GEOP 415
SPRING 2010
HW # 6
(Due on 31/5/2010)

A 2-D seismic line was acquired over a sabkha in the Rub Al-Khali Desert. The line traverses a rectangular sand-filled channel with a width of 200 m, a height of 40 m, and a sand P-wave velocity of 800 m/s. There is originally a horizontal reflector at a depth of 2400 m whose RMS velocity is 3200 m/s. The reflector has a hydrocarbon trap having the shape of horst structure extending below the whole channel with a maximum closure of 20 m. The figure below shows the depth model. Draw the time section showing the shape of the structure below the channel before and after the static correction. You should show the exact TWTT at various points along the reflector and the structure before and after the static correction. Use the sabkha as the reference surface (i.e., depth = elevation = 0 on the sabkha surface). Answer the following questions:

1. Were you able to see the trap before static correction?
2. Were you able to see the trap after static correction?
3. Was it important for the interpretation to do the static correction?
4. Will the case be better or worse (when interpreting before static correction) if the channel was not present but a sand dune with the same shape and location (dashed rectangle)? Explain.