Figure 1. Map showing extent of NSAF LiDAR coverage and proposed study area. NSAF data is represented as a hillshade image. Trace of the 1906 earthquake rupture is shown in red. (Jennings, 1994). "Example 1" box shows extent of Figure 2. Figure taken directly from: http://quake.usgs.gov/research/geology/lidar/ without modification.

Figure 2. Comparison of NSAF LiDAR full-feature (1st return surface) DEM (left) with bare-earth DEM (right). Note fault trace and left stepover visible only once data is processed for bare-earth. Approximate extent of images is shown by "Example 1" box in Figure 1. Images taken directly from: http://quake.usgs.gov/research/geology/lidar/ with slight modification.
Figure 3. A.) Map showing marine terrace inner edge mapping between Mendocino and Fort Ross, CA (Crosby et al., in preparation) overlain on USGS 30m DEM. Terrace correlations (where established via aerial photo mapping) are denoted by like colors. Purple inner edges indicate uncorrelated terraces. 1906 SAF rupture trace is shown in red (Jennings, 1994). B.) Detail view of SAF (shown in red) (Prentice, personal comm.) at Alder Creek, CA. Area of detail is shown by orange box in Figure 2A. Terrace inner edges offset by right-lateral displacement on the SAF give a late Pleistocene slip rate of 16-24 mm/yr (Prentice, 1989).
Figure 4. Model of simple linear diffusion of a theoretical marine terrace riser. Our algorithm assumes initial vertical riser morphology rapidly evolves to a steep, ramp-shaped topography via mass wasting processes immediately after terrace abandonment by the sea. Diffusive process then continue to modify the riser (Rosenbloom and Anderson, 1994; Hanks et al., 1984).
Figure 5. Illustration of morphologic dating approach that we propose. In this contrived example, 5 profiles each from the two terrace risers shown in map view in A are analyzed. B) The synthetic profiles were produced by forward model calculations of 500 and 1000 m² profiles starting with a 10 m riser and flat tread (for a diffusion constant (k) of 10 m²/ka the morphologic age (kt) yields an absolute age of 50,000 yrs and 100,000 yrs respectively). To the resulting profiles we added +/- 50 cm of noise to simulate local heterogeneity in the surface as is typically encountered and would be likely in the LiDAR derived profiles. Profile data shown in shades of blue are 500 m² risers while red and yellow data are from 1000 m² risers. C) Best fitting model profiles to the synthetic “data.” D) Illustration of the relationship between RMS and morphologic age for the 5 different profiles of the two different risers.