README

GriddedInversions/

Folder containing results of inversions of crustal focal mechanisms on Lon/Lat grids

The study area is broken into 0.2x0.44-degree Lat/Lon grid (~22x22 km).

Grid cells with 0 focal mechanisms are discarded; those with at least 1 are retained.

At each retained cell,

select all focal mechanisms within the cell; if fewer than 25, select nearest 25.

Assign weights: epicenters outside of cell, weights are inversely proportional to distance from cell

center; focal mechanisms inside of cell all weighted as for distance = 11 km.

Invert 101 times: jackknife-downsample, addnoise to retained mechanisms, use random friction

Uncertainties are defined from the distribution of 101 inversion results

AKGridded\_n25\_distweighted

Ascii file containing inversion results

Format (compatible with gmt psxy): Longitude, Latitude (cell center) Aɸ σHmax Length

Aɸ, σHmax: median of 101 inversions

Length: 0.3, set for plotting in GMT

gridmisfits

Average misfit for the focal mechanisms in each zone with respect to the zone’s inverted stress tensor.

Mean(absolute value( angle(predicted slip <> slip vector from focal mechanism)))

The predicted slip vectors are the shear traction directions on each event’s preferred focal plane under the stress field determined by the inversion.

Formatted for plotting in GMT: Longitude Latitude L1\_misfit/200 L1\_misfit

The third column L1\_misfit/200 makes for a convenient marker size in GMT (e.g., Ruppert, 2008 Figure 4 – larger circles denote larger misfits, which can either represent poorly constrained inversions or stress boundaries)

rotatedSHgrid\_contraction, \_extension, \_strikeslip

Gridded results, showing proxies for slip trajectories.

Trajectory = σHmax for Aɸ>=2.0 (reverse faulting to TS)

= σHmax+90 for Aɸ<=0.5 (normal faulting)

= σHmax + 90 - ( 45 x (Aɸ-0.5)) for 0.5<Aɸ<2

\_contraction:

Grid results with Aɸ>=2.0, showing σHmax (contraction direction )

Format (compatible with gmt psxy): Longitude, Latitude (cell center) Aɸ σHmax Length=0.6

\_extension:

Grid results with Aɸ<=1.0, showing proxy for slip direction

r slipσHmax (contraction direction )

Format (compatible with gmt psxy): Longitude, Latitude (cell center) Aɸ σHmax Length=0.6

rotatedSHgrid\_extension

Grid results with Aɸ<=2.0, showing a proxy for

Format (compatible with gmt psxy): Longitude, Latitude (cell center) Aɸ σHmax Length=0.6