Preliminary Determination of Epicenter

body-wave magnitude
surface-wave magnitude

```
                year      day     min
                  month    hour        sec      latitude     longitude     depth   mb   Ms   PDE event name
    PDE 2001   9   9 23 59 17.78    34.0745   -118.3792     6.4  4.2  4.2  HOLLYWOOD
   event name:       9703873
   time shift:        0.0000
   half duration:     0.0000
   latitude:         34.0745
   longitude:       -118.3792
   depth:             5.4000
   Mrr:        -0.002000e+23
   Mtt:        -0.064000e+23
   Mpp:         0.066000e+23
   Mrt:        -0.090000e+23
   Mrp:        -0.002000e+23
   Mtp:         0.188000e+23
```

Harvard CMT solution

$$\mathbf{M} = \begin{bmatrix} M_{rr} & M_{r\theta} & M_{r\phi} \\ M_{r\theta} & M_{\theta\theta} & M_{\theta\phi} \\ M_{r\phi} & M_{\theta\phi} & M_{\phi\phi} \end{bmatrix}$$

$$M_0 = \frac{1}{\sqrt{2}} (\mathbf{M} : \mathbf{M})^{1/2} \approx 2.18 \times 10^{22} \text{ dyne cm}$$

$$M_w = \frac{2}{3} (\log_{10} M_0 - 16.1) \approx 4.19$$