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ARE FALSE REPORTS POSSIBLE ON THE AFOS LDS GRAPHIC?

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Editors Note: The following note by from Rod Gonski was referred to Henry Newhouse of the Office of Meteorology. His reply is attached.

Occasionally the AFOS LDS graphic will show a lightning signature where there is apparently nothing happening. Here is a case in point, occurring on Sunday August 20th. Neither radar nor satellite imagery could detect anything but a few low stratus, otherwise, clear skies in the northeast corner of North Carolina. Yet the LDS at 1231Z (Fig.1 & 2) showed lightning in that area. Surface observations also indicated no cumulonimbus there. The LDS chart immediately prior to and following the 1231Z chart shows nothing over that area, though at 1301Z (Fig.3), another contour appeared just offshore, again with no signs of thunderstorms on radar or satellite.

The question is, is this real? Is LDS picking up something beyond the resolution of all our other observation systems? Or is the lightning detection system subject to false returns? I would like to think that the former is true, but we surely need to know, if there are such things as false returns on the LDS.

The following reply from Mr. Newhouse, Office of Meteorology;

The question of false returns with lightning detection systems is a real one -- namely, there are sometimes cases of false reports. These are usually situations where the detection system has mislocated a strike -- in effect transposing an actual strike from one location to another. This may have been the case in the example cited by Rod Gonski, particularly if we assume that only one strike is indicated by the contour. This seems plausible in light of the thunderstorm activity taking place about 50 miles to the southeast. Other possibilities include:

1. **A problem with the AFOS software**
2. **A problem in the SUNY to NSSFC transmission**
3. **An isolated lightning strike and the associated convective feature is not detectible by other means.**

There seems to be little if any problem with this type of network reporting purely false lightning according to a study by NSSL.

I appreciate your raising these questions. This is precisely the kind of feedback we are looking for as part of the national evaluation of lightning information. This type of feedback is also valuable for any future arrangements we make to acquire operational lightning data. Per your request, I am returning your original charts and notes.

