

PLANS FOR THE SECOND EPOCH OF THE SOUTHERN PROPER  
MOTION PROGRAM

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Abstract

The first photographs for the Yale-San Juan Southern Proper Motion (SPM) program with respect to faint galaxies were taken with the collaboration of Columbia University in 1965. The first epoch photography was essentially completed in 1974 and plans are now under way to begin the second epoch observations in 1986.

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It has been mentioned before (Wesselink 1970, 1974) that the SPM (Southern Proper Motion) program constitutes the southern extension of the Lick (NPM) program (Klemola 1986). Both projects are based on Wright's (1950) proposal of taking the external galaxies as a fixed reference frame in the determination of proper motions.

Formally the SPM was started in 1952, when Drs. D. Brouwer and J. Schilt took, as a joint project of Yale and Columbia Universities, a resolution from the IAU Commissions 8, 23, 24 and 33 to extend the Lick NPM to the southern hemisphere, Vasilevskis (1973). After many changes in the proposed location for the new observatory, El Leoncito, Argentina was selected as the site and the observations were started on July 1/2, 1965 when field No. 512 (RA = 19h, Dec =  $-30^\circ$ ) was successfully taken by Dr. Arnold Klemola.

As soon as observations with the 20 inch double astrograph began, many mechanical problems caused by the fork mounted system arose (and are still present). These problems were the main reason for which over 200 of 347 plate-pairs were rejected during the first epoch.

The first epoch was essentially complete at the end of 1973 except for some of the northern fields which were taken till 1981. Considering that any field is accepted when both, blue and yellow plates are acceptable, the degree of completeness of the first phase of the program can be summarized as follows:

SPM I	$-25^\circ$ to $-90^\circ$	90%
SPM II	$-20^\circ$ to $0^\circ$	28%

Since the SPM II, which is the overlap zone with the Lick program, is rather incomplete, a new overlap zone was defined in 1980. It consists of 72 fields distributed in the declination zones  $-5^\circ$ ,  $+10^\circ$  and  $+25^\circ$ ; at present 67% of this new overlap has been photographed.

With the aim of exploring the problems to be encountered during the measuring phase, as well as to analyze the astrometric performance of the Yale PDS, four zones, near the south galactic pole, for which second epoch plates have been already taken, are at present under study. We plan to start the second epoch at the beginning of 1986 and complete both the SPM I and SPM II as they were programmed in 1965. With the experience of the first epoch, we expect that over 1000 plate-pairs will be necessary. Our projected completion date for the SPM I is 2000 with the overlap second epoch beginning in 2005 and ending in 2010.

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