Sixth NDAC Report from Lund Observatory

1. WP6200: PRS Solution, Algorithm Development (Söderhjelm)
A report on the data organization and computing requirements has been distributed (029). Program development for small-scale Step 2/3 experiments was started in October on the HP9000 system. Some interesting first results from solutions with about 180 set zero points (one year, every fourth set, three parameters per star):

(i) The basic feasibility of the accumulation/preadjustment algorithm (022 Table 1 and 3) is demonstrated, although global parameters are yet to be included.

(ii) Eigenvalue analysis of the normals shows the expected rank defect of 3.

(iii) The solution method proposed in (018) and (021) (i.e. fixing three nearly orthogonal sets, solving the non-singular normals, and then modifying the solution) seems to work very well and does indeed produce the pseudo-solution and -inverse, as verified by a direct (and very much slower) direct computation of these.

2. Process Definitions (Lindegren)
The Double Star Definition (WP8100) was distributed in November (030). This completes the series of definition papers outlined in May 1982 (003). As indicated in the previous report it is now my intention to review the entire reduction scheme in order to ensure completeness and compatibility between its various parts. This will probably be in the form of a single, self-contained and very detailed description of the NDAC reductions, rather than an update of the Definitions.

3. Working papers
83-09-27 (Lindegren) NDAC/LO/028 Preprocessing of SM Data: Improved Photometry
83-10-19 (Söderhjelm) NDAC/LO/029 Overview and computing requirements for the Step 2/3 process
83-11-25 (Lindegren) NDAC/LO/030 WP8100: Double Stars (Definition)
83-10-11 (Lindegren) Comments on WP2200 (Progress report on the AR, 1983-09-04)
83-10-21 (Lindegren) Nominal Scanning Law for PRS Simulations
83-10-28 (Lindegren) Adjacency Structure of Set Solutions