GOES VIEWS AIRCRAFT DISTRAILS

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The heat of combustion of an aircraft or spacecraft's fuel can under certain conditions evaporate existing clouds (if not too dense) and yield a distrail or dissipation trail. Narrow distrails, the opposite of contrails, are often viewed (3) by ground based observers.

Contrails, exhaust trails, ship trails, etc. have been seen on weather satellite imagery most vividly in clear skies (4, 5, 6). Distrails, on the other hand, have probably been seen on spacecraft imagery which have not been published. Imagery of the fallstreaks phenomena (3), ice particles falling from a cloud, are also scarce.

On 3 November 1985, the National Severe Storms Forecast Center (NSSFC) CSIS computer system Anthony et al, (7) captured these phenomena on GOES imagery. Under the influence of strong upper level winds (over 100 kts), the distrails remained remarkably intact; their width at times exceeded 15 NM and fallstreaks can be inferred by examining the visual photos.

Figures 1-3 are GOES visual and infrared sectors showing several distrails and obvious fallstreaks. The widest distrail is even captured in the infrared image in the cold cirrostratus cloud layer.

Fig. 4 shows the 250 mb wind flow that confirms the distrail movement and corroborates the satellite analysis of transverse bands, indicating cloud winds exceeding 80 kts (4).

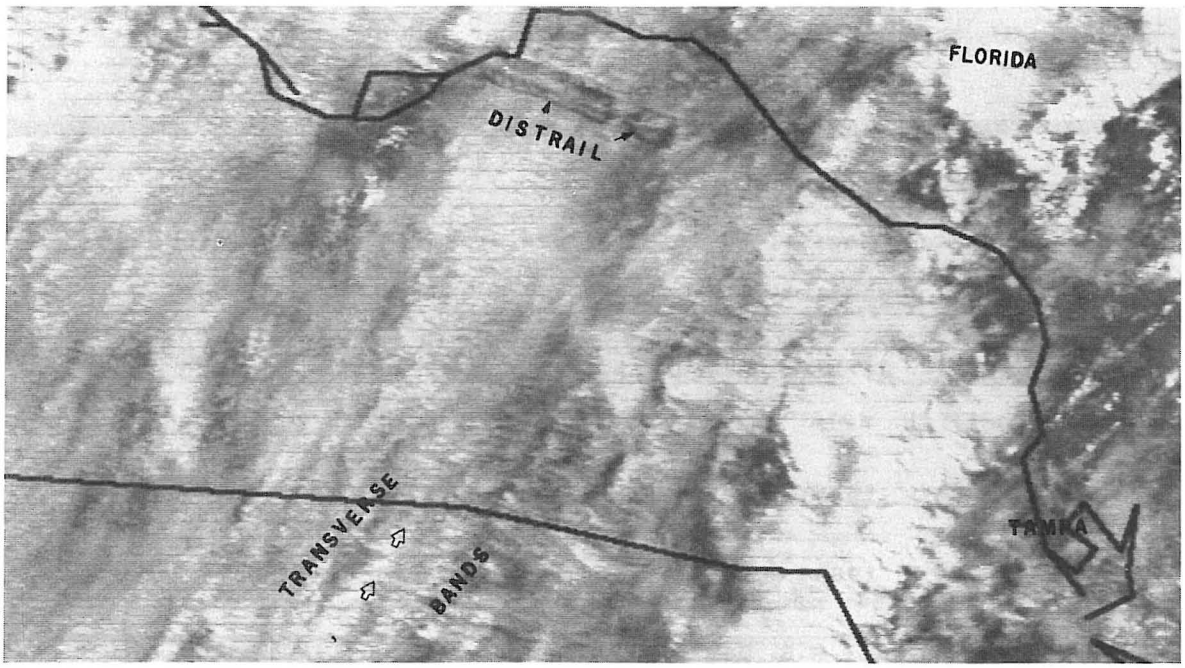

Fig. 1. GOES visible 2030 GMT 3 November 1985; resolution 1 km.

