# August Forecast Update for Northwest Pacific Typhoon Activity in 2003

## Issued: 5th August 2003

by Drs Adam Lea and Mark Saunders
Benfield Hazard Research Centre, UCL (University College London), UK

## Forecast Summary

**TSR raises its forecast and anticipates the 2003 Northwest Pacific typhoon season will see above average activity.**

The TSR (Tropical Storm Risk) early July forecast update for Northwest Pacific typhoon activity in 2003 anticipates an above average season. The forecast spans the full Northwest Pacific season from 1st January to 31st December 2003 and is based on data available through the end of July 2003. The TSR predictor is the forecast anomaly in August-September Niño 4 sea surface temperature (SST) which we anticipate will be 0.31±0.15°C warmer than normal this summer. The rise in forecast storm activity from last month comes from a warmer Niño 4 SST now being anticipated. The appendix gives the TSR predictions from previous months.

## NW Pacific ACE Index and System Numbers in 2003

| | | ACE Index | Intense Typhoons | Typhoons | Tropical Storms |
|---|---|---|---|---|---|
| TSR Forecast (±FE) | 2003 | 331 (±75) | 9.6 (±1.8) | 17.5 (±3.8) | 27.0 (±4.6) |
| 10yr Climate Norm (±SD) | 1993-2002 | 300 (±113) | 9.1 (±3.2) | 17.2 (±4.7) | 27.8 (±5.0) |
| 30yr Climate Norm (±SD) | 1973-2002 | 285 (±97) | 8.0 (±3.0) | 16.6 (±3.7) | 26.3 (±4.3) |
| Forecast Skill at this Lead | 1988-2002 | 58% | 71% | 39% | 22% |

Key: ACE Index = Accumulated Cyclone Energy Index = Sum of the Squares of 6-hourly Maximum Sustained Wind Speeds (in units of knots) for all Systems while they are at least Tropical Storm Strength. ACE Unit = $x10^4$ $knots^2$.

Intense Typhoon = 1 Minute Sustained Wind > 95Kts = Hurricane Category 3 to 5.

Typhoon = 1 Minute Sustained Wind > 63Kts = Hurricane Category 1 to 5.

Tropical Storm = 1 Minute Sustained Wind > 33Kts.

SD = Standard Deviation.

FE (Forecast Error) = Standard Deviation of Errors in Replicated Real Time Forecasts 1993-2002

Forecast Skill = Percentage Improvement in Mean Square Error over Running 10-year Prior Climate Norm from Replicated Real Time Forecasts 1988-2002.

Northwest Pacific = Northern Hemisphere Region West of 180°W Including the South China Sea. Any Tropical Cyclone (Irrespective of Where it Forms) Which Reaches Tropical Storm Strength Within this Region Counts as an Event.

There is a 74% probability that the Northwest Pacific typhoon season ACE index will be above the 30-year average.

## Key Predictor for 2003

The key factor behind the TSR forecast for an above average Northwest Pacific typhoon season in 2003 is the anticipated warmer than average Niño 4 (150°W-160°E, 5°S-5°N) SST anomaly. The TSR forecast

anomaly (1973-2002 climatology) for August-September 2003 Niño 4 SST is 0.31±0.15°C (up from 0.03±0.24°C last month). The forecast skill for this predictor at this lead is 92%.

## Further Information

Further information on the TSR forecast methodology, the TSR replicated real-time forecast skill 1987-2001 as a function of lead time, and on TSR in general, may be obtained either from the 'Extended Range Forecast for Northwest Pacific Typhoon Activity in 2002' document issued on the 6th March 2002 or from the TSR web site tropicalstormrisk.com. A summary of the Northwest Pacific typhoon season and a verification of our seasonal forecasts will be issued in early January 2004.

## Appendix - Predictions from Previous Months

| NW Pacific ACE Index and System Numbers 2003 | | | | | |
|---|---|---|---|---|---|
| | | ACE Index | Tropical Storms | Typhoons | Intense Typhoons |
| Average Number (±SD) (1993-2002) | | 300 (±113) | 27.8 (±5.0) | 17.2 (±4.7) | 9.1 (±3.2) |
| Average Number (±SD) (1973-2002) | | 285 (±97) | 26.7 (±4.3) | 16.6 (±3.7) | 8.0 (±3.0) |
| TSR Forecasts (±FE) | 5 Aug 2003 | 331 (±75) | 27.0 (±4.6) | 17.5 (±3.8) | 9.6 (±1.8) |
| | 4 Jul 2003 | 299 (±85) | 26.3 (±4.9) | 16.7 (±4.1) | 8.6 (±2.1) |
| | 10 Jun 2003 | 275 (±89) | 25.8 (±4.8) | 16.1 (±4.1) | 7.9 (±2.3) |
| | 6 May 2003 | 284 (±84) | 26.0 (±4.9) | 16.3 (±4.1) | 8.2 (±2.3) |
| | 11 Apr 2003 | 318 (±102) | 26.7 (±5.1) | 17.1 (±4.5) | 9.2 (±2.9) |
| | 5 Mar 2003 | 297 (±100) | 26.2 (±5.1) | 16.6 (±4.5) | 8.5 (±2.9) |
| Chan Forecast (±SD) | 24 Jun 2003 | - | 26 (±3) | 15 (±2) | - |
| | 24 Apr 2003 | - | 26 (±3) | 16 (±2) | - |