**Group Discussion for the GLM Validation Studies Session:**

*A Tangled Web of Inter-Relations Affecting GLM Flash DE Estimates*

1. **GLM Instrument Thresholds (Cummins/Bruning work)**
   1. geographic location
   2. time of day
   3. season
2. **Reference Network Quality (various Vendors, and Govt.)**
   1. inherent DE/FAR (depends on # sensors, and sensor quality, local noise sources)
3. **Validation Tools (Bateman, Virts, Cummins, Bruning, …)**
   1. reference network(s) data ingested
   2. spatial matching criteria
   3. temporal matching criteria
   4. analysis region & period
4. **Simulation Quality (Virts, Koshak)**
   1. insight for determining optimal space/time matching criteria
5. **GLM Processing Algorithm Applied**
   1. LCFA, and LESA (Mach et al.)
   2. flash merging CIERRA & flash splitting (Peterson et al.)
   3. L0 compared to L1 (Bitzer)
   4. difficulties of glint filtering (Mach, LMATC, …)
6. **Nature (Lightning & Cloud Characteristics)**
   1. lightning optical source strength
   2. lightning size (convective vigor & flash rate … Bruning/MacGorman)
   3. cloud-scattering properties
      1. optical thickness
      2. particle scattering phase function (cloud microphysics)
   4. normal or inverted polarity storms