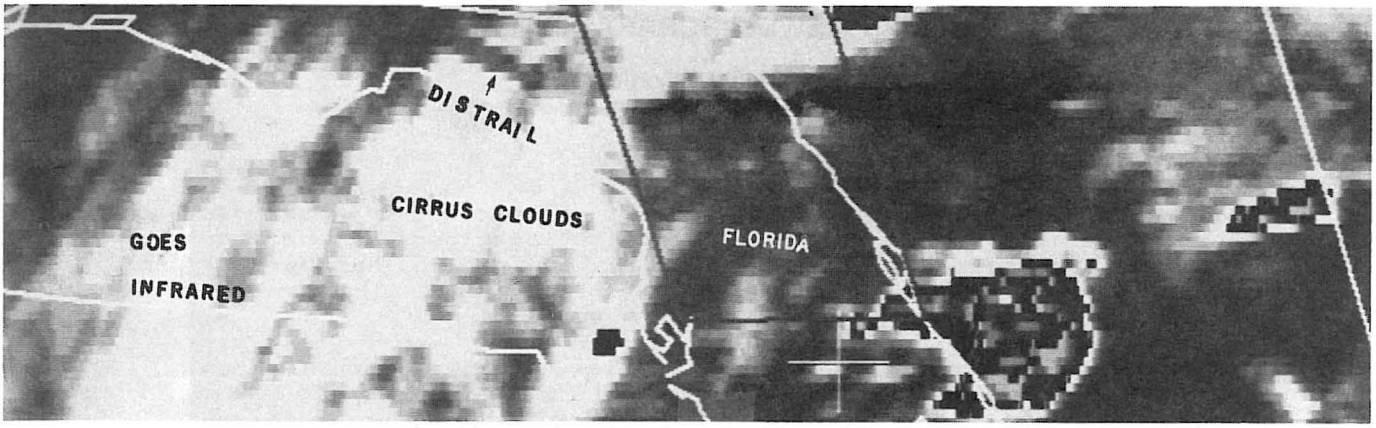

Fig. 2. GOES IR 2100 GMT 3 November 1985; resolution 1 km.

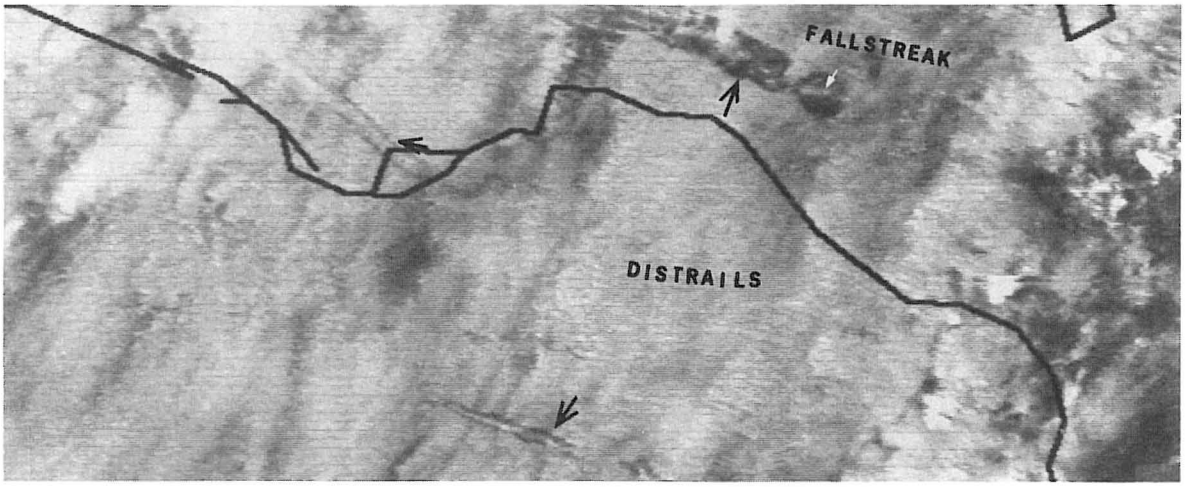

Fig.3 . GOES visible 2100 GMT 3 November 1985; resolution 1 km.

NOTES AND REFERENCES

1. SELS Meteorologist, National Severe Storms Forecast Center.

2. Chairman, NWA Satellite Meteorology Committee.

3. Scorer, R.S., 1972: Cloud of the World, A Complete Colour Encyclopedia. David & Charles, London, pp. 125-131.

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7. Anthony, R.W., W.E. Carle, J.T. Schaefer, R.L. Livingston, A.L. Siebers, F.L. Mosher, J.T. Young, and T.M Whittaker, 1982: The Centralized Storm Information System at the NOAA Kansas City Complex. Preprints, Ninth Conference on Weather Forecasting and Analysis, (Seattle), The American Meteoro-logical Society, Boston, pp. 40-43.

