

Phil, are you recording this?

## “Un-Panel” #2

- **Charter:** Collect information on future observational needs/desires for solar UV irradiance
- **Un-Panelists:** You!
- **Un-Panel Format:** Group discussion, fluid format, brainstorming, data collection,...

**Solar Physics**

**SWx Operations**

**Atmospheric Science**

### Solar Physics

- High spectral resolution (how high? 0.1 angstrom)
- High cadence (1-sec)
- Large span of temperatures for lines for DEMs (what logT range? 4.0-8.0)
- Observations at different levels of activity (min to max, to flares)
- Ly-alpha, spectrally resolved (25 mA over 117-125 nm? What is physically possible?) and not absorbed by geocorona (or corrected, which might need higher resolution)
- Isolated lines (or at least "not too blended")
- Flare lines
- Lines from different ionization states of same species (e.g. Fe lines)
- density sensitive line ratios (e.g. 3 pairs of FeXXI lines)
- Doppler shifts
- Measure more than just EUV (e.g. SXR, HXR, etc)
- Continua (e.g. Lyman with enough precision to get slope changes)
- simultaneous high spectral resolution spectra and images
- large statistics of events!
- multi-timescales
- Coronal dimming lines for CME studies
- Multiple vantage points?
- Coronal Heating (SXR, 0.5-5 keV), low-FIP, high-FIP, quiescent abundances vs flare abundances
- Plasma heating in flares (HXR, SXR)
- Cooling in flares (EUV)

### SWx Operations

- Continuity of historical measurements!
- No data gaps!
- Guarantee that measurements will be taken forevermore!
- High time resolution (seconds)
- Low data latency (seconds)
- Spectral hardening during flares (energetic particle events) SXR or HXR
- Ly-alpha (does everything or nothing?)
- He II 30.4 nm (provides ~ half of energy input to thermosphere)
- H-continuum (1/3<sup>rd</sup> of energy input to thermosphere)
- Flare lines
- Indices/proxies of activity (see Janet's slides on what SET uses)
- Broad bands to capture full energy input to atmosphere
- Full spectrum?
- Coronal dimming lines for CME initiation times, diagnostics, and predictions?
- Multiple vantage points? (what subset of observations from where? Flare locations, whole heliosphere modeling)
- TEC (whatever's driving ionization)
- Abundances (SXR, can give few minute warning of peak of flare, see Bennet's DAXSS talk)

### Atmospheric Science

- wavelengths that deposit most energy in different atmospheric regions (or to specific species)
- broadbands for total energy input for heating and ionization
- TEC → whatever wavelengths are driving that (ionization)
- Qeuv (0-45 nm integrated for heating)
- "a better F10.7"! Or are we finally moving past that? Are fully resolved spectra useable now?!
- Consistent measurements. I.e. Spectral measurement ranges and products that will continue for and stay around for a long time.
- Stan Bands! Useful for many models (or GITM bands?)
- Evolution of spectral variability on all timescales as driver for different atmospheric responses
- Ly-alpha at different local times for geocoronal studies and for D and E regions, O2 in mesosphere
- Occultations! Other wavelengths in occultation for upper atmosphere studies (density, temperature, etc., primarily FUV?)
- Flares! Spectral evolution knowledge important.





