Residuals of GWG Empirical Model with Respect to f_0
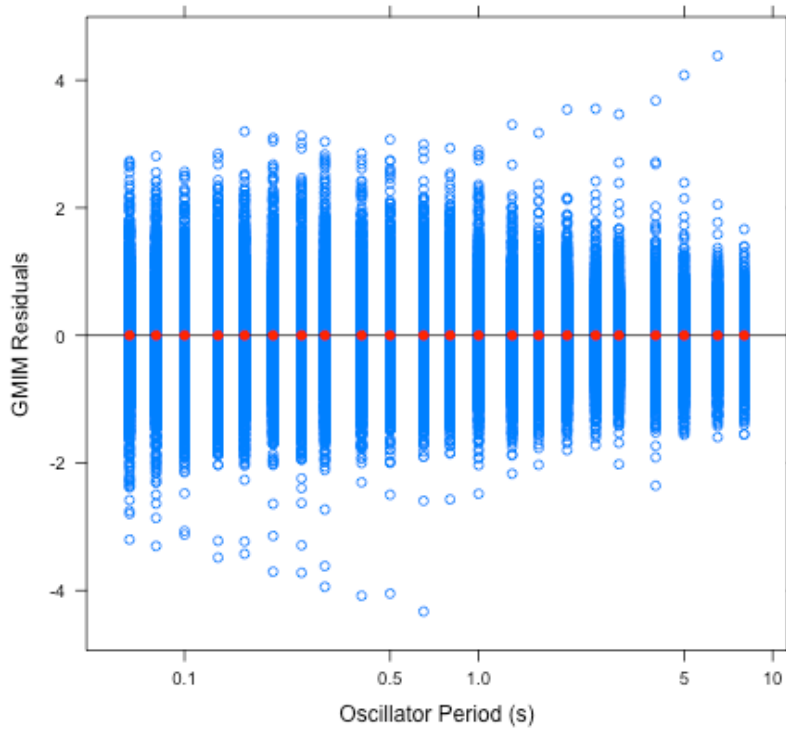
Grace Parker, Jonathan Stewart

CENA Site Amplification Workshop
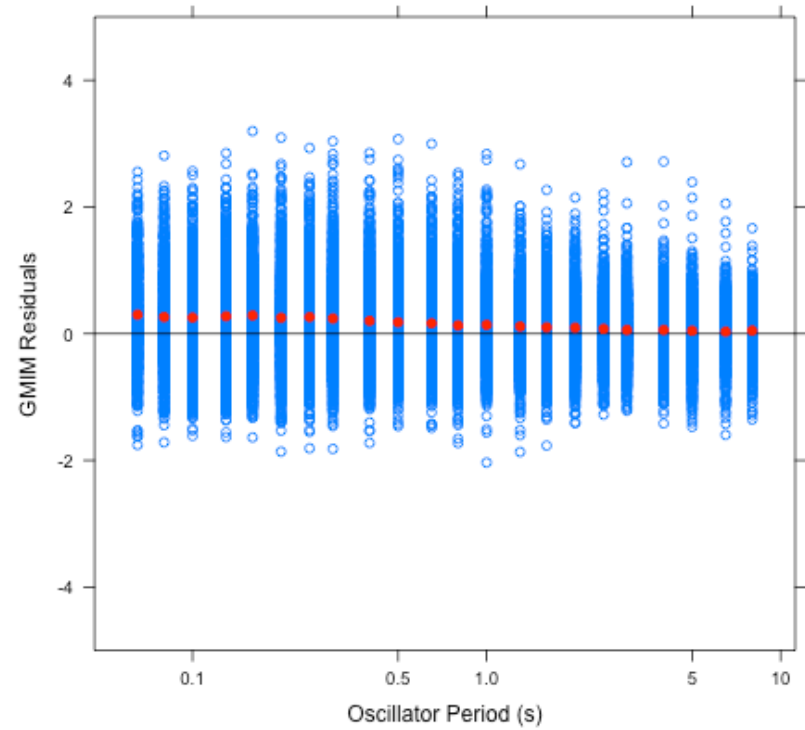
November 10, 2016

