

## CASE STUDY – Tonga (1982)

Important events on the passage of Cyclone Isaac, which struck Tonga, are summarised below in random order. Read them through and then write them down in the correct order, based on the stages in resource 34.1.

The Tongan government set up the National Office of Disaster Relief and Reconstruction to coordinate a two year reconstruction programme. The main goal was to build 2400 houses. Many of these were to be prefabricated houses with iron roofs, timber frames and concrete foundations. The economy put back two years, was to be re-established based on ground crops such as vegetables, rather than the vulnerable tree crops (bananas and coconuts).

Six people died and houses and crops were devastated (e.g. 95% of houses in the Ha'apai Island group were damaged and 90% of the coconut, banana and breadfruit crops lost). Communications were cut and there was no way of telling the immediate extent of the damage throughout Tonga.

As the cyclone approached, wind from the north-east softened up Tonga's buildings and vegetation. After the eye had passed, the wind changed direction and came from the southwest destroying the already weakened buildings, trees and plants.

Cyclone Isaac developed about 160 km north-east of Western Samoa and travelled southwest at an average speed of 12 knots. The depression deepened as it moved towards Tonga producing winds of 160 km per hour and greater.

Five RAAF Hercules from Australia and two RNZAF Hercules from New Zealand flew in with food, tents and medical supplies. Food and shelter were the greatest needs. Some islands remained dependent on aid for 2–3 months. Villages throughout Tonga used their 'extended family' links to work together for recovery.

# 35

Tropical Cyclones in the south-west Pacific

## PHYSICAL CHANGES

What are the effects of tropical cyclones on the land?

The 5th Form Geography prescription uses the word 'land' which could have a narrow meaning (soil and earth) or a wider meaning (**natural environment**). The authors have chosen to use the wider meaning and study the **physical** changes resulting from tropical cyclones.

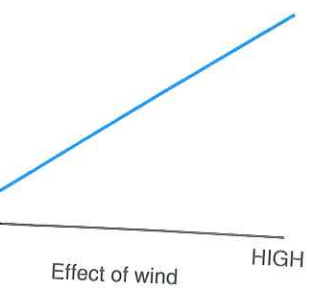
### PHYSICAL CHANGES

The extent of changes caused by tropical cyclones depends on the type of island affected and the length and energy of each aspect of the tropical cyclone (wind, storm surges, high seas, rainfall). There are two types of island in the Pacific Ocean:

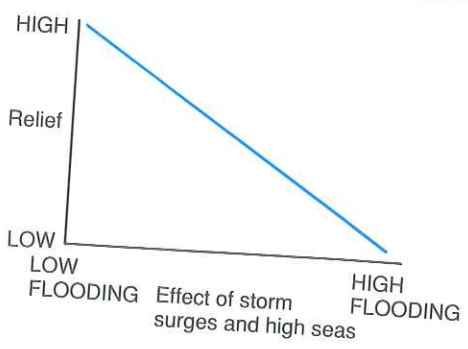
- high islands (volcanic mountainous islands)
- low islands (**coral atolls**)

The different types of relief of the two island types create different effects as they are lashed by wind, waves and rain (see resources 35.1–35.3).

