Sense of Slip-- southern California faults

http://www.data.scec.org/Module/links/sensemap.html
Sense of Slip—southern California faults

This map shows the surface traces of most of the major faults in southern California, colored according to their sense of slip. The color code used to label these faults is provided in the lower left corner.

Note that while thrust faults are a type of reverse fault, they are not shown in pure yellow, but in pale yellow. Blind or buried faults are noted with dotted lines. If there is some uncertainty in the sense of slip for a fault, the color of that fault is tinted grey. The more uncertainty there is, the more grey the color -- pure grey means that the sense of slip of that fault is unknown.

When studying this map, keep in mind that this figure is meant for basic qualitative study only, and that the resolution of this map is generally quite low. This means that a slight change in the sense of slip of a fault zone might not be well marked.

Despite these deficiencies, some obvious trends in regional fault activity can still be seen. The dominance of the San Andreas fault zone -- the tectonic plate boundary here in southern California -- can be seen in both the number and orientation of right-lateral strike-slip (red in color) faults, which tend to reflect the trend of the plate boundary.

Counter to this trend is the Garlock fault zone, the largest left-lateral strike-slip (green) fault on this map, and several other major left-lateral faults, primarily concentrated around the margins of the Transverse Ranges. Also associated with the Transverse Ranges and the Los Angeles Basin are numerous reverse faults (including thrust and blind thrust faults). These typically result from the widescale compression generated by the Big Bend of the San Andreas fault.

North of the Garlock fault, we see a different sort of regional "theme" -- extension. Note the predominance of normal and right-normal slip in this area, which is part of the Basin and Range tectonic province. Large normal faults are extremely rare south of this area. The best example is the Crafton Hills fault zone, which looks out of place just south of the east-central Transverse Ranges. This zone of normal faulting exists here because of the intersection of two major right-lateral strike-slip fault zones (the San Andreas and San Jacinto fault zones).

http://www.data.scec.org/Module/links/sensemap.html
Southern California slip rates

This map shows the surface traces of most of the major faults of southern California, color-coded by slip rate. Blind thrust faults are shown by dotted lines, which mark the upper terminus of the fault. The color scale used is shown at upper right. Because the distribution of slip rates is far from linear, the color scale used here is not a linear scale.

When studying this map, keep in mind that this figure is meant for qualitative, not quantitative, analysis. The slip rates given here are not meant to represent exact figures, but rather a good estimate, often based on several different studies using different methods to determine the rate. Also, the slip rates for many of these faults are unknown, or are likely inaccurate, and there is no information given on the map that applies to the uncertainties in the slip rates given. When insufficient data was available, reasonable assumptions were made to fill in these parts of the diagram. Most commonly, small slip rates were assigned to faults that may be inactive, but for which no slip rate studies existed. Therefore, some faults with slip rates shown as below 0.4 mm/year may in fact be totally inactive. In addition, due to the nature and comparatively small number of slip rate studies, the resolution of this map is very low. This means that minor changes in slip along the length of a fault, or along branches of a fault zone, are not always represented. Thus, parallel branches of the same fault zone are generally shown using the same color, even though slip is partitioned among them (and would therefore be lower along each individual branch).

Studying this figure, you can see the dominance, in terms of slip rate, of the major fault systems in southern California -- the San Andreas fault zone, the San Jacinto fault zone, and the Garlock fault zone. Smaller faults branching off from these tend to have moderate slip rates, which decrease with distance from the major fault zones. You may also note that the Transverse Ranges and the Los Angeles Basin area are marked by moderate slip rates, typically along reverse (including thrust and blind thrust) faults.

http://www.data.scec.org/Module/links/sratemap.html