

WA Tropical Cyclone Season Summary 2002/2003

Overview of Season

There were five tropical cyclones in the WA area of responsibility, two of which (unnamed and Graham) had an impact as category one cyclones on the northwest coast. There was no known wind damage as a result of these impacts, although some flooding did occur. Fiona and Inigo reached severe status (mean winds of hurricane force (>63 knots)), and Inigo peaked when the estimated mean winds were 130 knots (category five) but weakened rapidly as it approached the Pilbara coast. The first system for the season was unnamed but reanalysed as a tropical cyclone on the basis of recorded winds offshore from Port Hedland.

An El Nino event developed early in 2002 and persisted for the remainder of the year. The Southern Oscillation Index was significantly negative, having a pre-season average of -10 for the July to August period. As a result, the tropical cyclone season outlook was for a delayed start to the season, a likelihood of about two coastal impacts and a lower than average number of cyclones overall. The first event did not occur until late January (unnamed low) and there were indeed two coastal impacts. However, the total number of cyclones (5) was close to the long-term average (4).

Verification statistics (see table below) indicate significantly better location accuracy than the long-term values. The season averages for analysis, 12 hour forecast, 24-hour forecast were 27km, 73km and 115km compared to the long-term averages (1984/85 to 2001/02) of 54km, 124km and 206km.

Unnamed Tropical Low 22-25 January 2003

An unnamed tropical low that originated in the Arafura Sea and moved over the Top End early in the month moved westwards eventually crossing the Pilbara coast near Port Hedland on the 25th. Gale-force winds were recorded at two sites off Port Hedland as the system crossed the coast, indicating that the system reached tropical cyclone intensity for a brief time. Port Hedland registered near gale-force winds but there was no known wind damage. Heavy rain south of the centre in the vicinity of Port Hedland caused the Yule River to break its banks cutting the Northwest Highway.

Tropical Cyclone Fiona 3-11 February 2003

A tropical low developed east of Christmas Island on the 3rd and 4th and was named TC Fiona on the 5th. Favourable environmental conditions allowed the system to reach category 3 strength on the 7th as it moved westwards passing to the south of Christmas Island. Fiona peaked in intensity at category 4 with sustained winds estimated to be 95 knots and gusts to 130 knots at 06UTC on the 9th, about 250nm south-southeast of Cocos Islands. The system turned sharply to the south-southeast on the 11th, before weakening below cyclone intensity late on the 12th. Although warnings for possible gale-force winds were issued for Christmas Island for the 7th when Fiona passed within 115nm south of the Island, Fiona did not affect any island communities or cause any known damage.

Tropical Cyclone Graham 27 February - 1 March 2003

A low located about 300 kilometres to the WNW of Broome was named TC Graham on 27 February. After initially moving east-southeast and intensifying slowly the system then turned south on 28 February, crossing the 80 Mile Beach 115 kilometres northeast of Wallal at about 4am (WST) 28 February. TC Graham dissipated over land by 9pm (WST) 1 March. TC Graham retained the characteristics of a monsoonal low throughout its life with gales somewhat removed from the centre. Significant rainfall was recorded in some communities as Graham crossed the coast. A man was killed when he attempted to cross the flooded Blue Bush Creek near Fitzroy Crossing.

Tropical Cyclone Harriet 28 February - 14 March 2003

Harriet was a small category one cyclone that formed to the south of Christmas Island and, although approached the Pilbara coast changed direction and did not affect the coastline at any stage. It was captured by an amplifying Indian Ocean trough and accelerated to the southeast off the west coast. Although not affecting the lower west coast directly it did contribute to extreme fire danger ratings over southern WA fanning a large bushfire near Walpole on the south coast.

