

Cyclone Sally Rarotonga, 1986-87. Source: Hensmann

Cyclone Sally occurred due to a combination of processes. A depression developed to the north of the Cook Islands, deepened and moved southwards. The power of the sun in these latitudes and the warm ocean waters provided a continuous supply of rising warm moist air. As the water vapour in the rising air condensed, it released huge amounts of latent heat. As Cyclone Sally formed and began to move south, forecasters picked up the weather system on satellite pictures and issued a warning. The Cook Islands' government issued instructions by radio and low-lying areas (such as Avarua), were evacuated. Sea levels rose in the days before the storm arrived.

On New Years Day 1987, 225mm of rain fell – the highest daily rainfall recorded during the cyclone. Waves of up to eight metres occurred off Avatiu Harbour. It was estimated that the storm surge caused the mean sea level to rise by 2.5 metres. Coastal flooding in the Avarua-Avatiu area occurred. The 'eye' of the cyclone passed over Rarotonga during the morning of January 2nd. Air pressure dropped to a low of 967mb and wind from the WSW reached 58 knots at 1pm. By late afternoon the wind direction had changed to be blowing from the ESE and the maximum wind gust speed reached 84 knots at 5pm.

Huge amounts of coral debris were washed off the reef surrounding Rarotonga, on to the beaches and in to Avarua itself. The rubble blocked stream outlets and drains, causing flooding. The storm surge on coastal areas and river water in backmarsh areas, caused mainly by the very high rainfall on January 2, resulted in further severe flooding. Swollen streams and rivers deposited stones in the Avarua area.

As the winds died down and the flood waters receded, the damage was assessed and the clean-up began. Emergency aid (water, food, clothing, temporary housing) was made available with New Zealand (money), Japan (engineering expertise), and Tahiti (labour) all providing support. Longterm recovery took several years and involved rebuilding houses and government offices. Damaged transport links were repaired and agriculture, industry and the tourist industry re-established.

No lives were lost nor did any major injuries occur during the cyclone. Most of the damage that occurred was economic. Agricultural exports from Rarotonga dropped by 50% after Cyclone Sally. Thirty government offices and 95 homes were damaged by storm surge, flooding, wind, waves and coral rubble. Transport was affected as roads were damaged by waves and flooding, with other roads blocked by fallen trees. Boats in the harbour were also damaged as was the concrete seawall at Rarotonga airport. Damage also occurred to public utilities with the power station, power and telephone lines, water pipes and a gas station all affected. In all the effect on agriculture cost \$4.3million, tourism \$1m, business \$1m, and the harbour \$2.8m. Rehabilitation and reconstruction cost the island \$6.7m.



Geography Department

Using the information from the previous resources, fill in the gaps below

Cyclone Sally '86-87

Effects on the economy:

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Effects on the people:

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