Plan May 26 (May 27 UT).

Purpose: Perform validation of Laurent's r0 (and L0?) estimation by simultaneous comparison of NIRC2 images (TT only), Mauna Kea facility MASS-DIMM, Keck's AO seeing estimate (Matthias Schoeck 's closed loop methods) and Laurent's estimate.

Needed:
- MK Facility MASS-DIMM data, see http://mkwc.ifa.hawaii.edu/current/seeing/
- Keck AO seeing estimate (r0, L0) normally off, turn on IDL tool and log results (Shui)
- TT tilt only NIRC 2 star images, sanity check of all algorithms and MASS-DIMM
- Keck wavefront controller data (NGWFC telemetry), see details below

Astronomy program: Observations of asteroids for size, rotation and companions
Al and his observing team will cycle between observations of asteroid targets with occasional departures to measure NGS for PSF estimation/calibration. NGS stars will be observed in K-prime filter or if seeing is excellent possibly H band. Calibration star magnitudes are bright, typically between 9-12 (V?) band.
Al only has a half night for observations. At this time of the year (summer solstice in June), he will only have about 3 hours of observation. He anticipates getting between 2 to 4 PSF stars observations during the night.

Seeing estimate program piggybacked on Al's astronomy

At the start of the night:

1) Check Maun Kea Facility MASS-DIMM is running
2) During AO checkout (~12 degree twilight) turn on AO seeing tool logging
3) Start TRS recorder (I think this is automatic)
   a. DM voltages
   b. Tip Tilt voltages
   c. loop gains
   d. WFS centroids
   e. Other ?

At each PSF Star:

4) After acquisition, close only tip tilt loop, record NGS star images, exposure time might need to be increase as star will be spread out over many more pixels.
5) Close higher order AO loop record PSF star as normal.
6) Repeat 4-5 on next PSF star

At the end of the night

1) Save log of Keck AO seeing estimates (get procedure from Shui)

7) Save TRS data for half night to "permanent" storage (get procedure form Liz Chock)
8) Save Dark, Flats and NGS PSF FITS files from NIRC2
9) Save other AO information that is not part of TRS (list is only place holder)
   a. AO reconstruction matrix (Bayesian inverse of poke matrix)
   b. AO active subaperture maps (pupil registration, from this)
   c. AO wavefront sensor centroid offset files (aka cog files)
   d. DM flat map and offset map (good to have)
   e. DM actuator influence function (offline)
10) Make a giant tar-ball of data, post to FTP site, or other