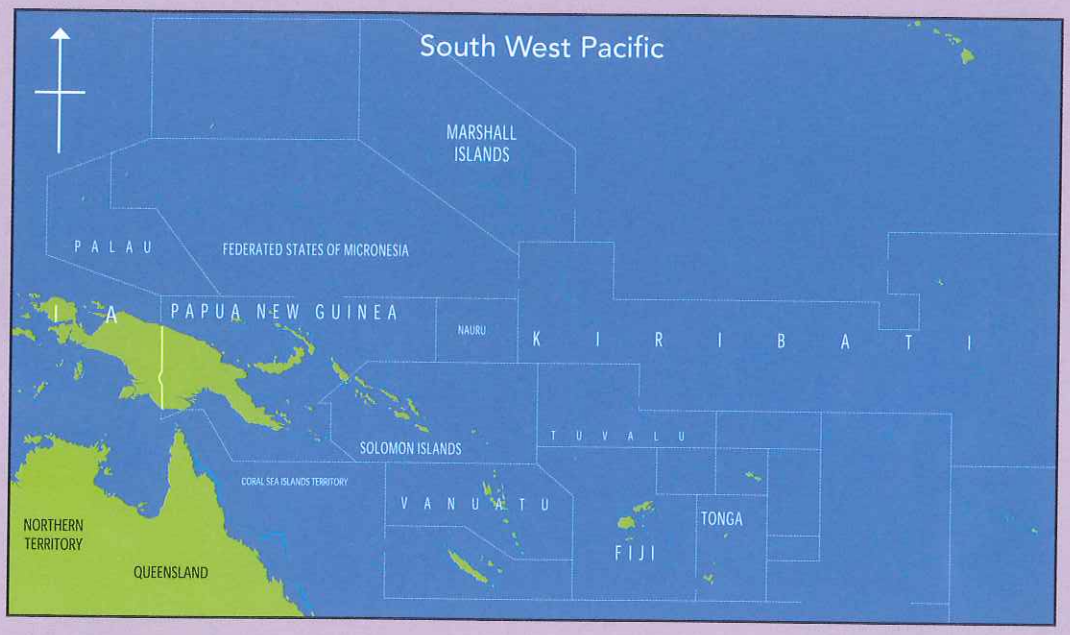
Case Study – Global Focus

Tropical Cyclone Heta January 2004

Setting the scene

The tropical South-West Pacific is bordered by the equator in the north and by the Tropic of Capricorn in the south.

There are 23 million square kilometres of ocean and only 550,000 square kilometres of land in the South-West Pacific. Over 460,000 square kilometres of land is in Papua New Guinea. The other 90,000 square kilometres of land is spread over the many scattered islands.



There are two types of islands in the South-West Pacific – high islands and low islands. High islands include continental islands like Papua New Guinea, Vanuatu, Fiji and volcanic islands like the Cook Islands, Tonga and Western Samoa.

Low islands include atolls and raised atolls. An atoll is formed when sand and coral fragments pile up inside a reef. Most coral atolls rise no higher than 10 metres above sea level but are often more than half a kilometre wide and more than 10 kilometres long. Most of the islands of French Polynesia fall into this category.

The economies of the South-West Pacific have traditionally been dependent on development aid, gifts from family living overseas, tourism, agriculture and fishing. Farming however, is the main economic activity on most islands of the South-West Pacific. Around two-thirds of the people living in the South-West Pacific grow most of their own food as well as growing some crops to sell. Most of the farms are located close to the coast which often leaves the island economy vulnerable to devastating tropical cyclones.

Monday 5th January, 2004

- Tropical Cyclone Heta swept past Samoa with winds up to 170 kph. Trees were uprooted, power lines damaged, roads blocked and low-lying land was flooded.
- Residents of the island nation of Niue were warned they would face the full brunt of the tropical cyclone on Tuesday and Wednesday.
- New Zealand's MetService reported that Heta was an intense storm with wind speeds of about 100-200 kph.

ISBN 978 0 17 018805 0

Tuesday 6th January, 2004

10 am

Locals have difficulty walking during the cyclone.

- Fiji Meteorological Service reported that Tropical Cyclone Heta was increasing speed – travelling at about 15 knots. They predicted the eye of the cyclone would pass Niue on Tuesday evening.
- Damage reports from Samoa included the destruction of breadfruit and banana crops on Upolu, the main island.
- The acting governor of Samoa put all emergency services on alert.
- Road and villages on American Samoa's northern shore were washed away. 150 people were evacuated.
- Damage estimates were around $US150 million. United States President George Bush announced a national disaster for American Samoa.
- American Samoa had only one working fire truck for the island of Tutuila and two emergency ambulances for the entire territory and six police vehicles.

