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2003 Prediction of Seasonal Tropical Cyclone Activity over the Western North Pacific and the South China Sea, and the Number of Landfalling Tropical Cyclones over South China

1. Introduction

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Since 2000, the Laboratory for Atmospheric Research (LAR) at City University of Hong Kong has been issuing real-time predictions of the annual number of tropical cyclones (TCs) affecting the western North Pacific (WNP) and the South China Sea (SCS). In 2001, LAR also issued predictions on the annual number of TCs making landfall along the South China coast. Verifications of the predictions have shown that the predictions are mostly correct within the error bars.

These are all statistical predictions with predictors drawn from a large group of indices that represent the atmospheric and oceanographic conditions in the previous year up to the spring of the current year. The most prominent ones include the proxies for El Niño/Southern Oscillation (ENSO), the extent of the subtropical ridge, the intensity of the India-Burma trough. Details can be found in Chan et al. (1998, 2001) and Liu and Chan (2003).

Since an important determinant is the status of the ENSO condition, we have made a detailed discussion on the possible ENSO situation in 2003. Based on the discussion, it appears that 2003 will unlikely be a warm event year. Rather, ENSO conditions tend to be neutral with the possibility of development of a cold event towards the latter part of the year.

2. The predictions

For predictions for the entire WNP, different predictors give rather similar forecasts. It is unlikely that 2003 will see above-normal tropical cyclone activity over the entire WNP. The final forecasts call for a *normal to below normal* number of tropical cyclones, tropical cyclones reaching at least tropical storm intensity, as well as typhoons (Table 1).

On the other hand, the predictions for the SCS give mostly normal to above-normal activity, with the ENSO predictors forecasting above-normal number of tropical cyclones. An examination of past history suggests that during the year after a warm event, tropical cyclone activity over the SCS tends to be above normal if the warm event transitions to a cold event, but varies from below

to above normal if the warm event simply weakens with the transition. Based on our assessment of the ENSO condition, we would therefore predict a ***normal to above-normal*** number of tropical cyclones and of tropical cyclones reaching at least tropical cyclone intensity for the SCS in 2003 (Table 1).

As for the number of landfalling tropical cyclones over South China, the predictors all call for a ***normal*** number (Table 1). This is reasonable given the predictions for the tropical cyclone activity over the SCS.

As discussed in Chan et al. (2001), we will provide an updated forecast sometime in June when the signal for the ENSO conditions may be stronger.

Table 1. Predictions of the number of tropical cyclones over the western North Pacific and the South China Sea in 2003.

2003	**Forecast**	**Normal**
WNP:		
No. of TCs	29 ± 3	31
No. of TCs with at least tropical storm intensity	26 ± 3	27
No. of typhoons	16 ± 2	17
SCS:		
No. of TCs	14 ± 2	13
No. of TCs with at least tropical storm intensity	11± 2	10
No. of TCs making landfall along the South China coast	5 ± 1	5

References

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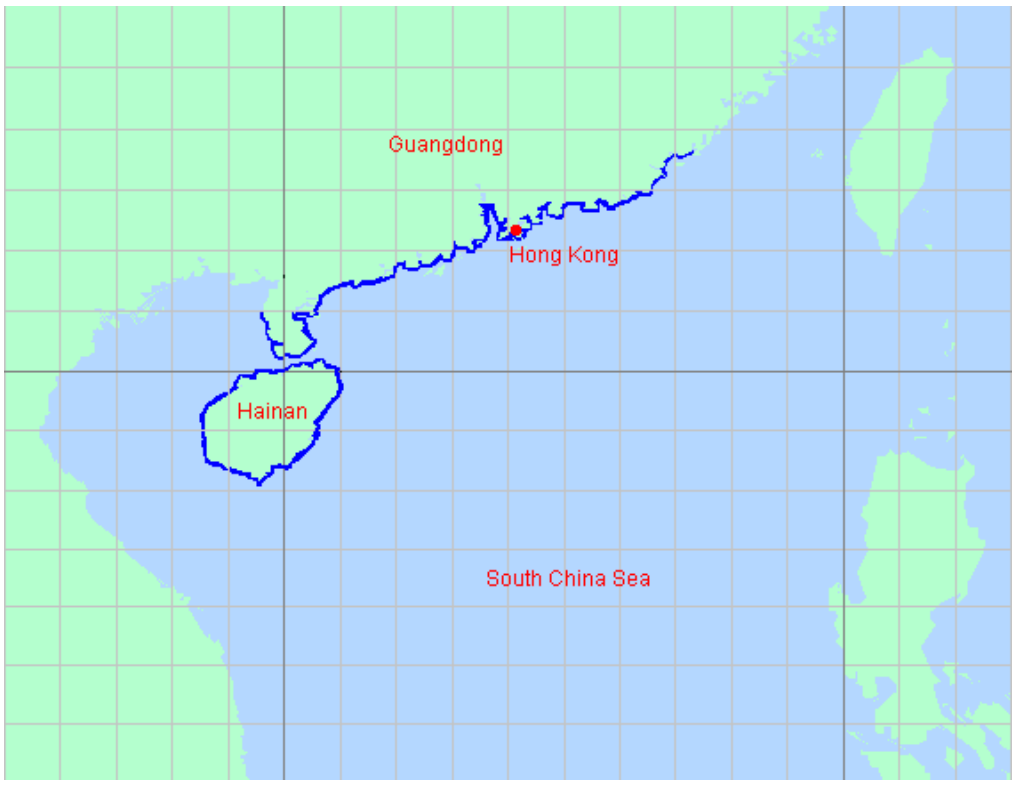

Coastline of South China and Hainan (blue line)