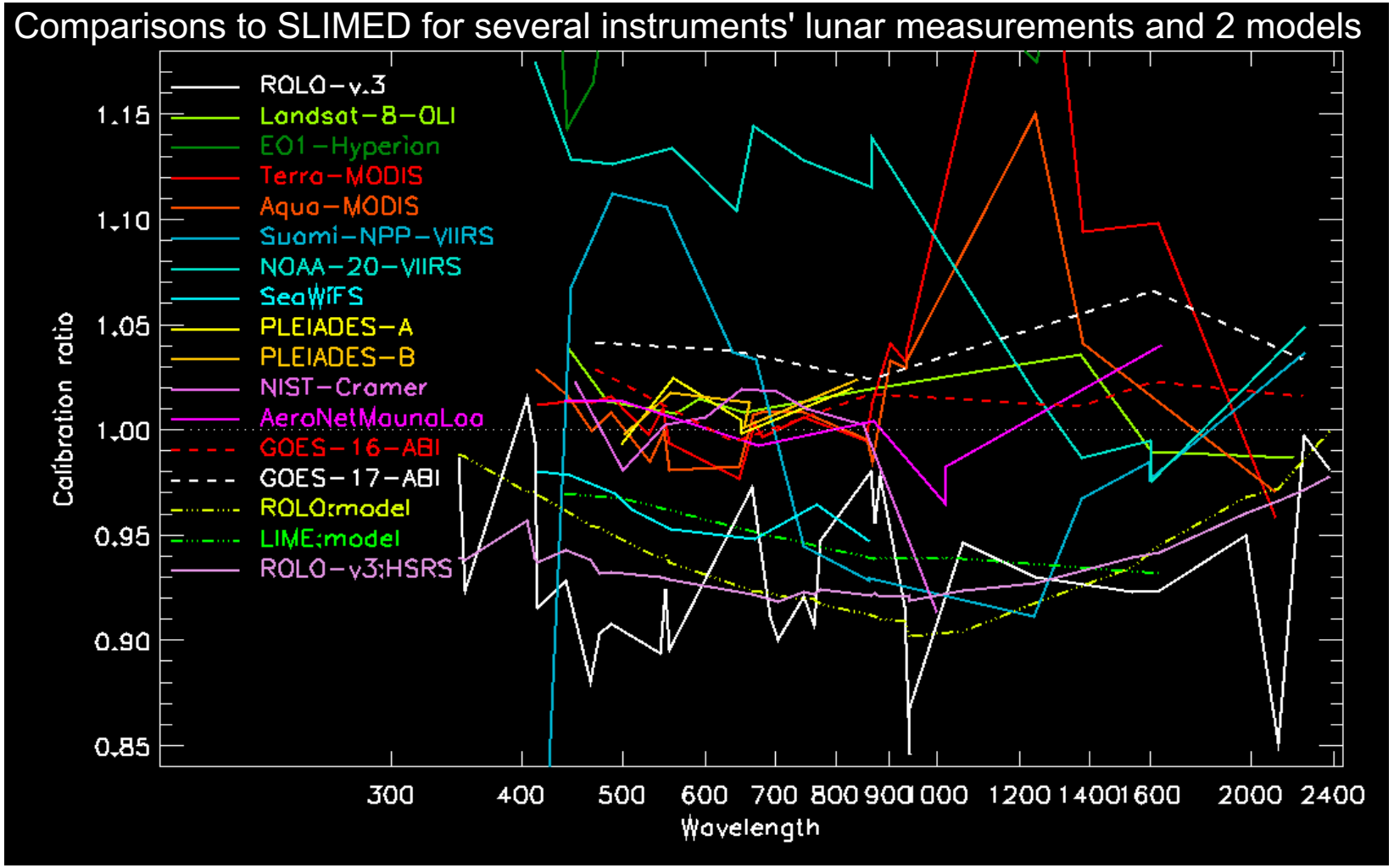
Discussion on Lunar Calibration Comparisons Between Instruments

- Motivated by results from the SLIMED lunar model, developed by Hugh Kieffer



The instruments are not this different, and the lunar model is not this inaccurate. There must be another explanation.