Locals scrambling to safety.

2 pm

- Cyclone Heta winds begin to batter the tiny Pacific island of Niue.
- Winds were predicted to reach 300 kph.
- Tropical Cyclone Centre in Fiji predicted Heta would pass directly over Niue at about 7 pm.

6 pm

- New Zealand MetService spokesman Bob McDavitt said that Cyclone Heta was a category 2-4 when it passed Samoa but Niue could expect a Category 5 onslaught.
- Twelve of about 20 New Zealand tourists took shelter at the New Zealand High Commission in Niue.
- Power links and satellite dishes were disconnected. Communication between Niue and the rest of the world was cut.

Wednesday 7th January, 2004

9 am

- Heta lashed Niue. For three hours, winds up to 300 kph batter the island.
- Niue Government declares a national emergency.
- Niue's only hospital was destroyed, homes were damaged, power and phone lines destroyed, roads closed and crops damaged.
- One woman was killed and her baby seriously injured when her house in Alofi collapsed.
- Niue's two doctors worked out of a makeshift hospital.
- Air Force relief flight left New Zealand. Aboard were medical supplies including delivery and caesarean equipment for several expectant women on the island. There were also 1,000 large tarpaulins, 100 blankets, portable generators and water purification equipment. Medical personnel and people from Red Cross and Civil Defence are also on board.
- The cyclone hit northern parts of Tonga and the Tokelau Islands.

Locals look on as huge seas surround their homes during the height of Cyclone Heta.

ISBN 978 0 17 018805 0

Case Study – Global Focus

4 pm

- Winds up to 185 kph were recorded in Tonga. House roofs in several villages were destroyed and nine brick and timber houses were demolished.
- Although Tropical Cyclone Heta was not expected to reach the Cook Islands, sea swells of up to six metres were recorded.

A local runs for cover as a house flies apart during the cyclone.

Thursday 8th January, 2004

10 am

- A Niuean government official reported at least 20 families living on the exposed side of the island had lost their total possessions.
- In Samoa, officials said it could be up to a month before electricity was fully restored to Apia, the capital.
- Forecasters declare that Heta had moved south-east of Niue into the South.

4 pm

- The first emergency aid and medical teams reached Niue. A specialist Australian medical team helped save the child who was injured when his home collapsed in Alofi.
- 200 Niueans (one eighth of the population) were homeless.

Locals get stuck in cleaning rocks off the road to the airport the day after the cyclone.

- Many hurricane-proofed houses remained intact.
- A second relief flight leaves New Zealand.
- Niue's only satellite dish was destroyed during the cyclone. Communications remained a problem.
- Radio Niue launched a Cyclone Heta relief fund.
- New Zealanders trapped in Samoa were able to fly home.

Learning Activities

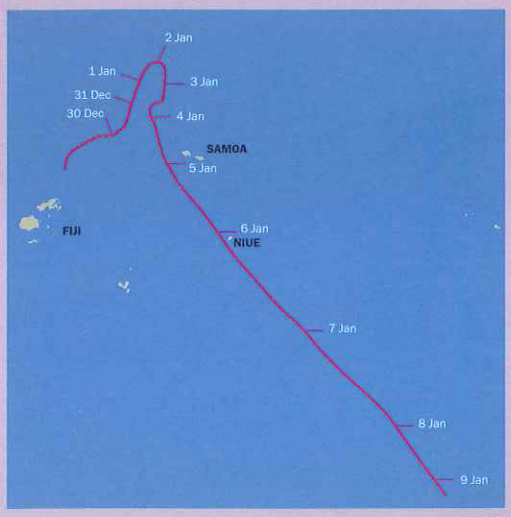
The track of Tropical Cyclone Heta (Resource 14.7), which devastated the island of Niue in January 2004, demonstrated the following features of cyclone movement in the South-West Pacific:

- unpredictability
- speed variability
- south-easterly trend.

1 On which day did Cyclone Heta move most slowly?

2 On which day did Cyclone Heta move most quickly?

3 Referring to Resource 14.7, establish the dates the listed features in Question 1 could be applied to Tropical Cyclone Heta.



14.7

ISBN 978 0 17 018805 0