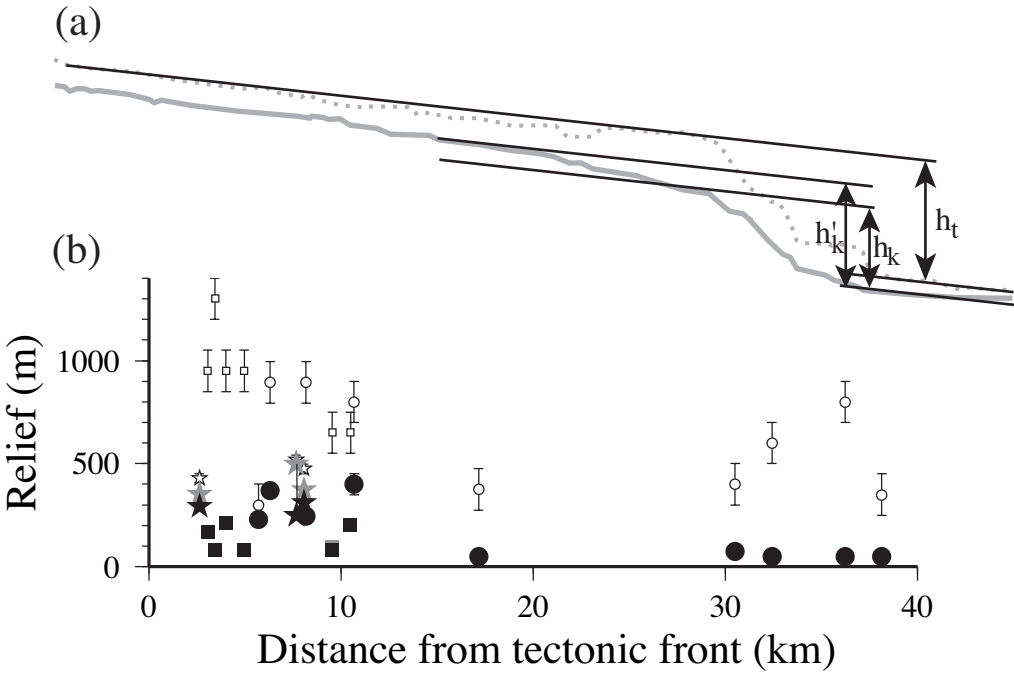
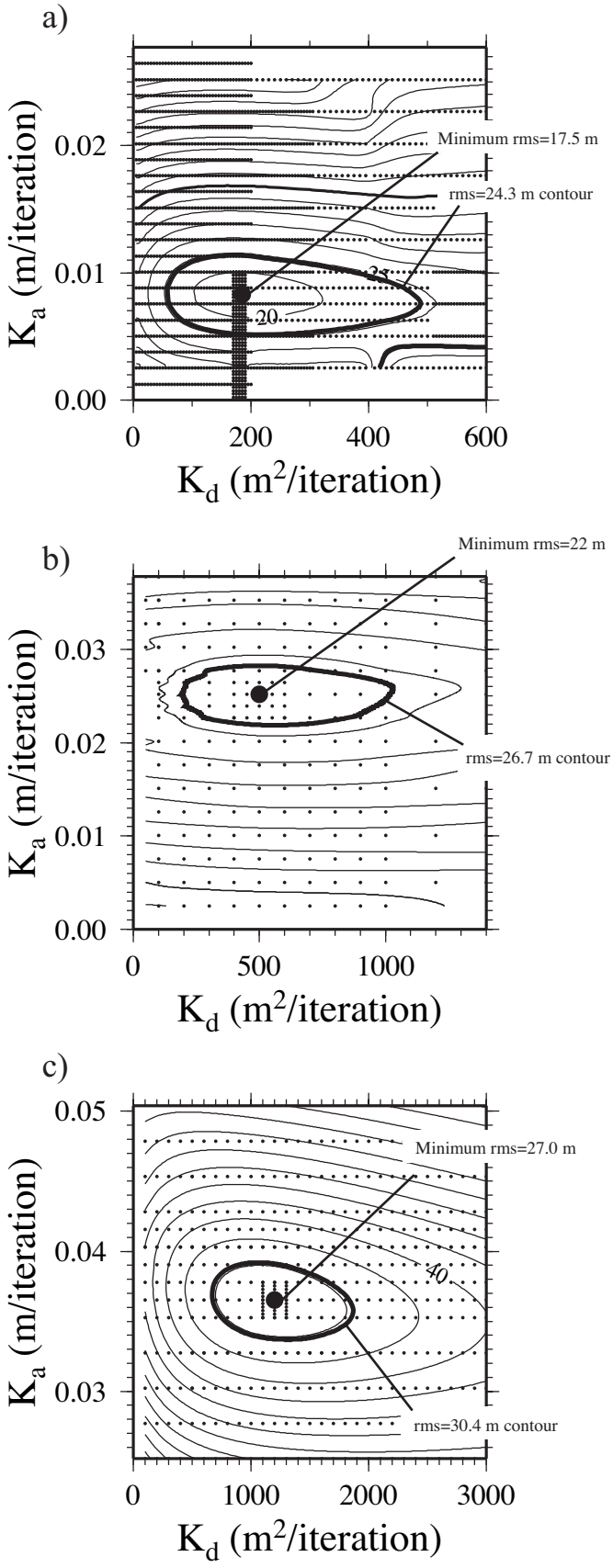
Data Repository item 2006065