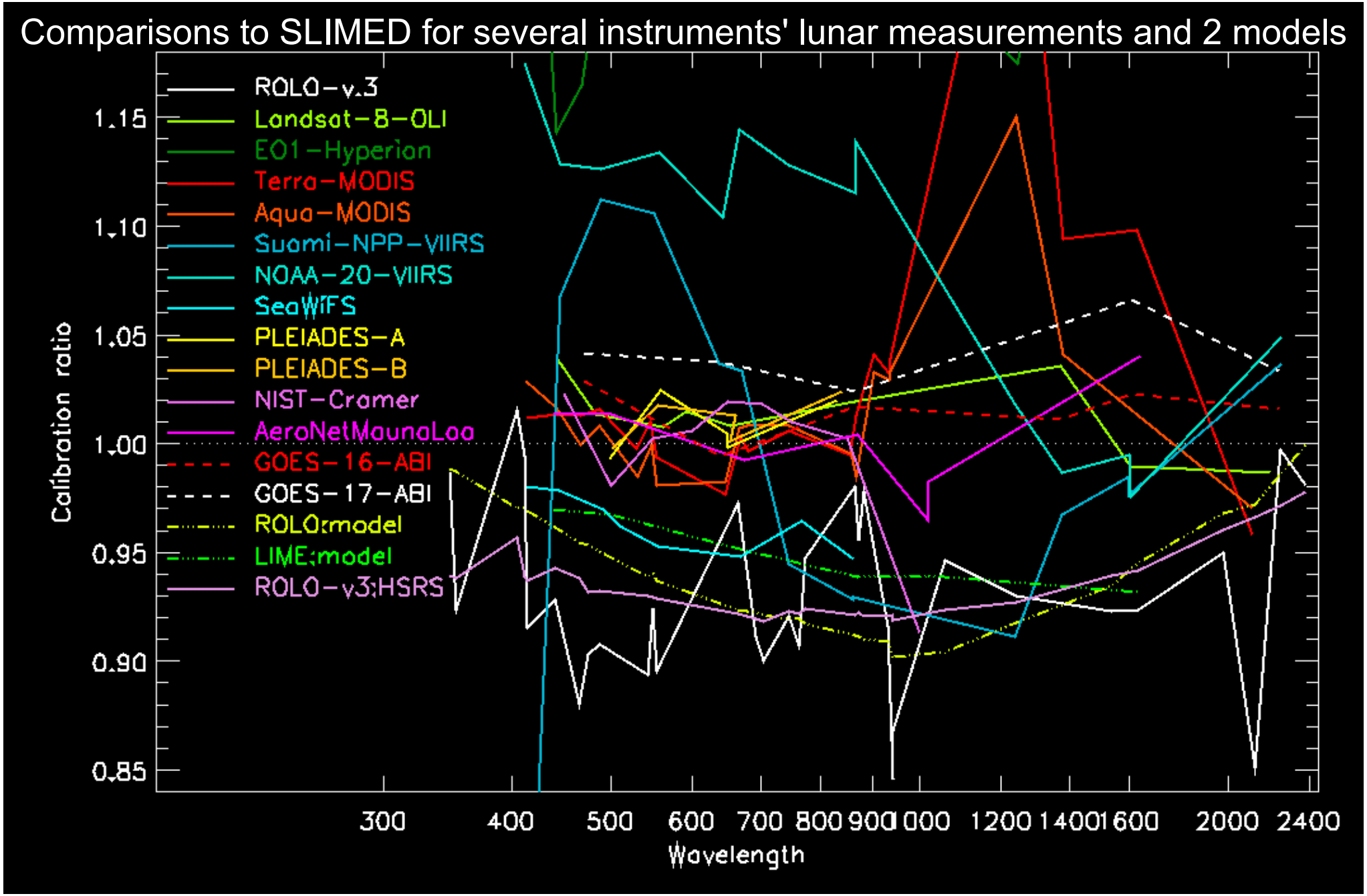
Some considerations for discussion:

- **Need:** careful and accurate extracting lunar irradiances from images: $E_{\text{meas}} = \frac{\Omega_{\text{p}}}{\eta} \sum_{i}^{N} L_i$
  - especially for line-scanning imagers
  - this requires accurate evaluations of:
    - solid angle of pixel FOV (different from GSD)
    - oversampling factor
    - dark level subtraction

$\Omega_{\text{p}} =$ pixel IFOV (solid angle)
$\eta =$ oversampling factor
$L_i =$ pixel radiance
$N =$ # of pixels on Moon

