

NOTES AND CORRESPONDENCE

Comments on "Forecasting Extratropical Storms with Hurricane Intensity Using Satellite Information"

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A recent paper by Böttger *et al.* (1975) draws needed attention to the intense oceanic cyclone of essentially baroclinic origin. Since our ability to forecast this phenomenon is very limited, their claim of ability to detect it unambiguously at an early stage must be regarded as spectacular.

The most striking difference between the "normal" and the "head" wave pictures in their Figs. 1 and 5 seems to me to be the evidence of cellular convection in the cold air to the west of the cyclone in the latter case. The relative vigor of the cold outbreak surely would have been evident in the surface observations from ships in this area. The difference in the sea-level isobaric configuration in their Figs. 4 and 8, in fact, suggests a vigorous northerly blast to the west of the intensifying wave.

On the other hand, the differences in cloud structure that are peculiarly amenable to satellite observation seem to me to be more subtle. For example, I do not see that the sharpness of the northern edge of the cirrus shield is notably greater in Fig. 5 than in Fig. 1. (Do we know, or do we hypothesize that the northern edge of the cirrus coincides with the jet stream? Is the coincidence or noncoincidence important?) I believe I see evidence of streakiness in the cirrus north and east of the center in both cases. A sharp edge on the west

side of the main cirrus mass appears in both Figs. 1 and 5.

A possibly important difference which was not discussed by the authors is that the surface cyclone in the nondeveloping case was close to the western edge of the main cloud shield, while the developing surface center was well within it, if the surface analyses and the satellite registration can be taken at face value. On physical grounds one might expect such a difference, because pronounced ascent in the middle and upper troposphere should extend over a deepening center but not over a filling one.

Since the proposed technique no doubt depends on the judgement of a person experienced in the interpretation of satellite pictures, it would be interesting to know whether different people made identical judgements in the statistical investigation. It would also be helpful to have a list of the 22 storms with head waves in the 1968-73 period, so that others may judge for themselves.

This interesting and important subject clearly deserves further careful study.

REFERENCE

- Böttger, H., M. Eckhardt and U. Katergiannakis, 1975: Forecasting extratropical storms with hurricane intensity using satellite information. *J. Appl. Meteor.*, 14, 1259-1265.