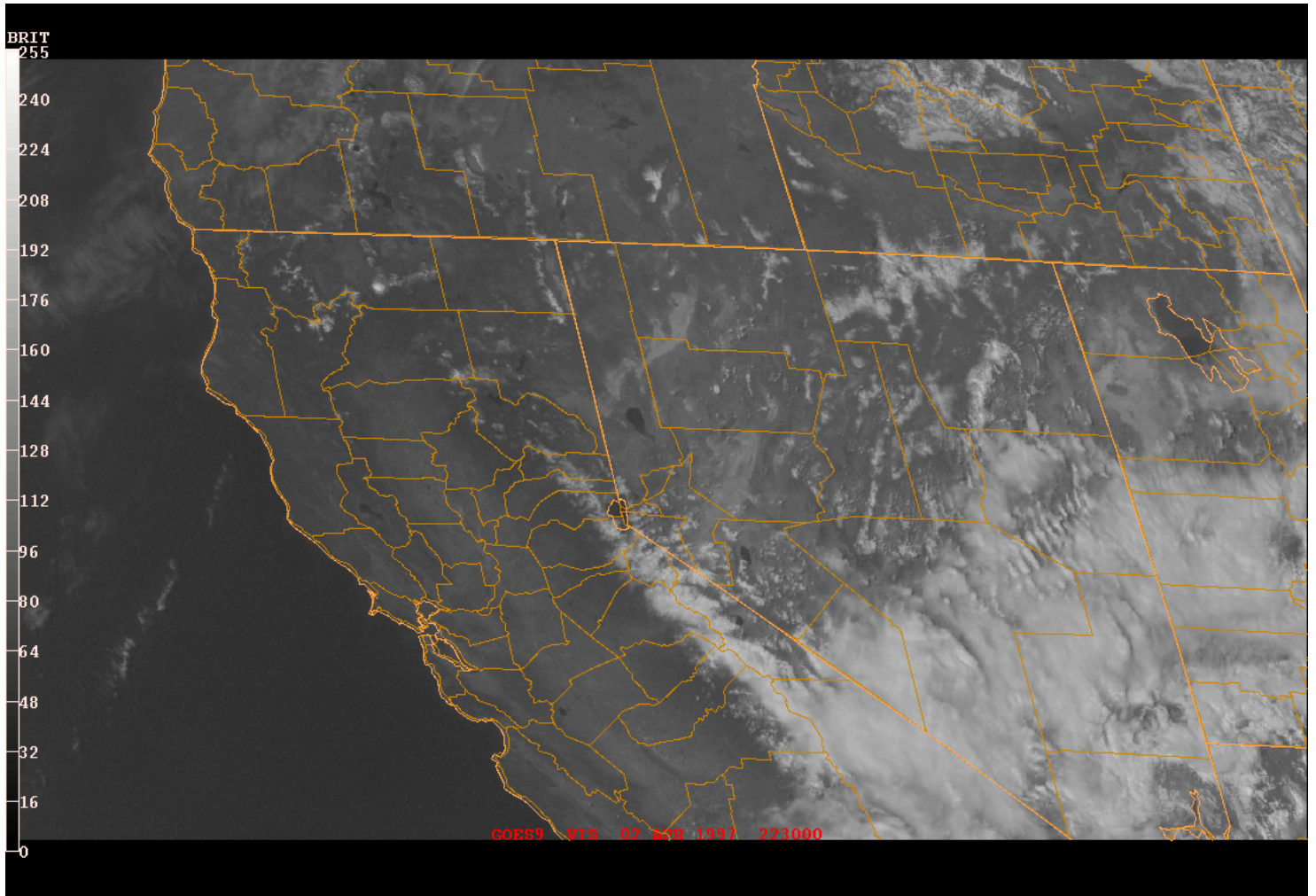
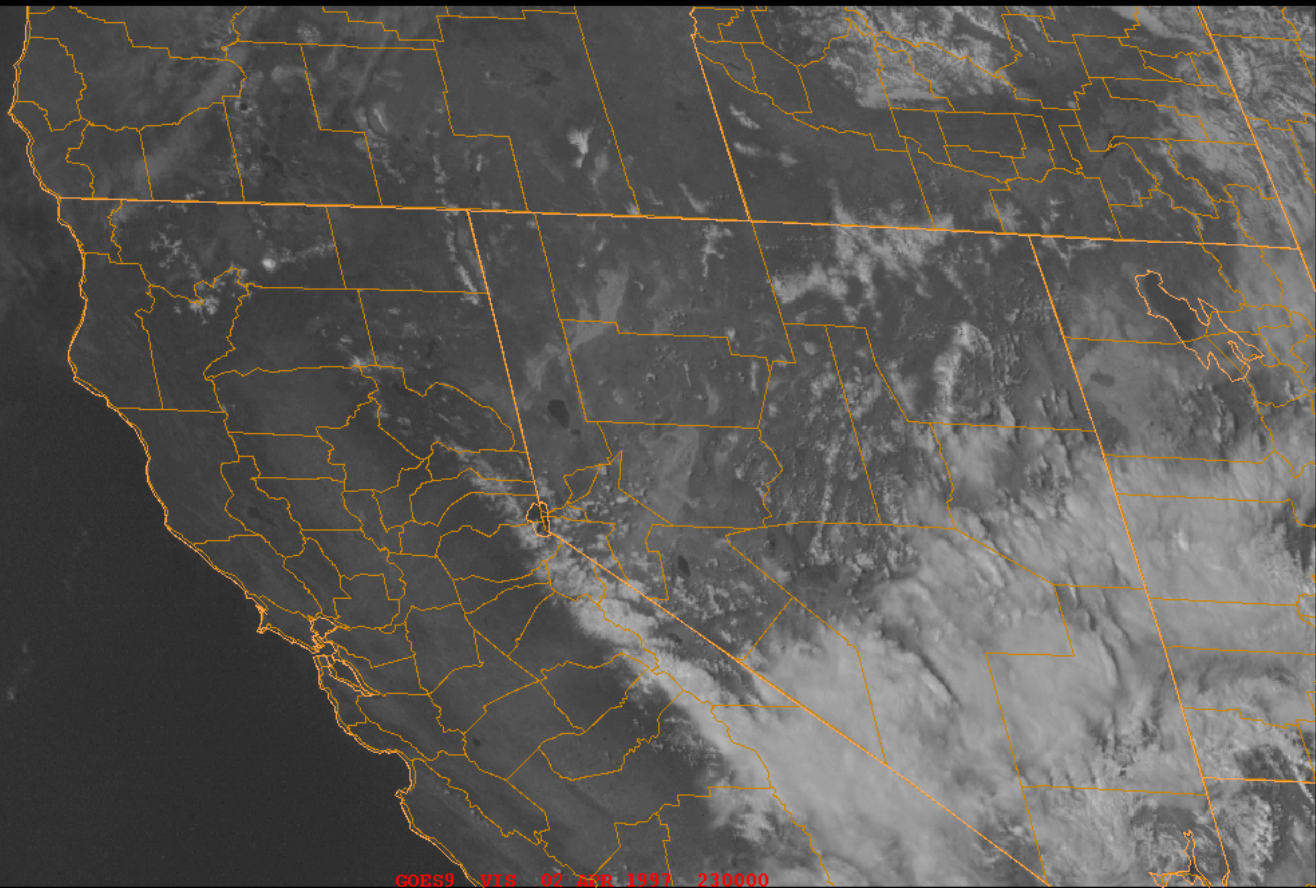


Figure 11 (2200-2300 UTC)

BRIT

255
240
224
208
192
176
160
144
128
112
96
80
64
48
32
16
0



GOES9 VIS 02 SWN 1392 230900