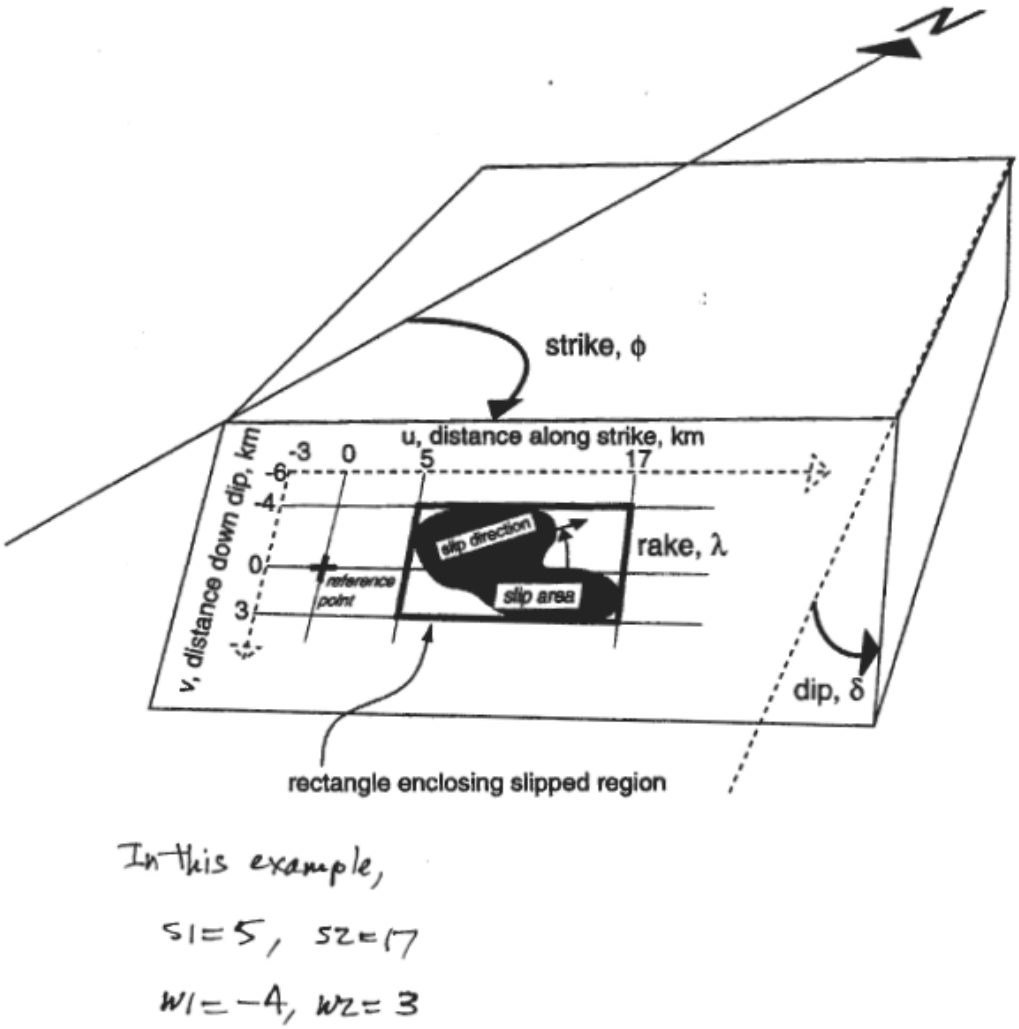

Figure 1. Definition of parameters defining orientation and location of fault and station (from Spudich et al., 1996). Note that the reference point is in the plane of the rupture surface.

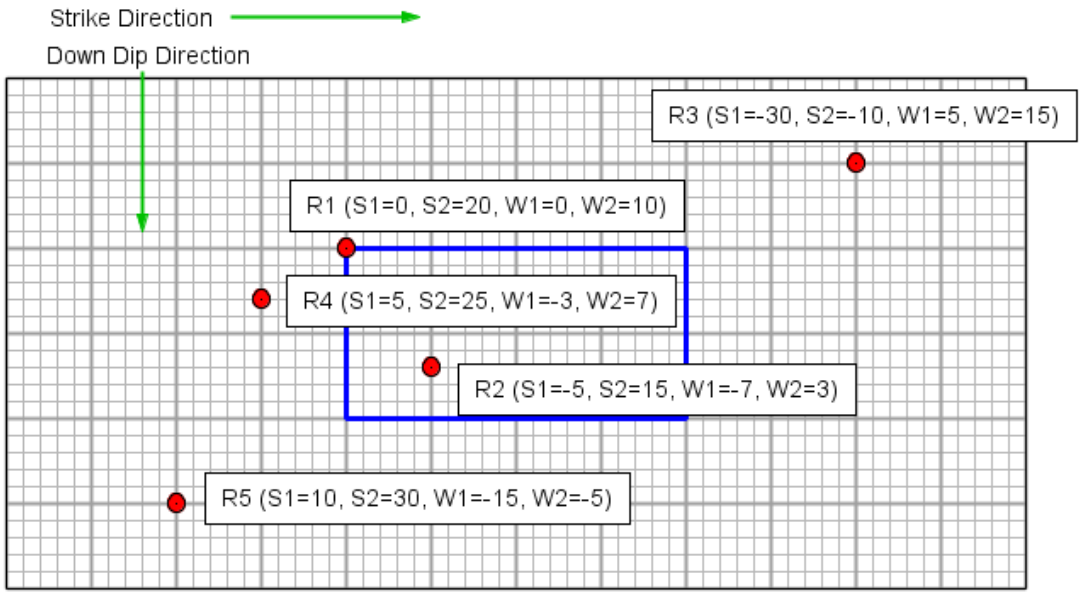

Figure 2. More examples of S1, S2, W1, and W2 for various reference points (not stations), all within the plane of the rupture surface (shown by the blue rectangle). Note that the grid spacing is 1 distance unit.