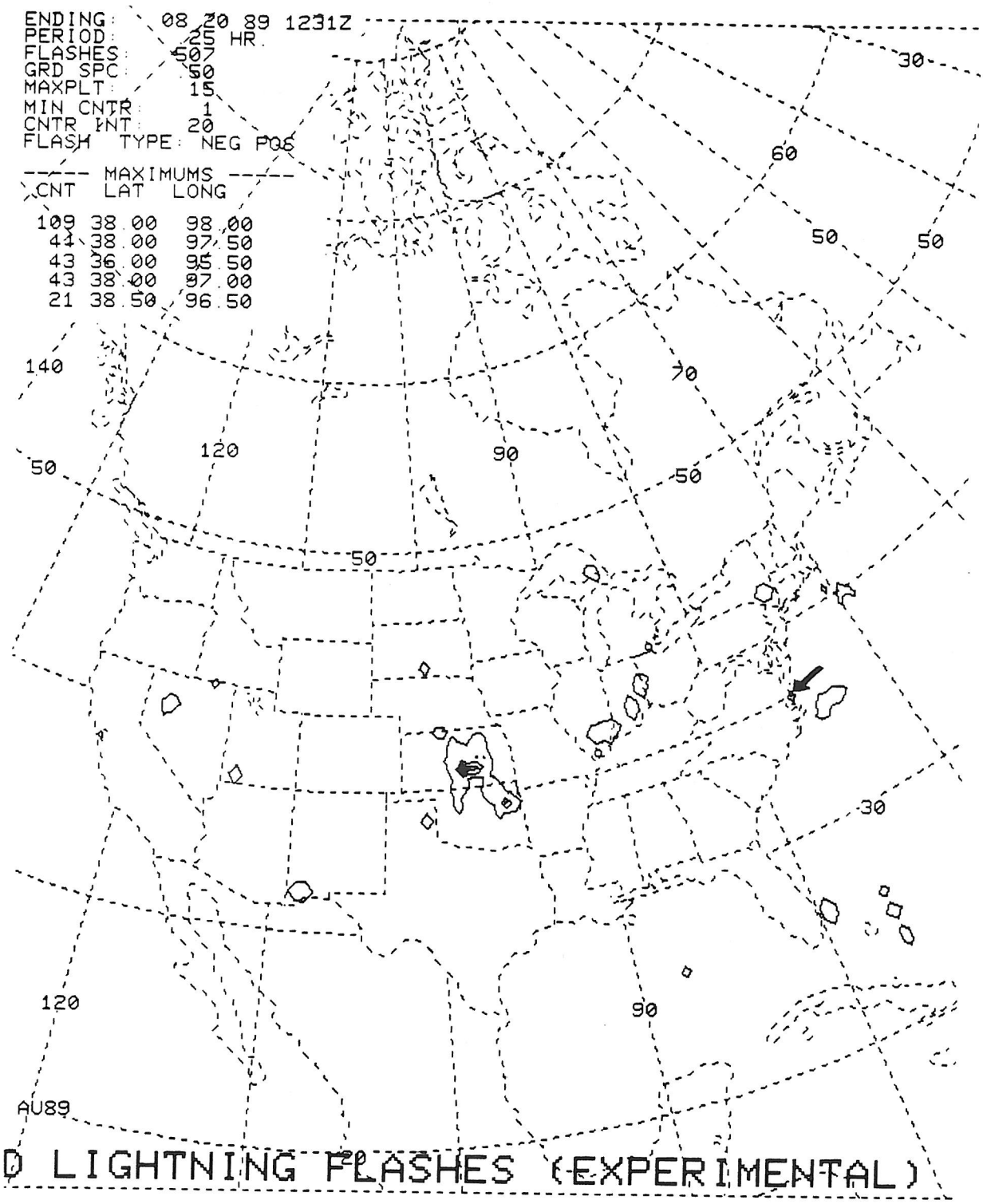

Fig.1. LDS graphic for 1231Z 8/20/89. Spurious lightning area in northeast North carolina indicated by arrow.

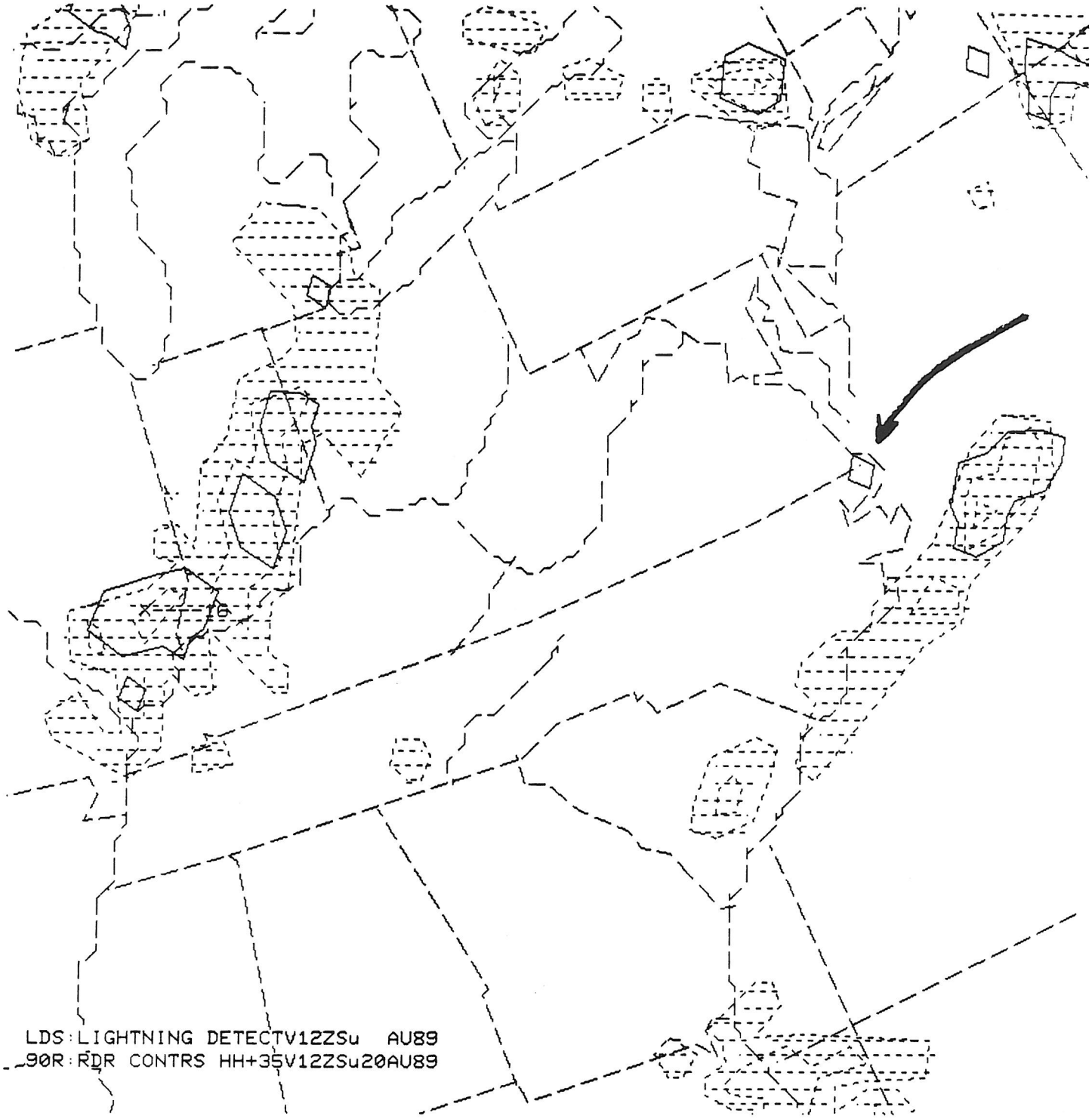

Fig.2. Enlarged LDS graphic for 1231Z 8/20/89 with radar image superimposed.

