Future Directions for Interferometry Workshop: Crowded Fields

People:
Julian Christou (NSF)
Knut Olsen (NOAO)
Ron Allen (STScI): moderator
Ken Mighell (NOAO): scribe

- **Science goals: stellar populations in crowded fields:**
  where:
  - **center of Milky Way, M33, M33's black hole**
  - **star cluster cores (dynamics)**

  what:
  - **precision astrometry (time -> dynamics)**
  - **precision photometry (time -> variability)**

- **Performance requirements**

  High surface brightness objects (uncomplicated targets)
  requirements:
  - **High angular resolution**
  - **Faint objects V=27 mag (sets minimum size of collector)**
  - **High dynamic range (10 magnitudes or more)**
  - **Large number of objects**
    - **require large number of UV points**
    - **require larger baselines to minimize confusion (100-m -> 1 mas)**
  - **Small FOV (1 arcsec^2) but, of course, bigger is better**

- **Required precursor observations and/or feasibility studies**

  More earth synthesis imaging experiments of complicated objects using existing facilities.

  Comment: If systems are too simple then need for interferometry may not exist.
  For example, Ghez's experiments at Keck with AO cameras & laser guide stars?

- **recommendations to NOAO**
  - **make current facilities more accessible**
    to broaden the user base AODP-like program for interferometry (IDP?)

Comment:

During the open discussion, other projects (like looking into the central cores of nearby globular/star clusters) were proposed which would do similar science but at closer distances; such projects by being less ambitious have the advantage of likely be achievable on a shorter time-frame than is expected for the very ambitious projects of interest to Christou, Olsen, Allen & Mighell.

Listening to the reports of the other groups during the open discussion, it became apparent to Olsen and Mighell that experiments based on Fizeau-style interferometers may have the best potential for crowded-field applications.