Calculation of Residuals

- Within-event model residuals are used
- Residuals calculated using recordings filtered using same criteria as during model development
- $R = \ln(Y_{ij}) - \mu_{\ln IM}(M_i, R_{ij}, V_{S30j}) - c_k - \eta_i$
  - $i \sim$ event
  - $J \sim$ site
  - Y_{ij} = recording
  - $\mu_{\ln IM}$ = GMM + site term
  - C_k = model bias
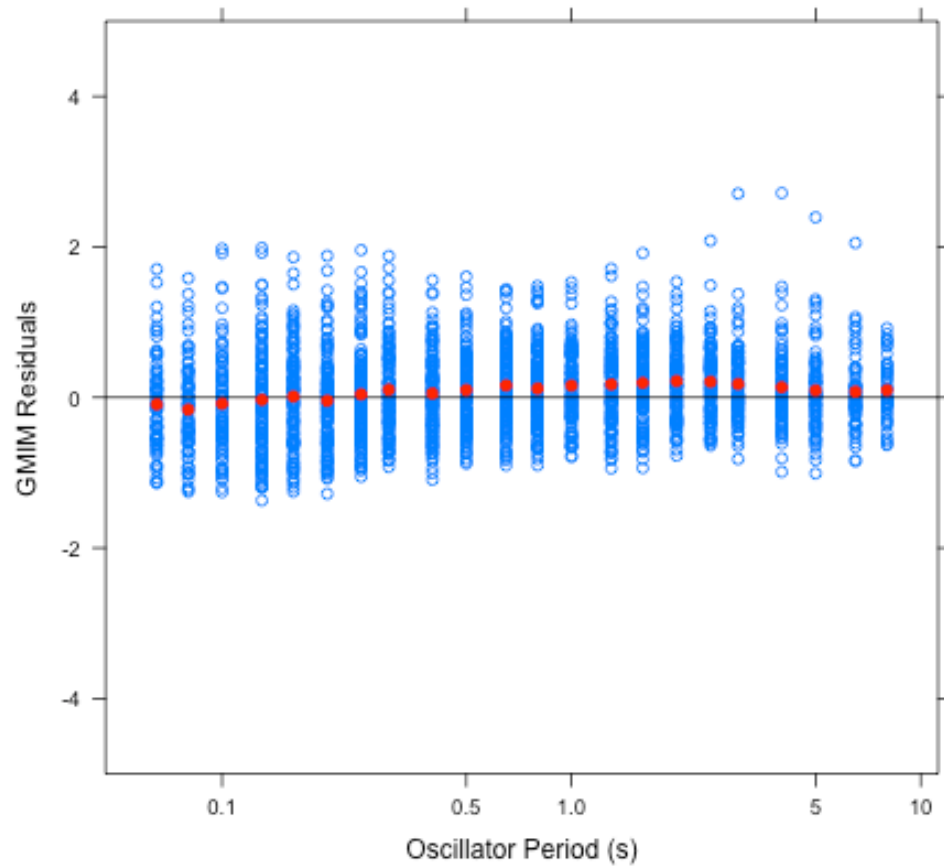 - $\eta_{i} =$ event term

