Antarctic Interferometry breakout session

Future Directions in Interferometry Meeting, Tucson

Coudé du Foresto, Christou, Elvis, Lynds, Mighell, Rajagopal, Serjeant, Stencil, Storey, Swain, Tokovinin.

Charges:
[1] science targets/goals, a.k.a. niche
[2] related technology,
    site studies & requirements
[3] recommendations to NOAO
    for array concepts
What are the niches for Antarctic interferometry? What science?

- **Diffraction limited imaging in the visible / high Strehl**
- **High dynamic range imaging**
  - « A disk machine » : characterization of disks: stars (YSO’s, exozodis), AGNs, accretion
- **Gains in K-L-M**
  - Disks, exoplanets, AGNs
- **Sky coverage**
  - AGN statistics, GRB followup, Magellanic Cloud science
- **Ultimate astrometry (longer term perspective)**
  - Exoplanets
Technical issues

- No show stopper perceived at component level
- Site testing:
  - See John Storey’s list of « to be done » items
  - Multisite, multiyear info needed
- Structures stability to get above ground layer + GLAO trade-off
- Comparative cost modelling and trade studies
  - Temperate vs. Antarctic (vs. space) solution for same capabilities
- Operational models and costing
  - Infrastructures, communications
- Political context
Recommendations

- Undertake comparative extensive site testing
  - Dome C, A, F
  - $C_n^2$, $r_0$, $\theta_0$, $\tau_0$, $L_0$, ground layer height
- Perform system/cost/operations study based on strawman concept (point design)
- Look into synergies:
  - With pathfinder efforts:
    - SPT 10m submm, PILOT, ALADDIN, …
  - With International Polar Year