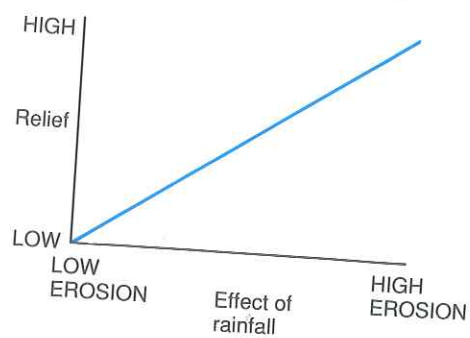
RELIEF AND WIND



35.2 RELIEF AND STORM SURGE/HIGH TIDES



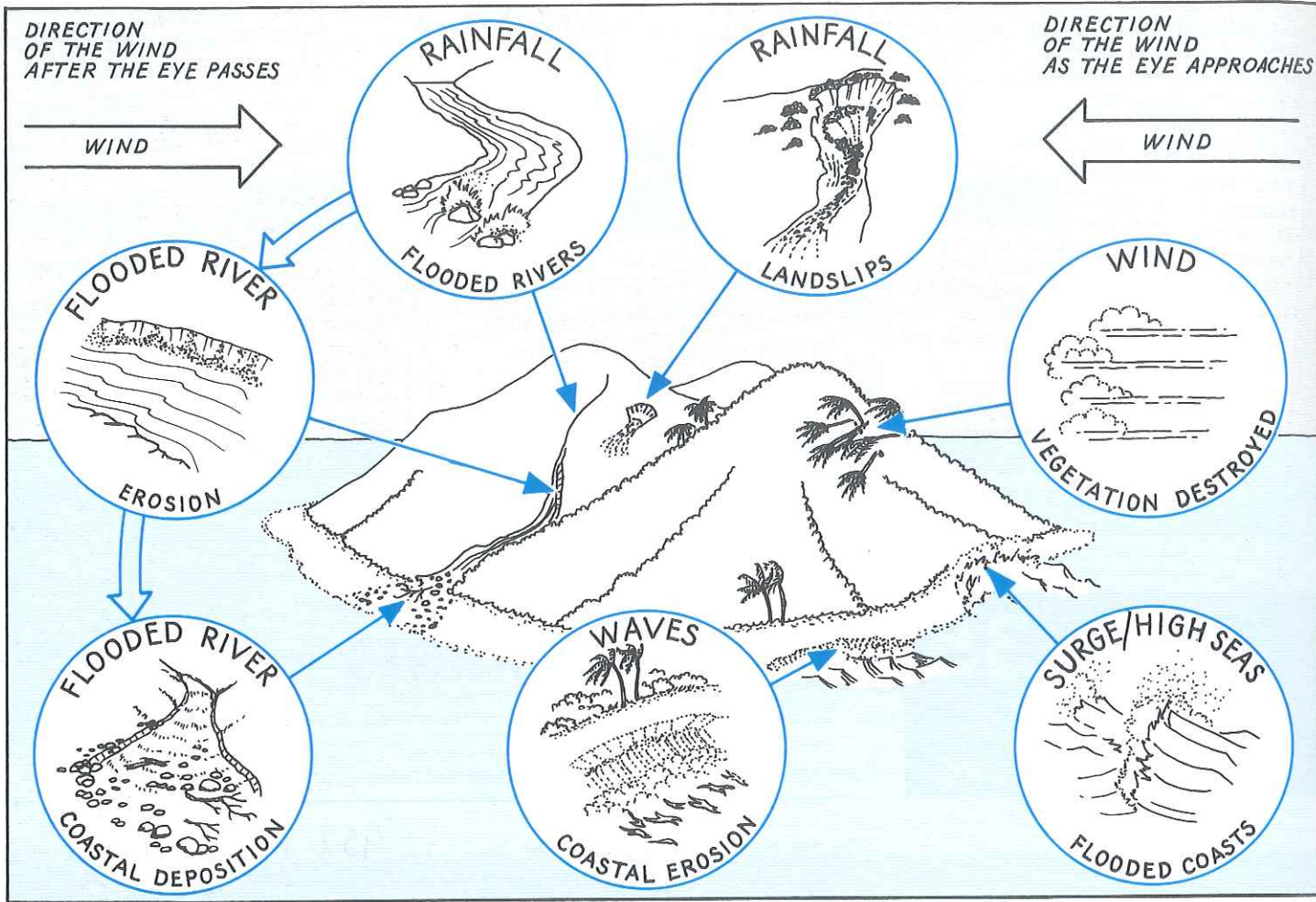
35.3 RELIEF AND RAINFALL





The effects shown in resources 35.1–35.3 on high and low islands are summarised in resources 35.4 and 35.5.

### 35.4 EFFECTS OF TROPICAL CYCLONES ON HIGH ISLANDS



### 35.5 EFFECTS OF TROPICAL CYCLONES ON LOW ISLANDS