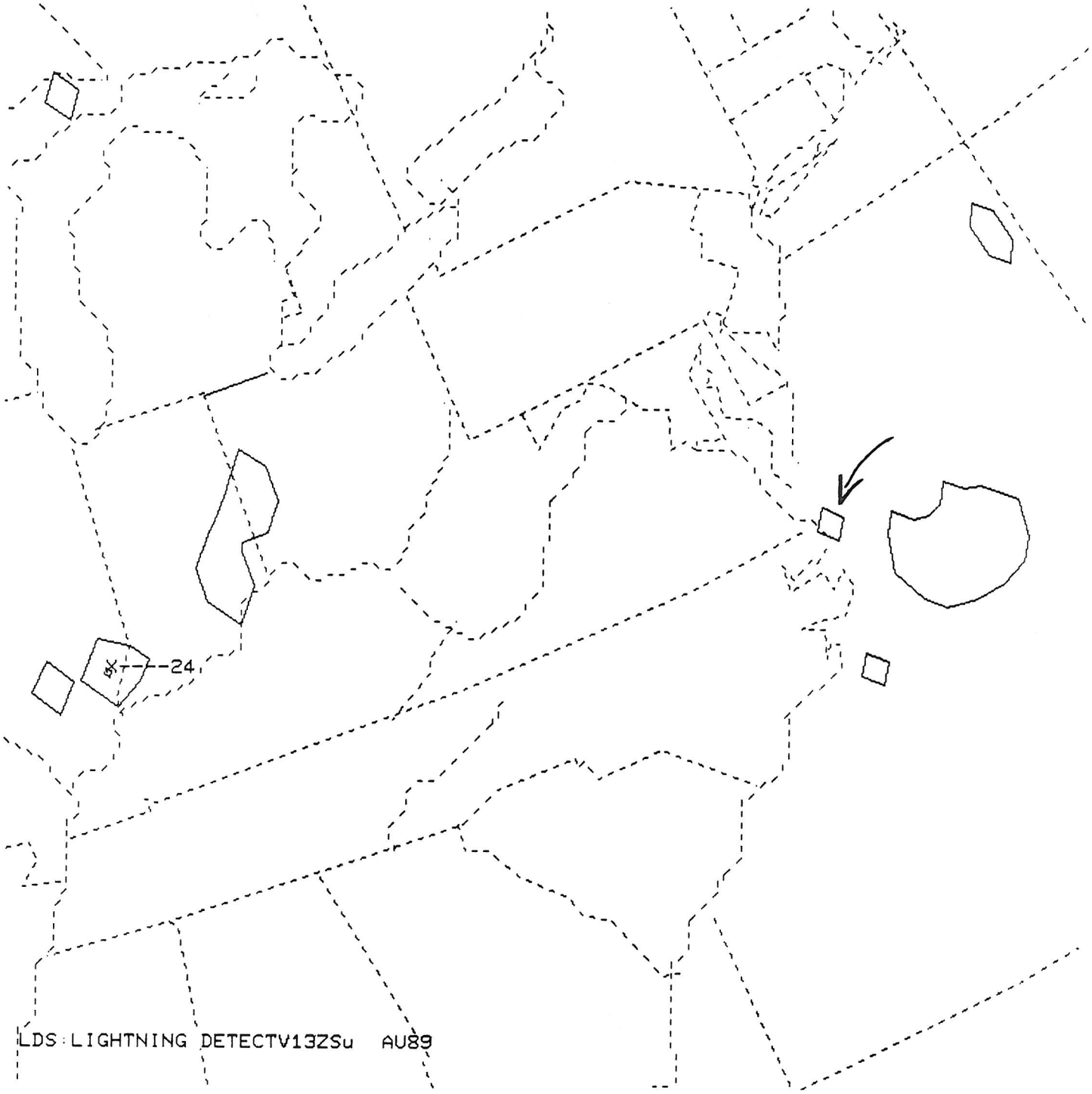

Fig.3. Enlarged LDS graphic for 1301Z 8/20/89. Spurious lightning area indicated by arrow has shifted slightly eastward.