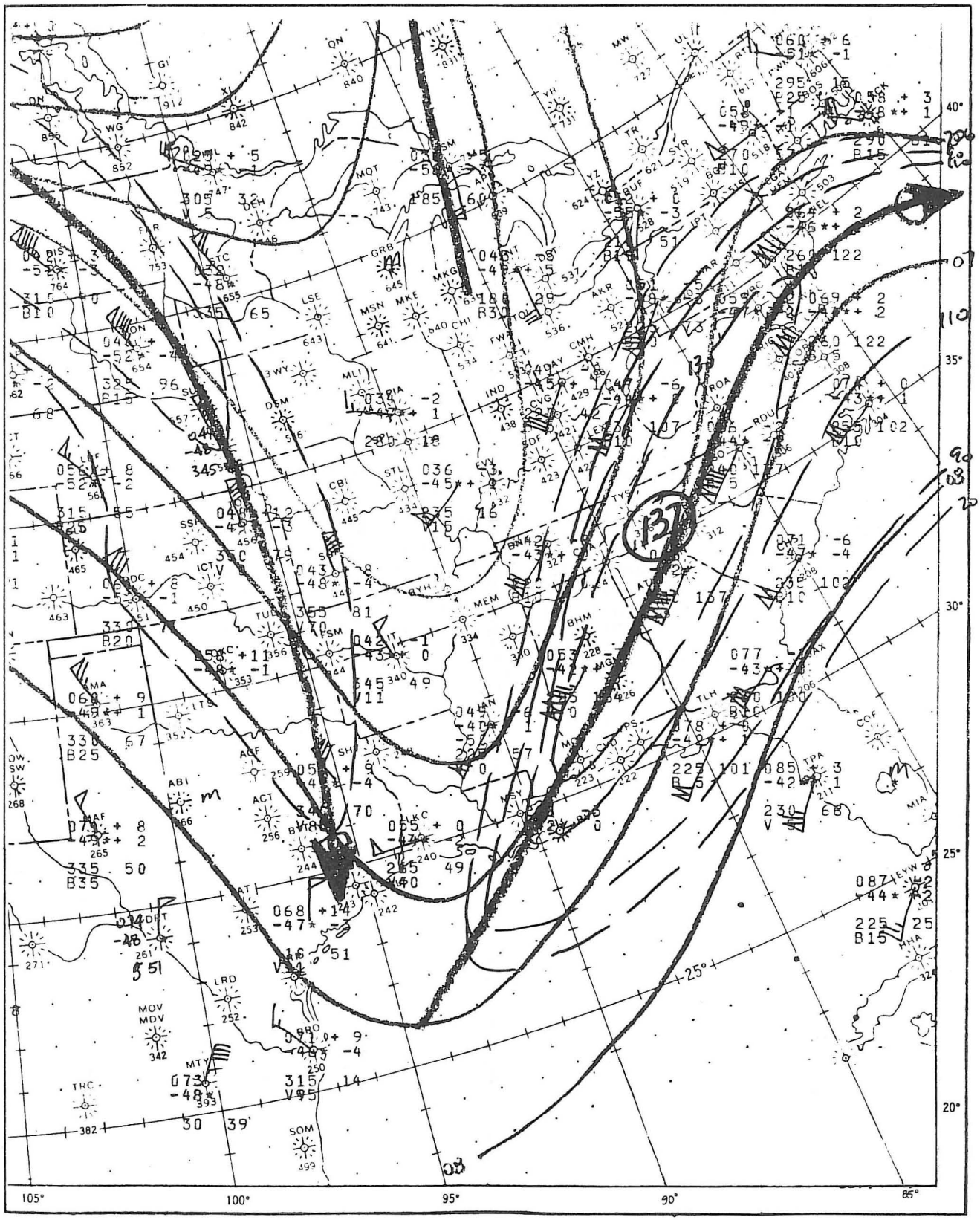

Fig. 4. The 0000 GMT 4 November 1985 250 mb analysis detailing the height, temperature, wind velocity and the 12 hr temperature and height changes.