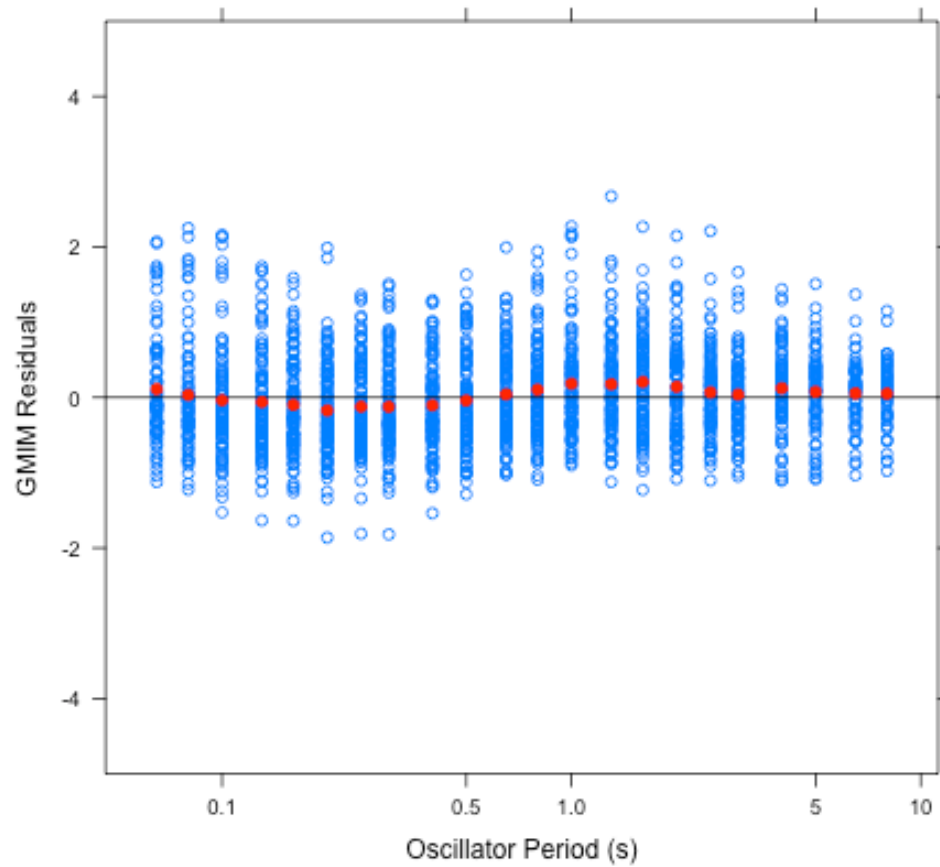# Trends in Residual Subset
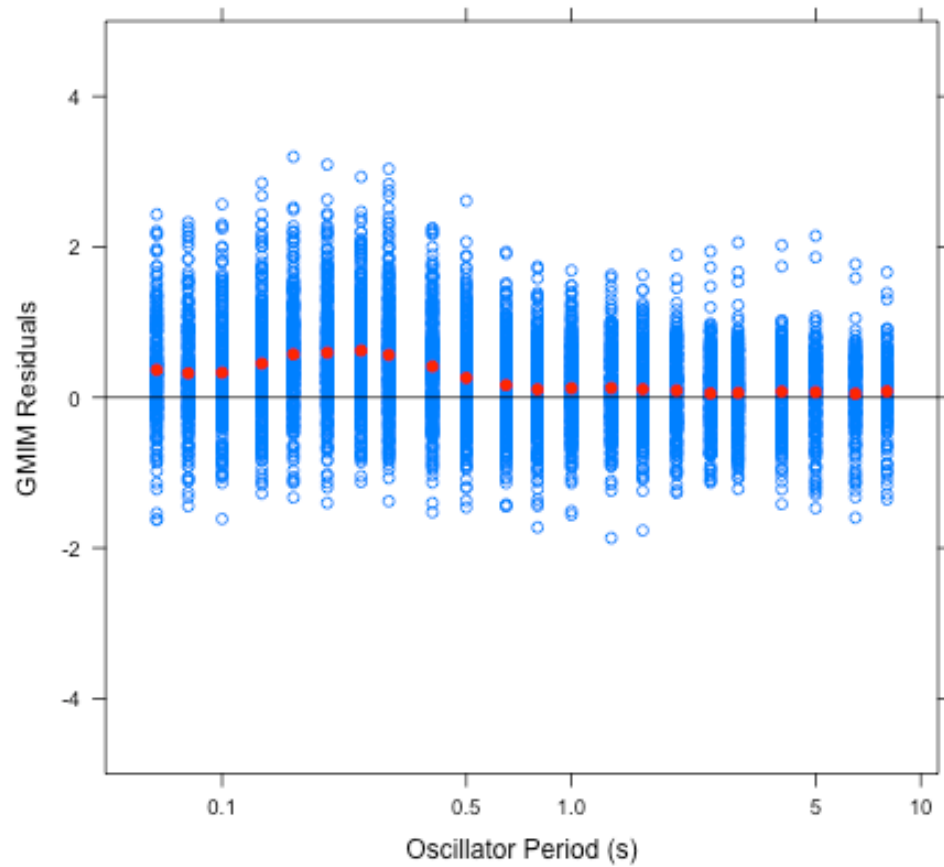
All Residuals

Residuals from Sites with f₀ Estimate

Binned f_0 - < 0.5Hz

Binned f_0 - 0.5 - 1Hz

Binned f_0 – 1 - 6Hz

Binned f_0 – 10 - 40Hz