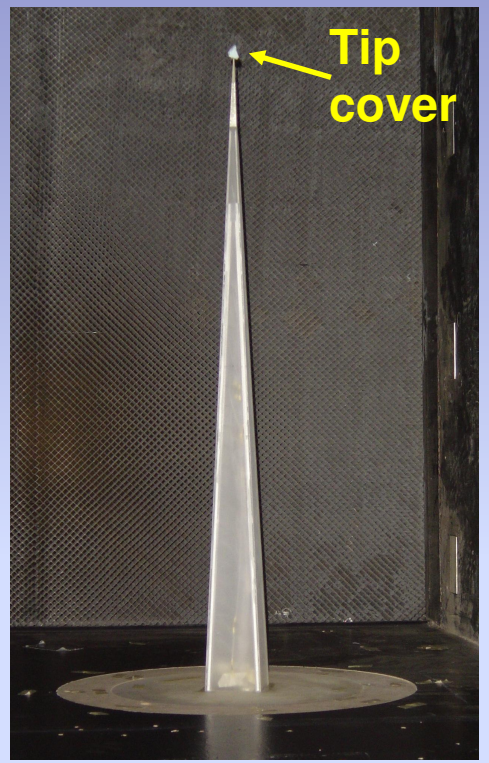
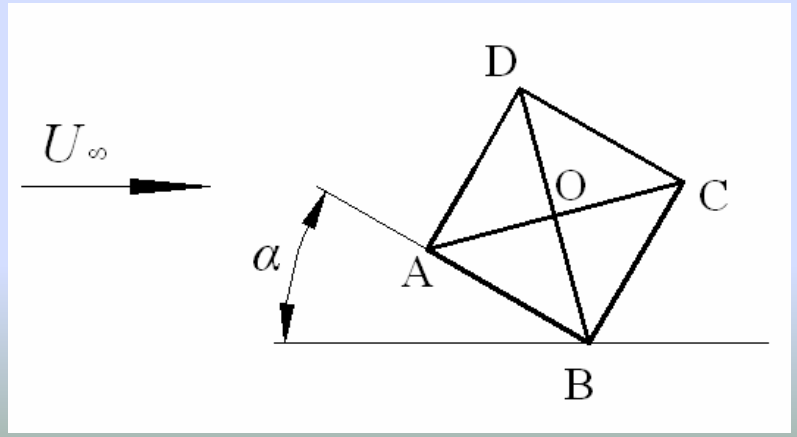
FLOW PAST A SLENDER PYRAMID AT DIFFERENT INCIDENCE ANGLES

Background

The flow structure and dynamic behaviour associated with a slender pyramid are very dependent on the obstacle shape and orientation (α) to the oncoming flow. However, very little is known about the three-dimensionality of the flow pattern.



Pyramid model



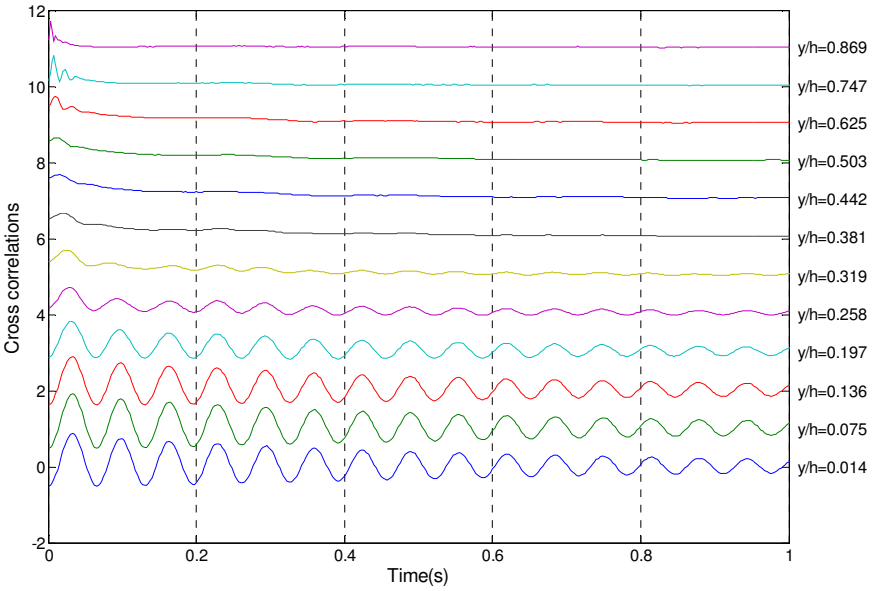
Pyramid placed at an angle α to the incoming flow

Objective

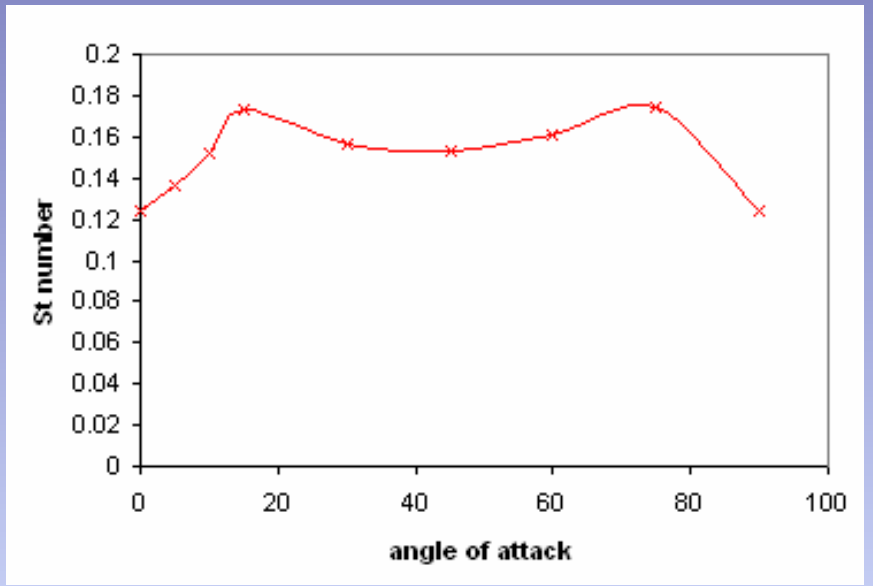
To investigate the effect of incidence angle on the flow around the pyramid.

Research Carried Out

In the wind tunnel a pyramid with taper ratio (TR) of 22.9 (apex angle = 5°) has been tested at different angles of attack using surface pressure measurements.



Cross correlations between opposite faces



Strouhal number of vortex shedding as function of angle of attack

Key Findings

The periodic Karman vortex shedding was found over the lower part of the pyramid. The variation of Strouhal number with angle of attack is similar to that found for a square cylinder.