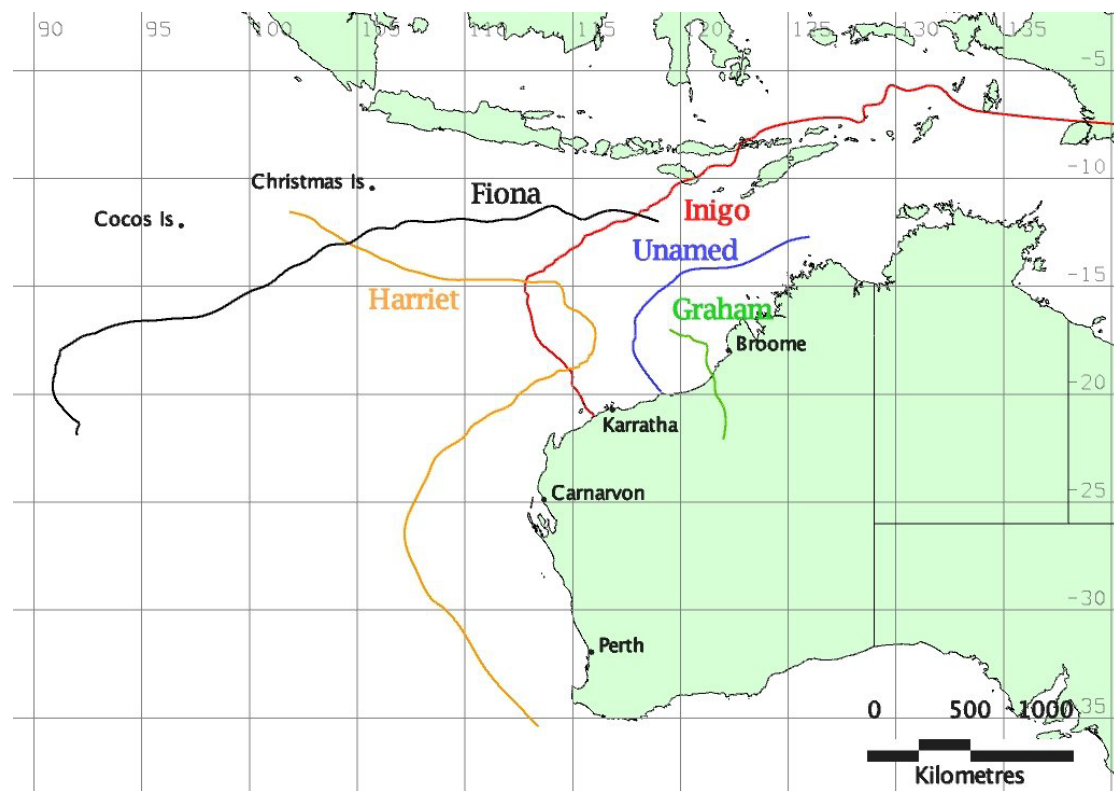
Tropical Cyclone Inigo 30 March - 8 April 2003

Inigo was a small cyclone that developed into one of the strongest cyclones ever monitored by satellite in the WA region having estimated sustained winds at 130 knots at peak intensity at 0600 UTC 4 April about 830km north-northwest of Karratha. However, the system weakened rapidly due to wind shear as it approached the coast and caused no known damage on the mainland.

During its development phase, however, the low crossed over parts of eastern Indonesia producing heavy rain that caused landslides and flooding to At least 50 people were killed: 31 in the Ende district on Flores Island, 10 in the east Flores district and 9 in the Sikka district on Besar Island. Many thousands of homes were destroyed or severely damaged and damage to infrastructure and crops was estimated to approach A\$10 million. 24-hour rainfall totals on 2 April on the island of Flores were 223 mm at Larantuka and 164 mm at Maumere. Mudslides 'wiped out' Ndonga town. Thousands of hectares of rice fields and plantations, several hundred houses, churches, schools, three bridges, dozens of cars and motor bikes were damaged or swept away. The towns of Ende and Larantuka were flooded, schools and government offices shut, water and power supplies cut off and thousands of people evacuated. Flood waters in some areas were up to 5 metres deep. (source <http://www.relief.int>, Jakarta Post).

Two Indonesian fishing vessels, with about five to eight crew each, were reported missing several days after Inigo passed over their position near 12S. Although no further information is available, presumably both vessels went down as Inigo was nearing its peak intensity at their location.

Tracks of tropical cyclones, 2002-03.



WA Verification statistics for Tropical Cyclone Season 2002-03

Cyclone Name	Leadtime	No of Locations	Mean Great Circle Error (km)	Std pressure error (hPa)
All Cyclones	0	91	27	8
All Cyclones	12	97	73	11
All Cyclones	24	97	115	13
All Cyclones	48	34	190	23
All Cyclones	72	26	230	27
unnamed	0	3	68	0
unnamed	12	3	146	0
unnamed	24	6	209	2
Fiona	0	30	27	11
Fiona	12	31	71	12
Fiona	24	29	128	11
Fiona	48	12	256	12
Fiona	72	10	290	15
Graham	0	10	47	2
Graham	12	13	74	5
Graham	24	11	96	7
Graham	48	2	170	5
Harriet	0	23	24	3
Harriet	12	23	89	4
Harriet	24	26	116	7
Harriet	48	10	136	7
Harriet	72	8	181	9
Inigo	0	25	17	9
Inigo	12	27	53	14
Inigo	24	25	85	19
Inigo	48	10	166	37
Inigo	72	8	205	44