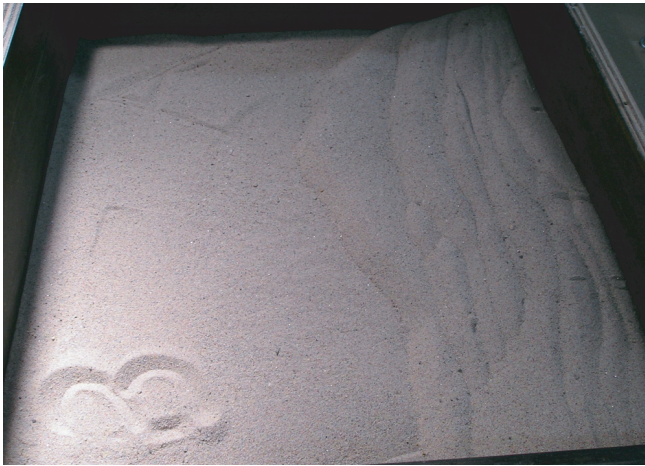


Basal friction experiment

An acrylic sheet with sandpaper glued on one side (B) was put beneath the sand pack. In this experiment, the wedge is grown in compression to test the hypothesis that higher basal friction is needed to support taller mountains. Once the mountain gets too tall, the shear stresses on the base will cause the wedge to slide forward along a new fault and wedge will become longer. instead of taller We see this type of deformation in active mountain belts today and evidence within ancient mountain belts.

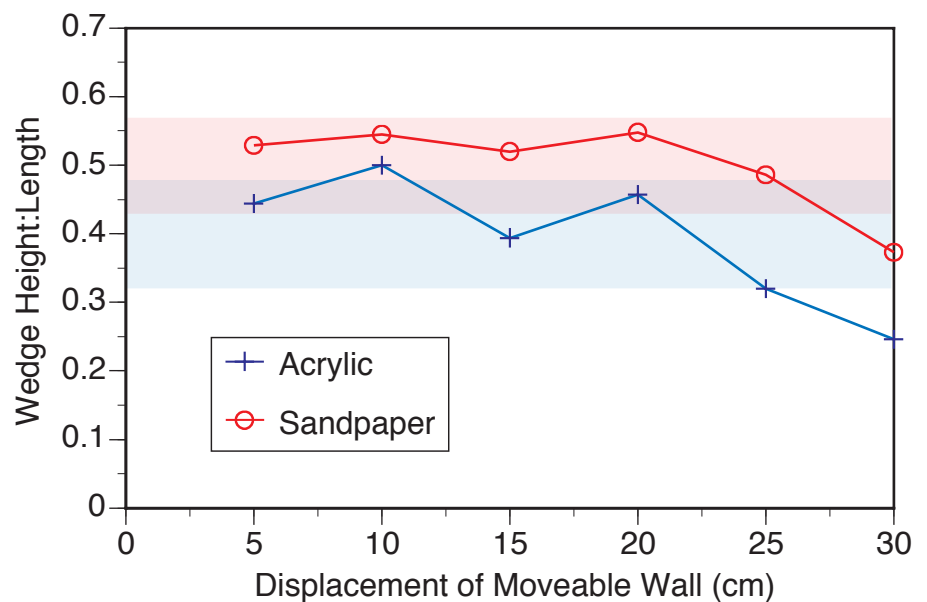


The wedge was built with 60 turns of the crank (15 cm) in compression. Wedge height is measured at the highest point -- length is measured to the toe. Note that the wedge on the 'A' acrylic side extends further into the foreland than the B side.

The friction along the walls of the sandbox cause the faults to curve near the walls. This effect is particularly strong on the side with the wooden wall, which has higher friction than the plastic window.



The wedge was built with 120 turns of the crank (30 cm) in compression. Once again the wedge on the 'A' acrylic side extends further into the foreland than the B side.



The wedge height:length seems to decrease after 20 cm of moveable wall displacement for both sandpaper and acrylic. This could mean that the end portion of our sandpaper and acrylic are more slippery than the start due to prior use.

The graph shows the ratio of wedge height to length throughout the experiment. The blue and pink ranges show the average +/- the standard deviation for the two basal frictions, which are 0.50 +/- 0.07 for sandpaper and 0.4 +/- 0.08 for acrylic. The sandpaper has higher friction and is able to support a taller wedge than the acrylic base. This confirms our hypothesis.