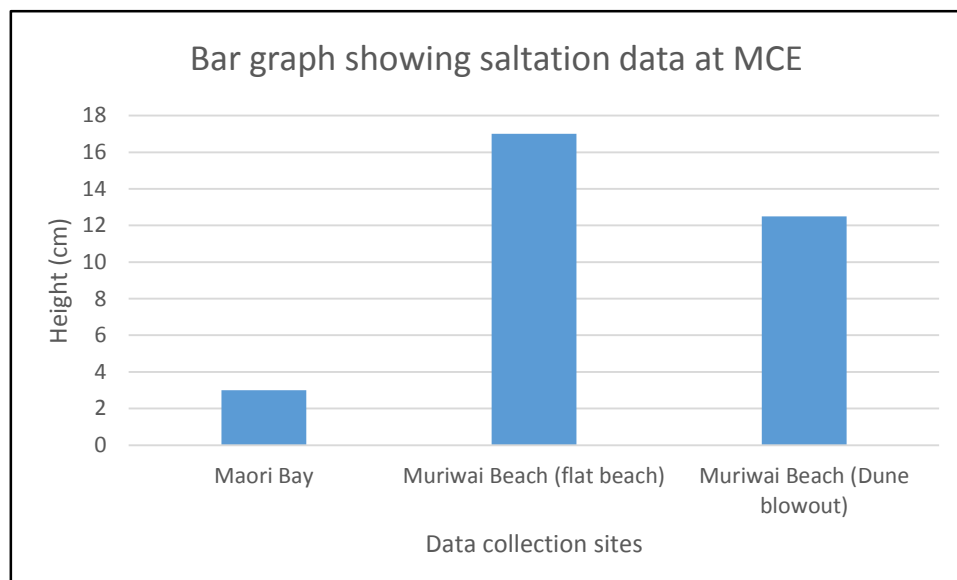


**Aim:** To determine how and why natural processes operating in the MCE vary from place to place.



From the graph it can be seen that the process of saltation is of little significance at Maori Bay. This is evident by the fact that at Maori Bay, the Aeolian transportation sub-process of saltation only carried sediment to a maximum height of 3cm. It is of greater significance at Muriwai Beach where the sediment was carried to a maximum height of 17cm on dry sand and 12.5cm in a dune blowout (1).

Wind direction on the day of recording varied from west to northwest. The prevailing wind at Maori Bay is a westerly. Wind blowing from the NW will not be as strong due to physical obstacles of Otakamiro Pont (headland) and Motutara Island (stack)... The critical wind speed for saltation is 20kmh which means that the recorded average wind speed during the data collection time was on 1/3 of that required for the process of saltation to operate. Our result therefore could be a consequence of wind gusts which would explain the very limited degree of sediment lift (3cm) (2).

The process of saltation was much more significant at Muriwai Beach... The bar graph from the saltation experiment in the dune blowout on Muriwai Beach has an interesting result in comparison to the saltation experiment done on dry sand at Muriwai beach... The stick on the dune was in a more sheltered position which can explain the lower maximum height 12.5cm as opposed to 17cm, but it also was embedded and surrounded with sand on the edges of the dune being above the stick which led us to think that sand would appear to be lifted higher...(3)

Precipitation is another factor influencing rates of saltation. There is very clear evidence that there were water droplets present that caused the sediment (be it feldspar or titanomagnetite) to stick together. This make it harder for the sand particles to saltate as more force (strong wind) is required to transport them. Additionally, titanomagnetite is iron

sand, and it has some magnetic properties which cause the sediment to stick a bit more compared to feldspar (white sand) (4). However, this factor could have less influence on saltation at Maori Bay due to the research area having a very small tidal range, consequently saltation would be marginal due to the sand being damp...Muriwai beach has a long inter-tidal range of 3 metres and a large backshore area, so the action of wind and the sun allows the sand to dry out. This makes the sediment more mobile-easily transported (5)...

## Evaluation

A strength of data collection was the photos which provide visual evidence of the research techniques and results and the research site...The wide angle shot of our research location at Maori Bay and significant relief features...allowed me to draw more accurate annotated précis sketches and identify wave action (6). These photos also helped explain the change in longshore drift and other anomalies... Annotation of the photos further supported the analysis...The photos of the saltation sticks show the spread of sand grains which is as important as the actual recorded height which has been recorded and graphed... Without the photos of the sticks only one aspect of saltation would be recorded...(7)

The visual evidence helps confirm the validity of my results as it shows that they have neither been exaggerated nor fabricated...

Our results for saltation were compromised due to the location of the sticks used to measure sand movement...and the occurrence of rain...The result of saltation occurring to a greater extent on Muriwai Beach than Maori Bay would probably be accurate due to the different tidal range...wet sand...but the rain clearly impacted the results. The data collected pertaining to the process of saltation can explain why sand dunes are able to form on Muriwai Beach and not on Maori Bay... (8).

An alternative method would be to go back to the location more than once at different times of the day which would give me a more accurate indication of saltation rates (9)...