4.1. Outputs

Maximum wave height and water velocity maps are given for each scenario and each sea level for the entire computational domain and close ups of Northland. Wave arrival time maps (for the first wave and the maximum wave) are also shown for each of the three scenarios (changes in arrival times due to sea level rise are negligible). The first wave arrival was deemed to have occurred when the water level first increases over 5cm above the undisturbed level of the sea (in this case MHWS). Unlike 'ordinary' waves, tsunami waves may sometimes occur more like an unusually fast high tide. It can take several (even up to 10-20) minutes for the water level to rise to the maximum level. The maximum wave height arrival records when the maximum water level during the simulation was reached. These maps appear more 'patchy' than the first wave arrival maps. This is because, due to reflection and resonances in the complex coastal geometry, different waves are the 'maximum wave' in different locations.

Because all the modelled tsunamis originate in the east, the southern part of the east coast of Northland receives the earliest arrivals and the southern part of the west coast the latest. In some of the western bays the first arrival doesn't penetrate right up into the most inland reaches until up to 4 hours after the east coast. The times given for the South American tsunami are indicative and/or relative only as the actual time taken depends on exactly where the source occurs. The South American tsunami takes approximately 15-16 hours to reach New Zealand. The first arrival of Tonga-Kermadec subduction zone tsunamis to Northland occurs between 60 and 180 minutes at the outer coast (see below).

Animations for the South American and Tonga-Kermadec tsunamis in Bream Bay, the Bay of Islands, Ahipara and Taipa are provided on CD, together with a 3-D overview animation for all of Northland (inc. the northern part of New Zealand). Ascii files giving maximum water height and maximum water speed at the coast are also provided along with inundation information (maximum extent and point data on maximum water level and speed taken at model centroids) for the two focus communities (Ahipara and Taipa).

The two communities of Ahipara and Taipa are dealt with in separate sections following general overviews of the South American and Tonga-Kermadec Subduction Zone events for Northland.