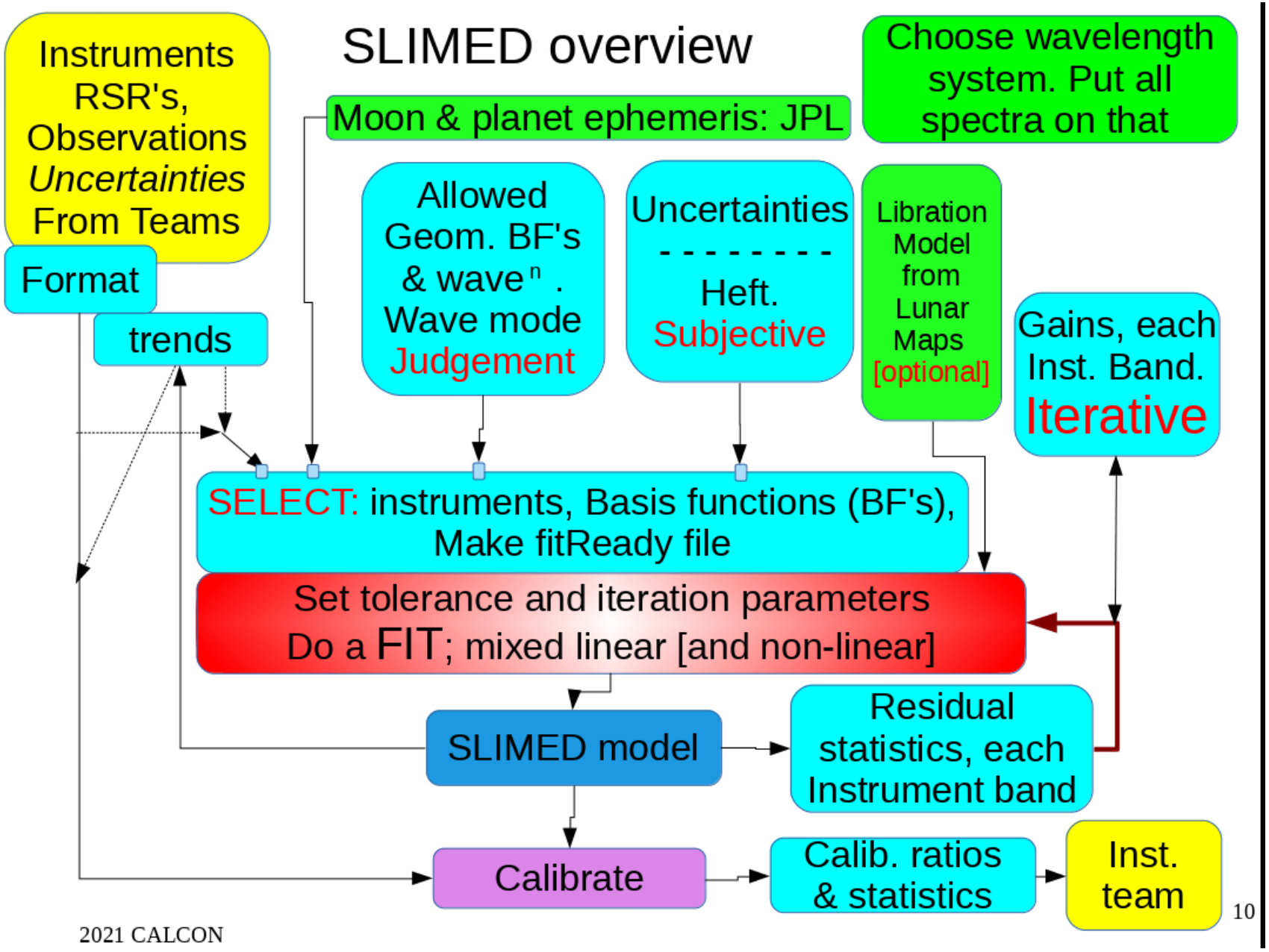
- **Recommended:** to acquire Moon observations as close as practical to the operational observation configuration
  - viewing the Moon in nadir-viewing optics is preferable, but requires satellite attitude maneuvers
  - understanding optical response differences for different viewing configurations
- **Critical need:** high-accuracy lunar irradiance measurements, to use as reference for models
  - active projects to acquire these: air-LUSI (operational), MLO-LUSI (in development), ARCSTONE (in development)

Comparisons to SLIMED for several instruments' lunar measurements and 2 models



Additional discussion points:

Diagram of SLIMED model development



Variances of input data used for SLIMED model development