Figure DR1. Graphs of knickpoint characteristics versus distance from the frontmost thrust fault derived from the multibeam data from Alaska (Figs. 4 and 5) and from the southern Barbados prism (Figs. 8 and 10). (A) Definition of relief measurements. Parameters h_k and h_k' are two alternative measures of the knickpoint relief, and h_t is the tectonic relief. (B) Knickpoint (solid symbols) and tectonic relief (open symbols) measurements are from channels in Figure 4 (circles), 5 (squares), and 10 (stars). Gray-filled stars represent h_k', solid stars, h_k.

Figure DR2. Contoured root-mean-square (rms) misfit of the model solutions compared with the observed Barbados channel profiles. The graphs in A to C correspond to Figure 10A–C. The dots indicate the model runs. Note that different contour intervals are used in each figure. The bold solid circles indicate the minimum rms solutions. Conservative representations of the solution uncertainties are given by the bold contours. They were derived by first fitting eighth-order polynomials to the channel profiles in Figure 10, which represent the data well with rms misfits of 20, 18, and 16 m (lower to upper channels, respectively). A maximum acceptable level of misfit was deemed to be 50% larger than these rms values, which are indicated by the bold contours on the graphs shown here (using different values for the three channels allows for differing data variability). Uncertainties in K_a and K_d are largely independent of each other, and the uncertainty in K_d is much larger than that in K_a, as found by Rosenbloom and Anderson (1994). Expressed as % uncertainties, these values are $-44\% < K_d < +56\%$ and $-8\% < K_a < +7\%$ for Figure DR2A, $-62\% < K_d < +106\%$ and $-13\% < K_a < +12\%$ for Figure DR2B, and $-69\% < K_d < +164\%$ and $-38\% < K_a < +37\%$ for Figure DR2C. These uncertainties are somewhat overestimated, but they nevertheless show that K_a is better constrained than K_d.


(a)
h_t
h_k
h'_k
(b)
Relief (m)
1000
500
0
0
10
20
30
40
Distance from tectonic front (km)


a)
Minimum rms=17.5 m
rms=24.3 m contour
25
20
0.00
0.01
0.02
0
200
400
600
K_a (m/iteration)
K_d (m^2/iteration)
b)
Minimum rms=22 m
rms=26.7 m contour
0.00
0.01
0.02
0.03
0
500
1000
K_a (m/iteration)
K_d (m^2/iteration)
c)
Minimum rms=27.0 m
40
rms=30.4 m contour
0.03
0.04
0.05
0
1000
2000
3000
K_a (m/iteration)
K_d (m^2/iteration)