TABLE 1

PREVIOUS DETERMINATIONS OF THE LMC PROPER MOTION BY OUR GROUP USING THE QUASAR METHOD

Source	$\mu_\alpha \cos(\delta)$ mas yr^{-1}	μ_δ mas yr^{-1}	Weighted Mean from
ALP00 (LMC center)	$+1.7 \pm 0.2$	$+2.9 \pm 0.2$	Three fields
PAM02 (LMC center)	$+2.0 \pm 0.2$	$+0.4 \pm 0.2$	One Field
PCM06 (LMC center)	$+1.8 \pm 0.1$	$+0.9 \pm 0.1$	Four fields
CMP09 (LMC center)	$+1.82 \pm 0.13$	$+0.39 \pm 0.15$	One field

TABLE 2

OBSERVATIONAL MATERIAL FOR THE LMC QSO FIELDS

Field	Source	Epochs	Frames	Epoch Range
Q0459-6427	PAM02	9	45	1989.91−2001.96
Q0557-6713	ALP00	13	70	1989.02−2001.96
Q0558-6707	ALP00	9	48	1992.81−2001.96
Q0615-6615	ALP00	11	53	1989.90−2001.96

reference point, any motion detected will be a reflexion of the motion of the LRS, that is, those selected LMC stars present in each field.

As shown in Table 1, and despite the fact that basically the same set of images was used in the mentioned studies (excepting the case of CMP09, as explained in item 6 of § 6), there is a rather large discrepancy, particularly in DEC, between the PM of the LMC derived by ALP00 and that derived by PAM02 and PCM06, with ALP00-PCM06 differences of -0.1 mas yr^{-1} (0.7σ) in R.A., and $+2.0$ mas yr^{-1} (13σ) in DEC This puzzle prompted us to read and re-process directly the original images obtained by ALP00 and PAM02 along with those added in PCM06 and not taken into account in the two previously mentioned works. This is because, as mentioned in PCM06, all previous analyses were carried out using not the original image material but rather the (X, Y) coordinates processed by the original authors, with the exception of the newly processed data not included in ALP00 and those included in PAM02. Therefore the results reported here were determined using the (X, Y) coordinates directly obtained from the re-processing of the LMC images themselves of the QSO fields containing: Q0459-6427, Q0557-6713, Q0558-6707 and Q0615-6615 (in the same nomenclature used by PCM06). The original study of field Q0459-6427 was reported in PAM02, and those of Q0557-6713, Q0558-6707 and Q0615-6615 in ALP00 and PCM06. Table 2 summarizes the total observational material used in the present work. The new processing led to a different number of frames, from those for the same fields in PCM06, because of the deletion of one or two frames due to a bad quality image or other reasons, which became apparent with the new inspection of the images required for their new processing. In one case (Q0615 field) three frames were added to the previous sample, which were not considered before. We will refer to CMP09 in § 6, because it is a special case, with a different set of images.

2. OBSERVATIONS AND REDUCTIONS

The observational material used in this work was described in ALP00, PAM02 and PCM06 and was obtained at the Cassegrain focus of the CTIO 1.5 m telescope in its f/13.5 configuration. The CCD chips used in each epoch for each field are shown in Table 3. The same LRS stars and numbering were adopted as those used by ALP00 or PAM02. The number of LRS stars in each of the studied fields is 17, 23, 52 and 16, for the fields Q0459-6427, Q0557-6713, Q0558-6707 and Q0615-6615, respectively. Finding charts for the reference stars and the background QSO in each field can be found in ALP00 and PAM02.