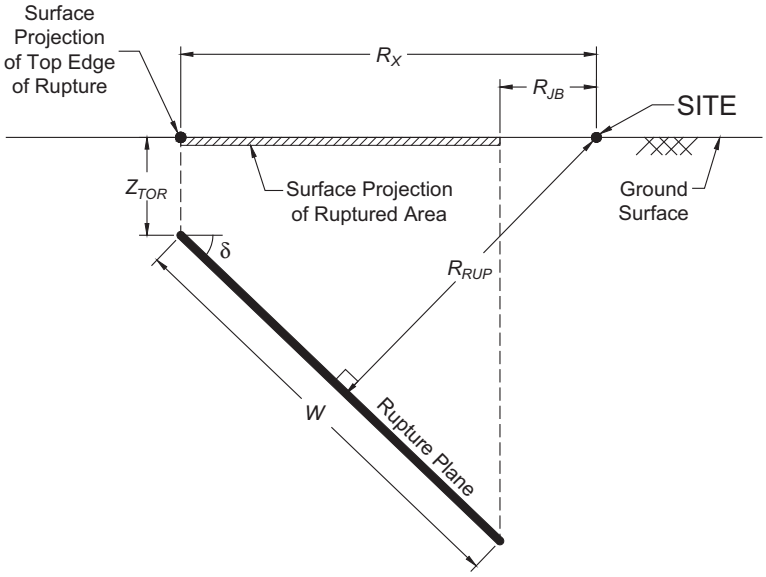

Figure 3. Illustration of earthquake source and distance measures using a vertical cross-section through a fault rupture plane. The length of the fault rupture plane (L) is measured along the strike (perpendicular to the plane of the page). (from Kaklamanos et al, 2011).

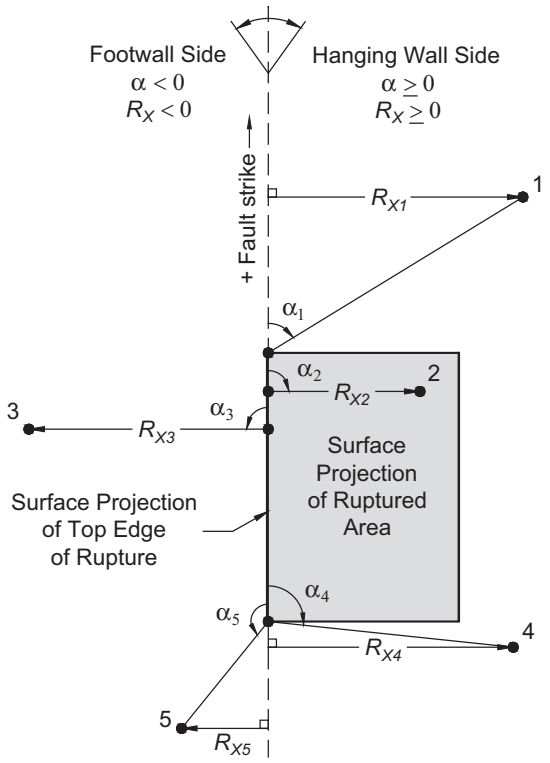

Figure 4. Plan view of a fault rupture, giving the definition and sign convention of the source-to-site azimuth (α). Also illustrated are five example sites and their source-to-site azimuths and site coordinates. Sites 1, 2, and 4, which are located on the hanging wall side of the fault, have positive azimuths and site coordinates; sites 3 and 5, which are located on the footwall side of the fault, have negative azimuths and site coordinates. (from Kaklamanos et al, 2011).

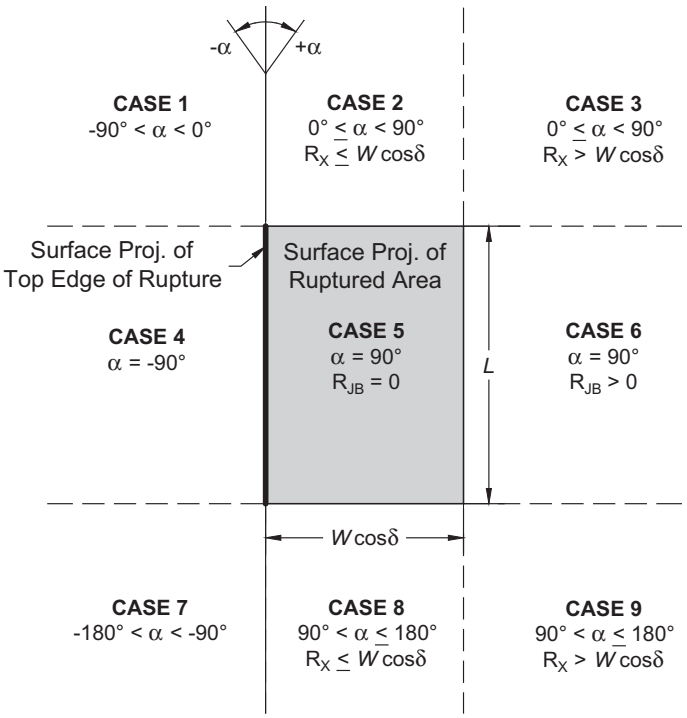

Figure 5. Plan view of the nine geometric cases for the location of a site with respect to the fault strike and surface projection of ruptured area, used in the calculation of R_X. (from Kaklamanos et al, 2011).

References:

Kaklamanos, J., L. G. Baise, and D. M. Boore (2011). Estimating unknown input parameters when implementing the NGA ground-motion prediction equations in engineering practice, *Earthquake Spectra* **27**, 1219–1235.

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