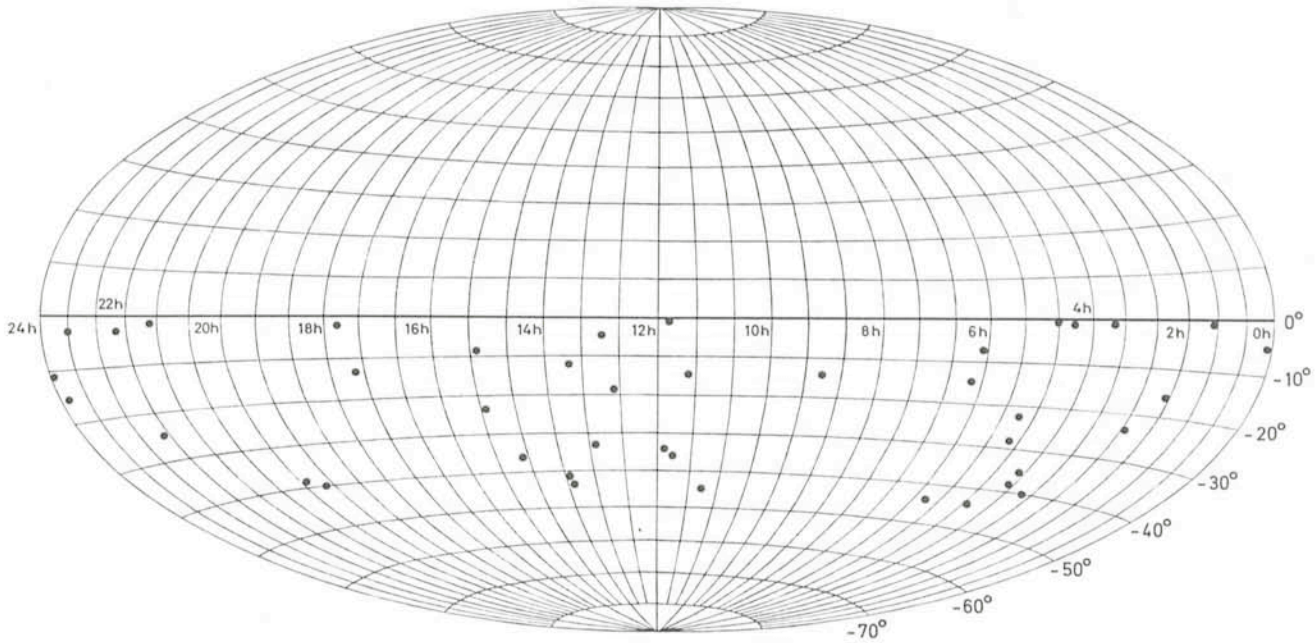

Fig. 2: *The distribution of 41 extragalactic radio sources which were measured in this programme.*

measured on ESO's S–3000 plate measuring machine. The (X, Y) positions of the reference stars were reduced to equatorial coordinates by using seven terms in both coordinates for the determination of the plate constants. Then the sky coordinates of the optical counterparts were derived with an internal average standard deviation of 0.″3 in right ascension and declination. The distribution of the measured objects over the southern sky is illustrated in figure 2. The measured optical positions agree very well with the radio interferometric positions; a full discussion is given in ESO Preprint No. 59.

Future Prospects

As most of the optical counterparts are fainter than $m_v = 16$ and since the reference stars of the Perth 70 Catalogue are brighter than $m_v = 10$, the accuracy of the present method that directly relates the counterparts to Perth 70 reference stars is limited by the large brightness difference (i.e. the appearance of the images on the plates). Superior accuracies of $\pm$ 0.″1 may be reached through a different method which ties optical counterparts to a catalogue of bright stars in a defined system by a step procedure that uses secondary reference stars in the magnitude range $12 < m_v < 14$ and long-focus, small-field plates (e.g. Chr. de Vegt, U. K. Gehlich, *Astron. and Astrophys.* **67,** 1978, p. 65). The effort, however, is disproportionately larger than direct tying on large-field Schmidt plates as we did, because the accurate positions of 50 to 100 secondary reference stars in the vicinity of each of the optical counterparts are required. So far the facilities for position measurements of secondary reference stars in the southern sky have been poor, and our method of direct tying is more expedient.

In the framework of the Space Astrometry Project sponsored by the European Space Agency (ESA), photoelectric determination of the positions, proper motions and parallaxes of about 100,000 faint stars down to the magnitude $m_v = 12$ is planned by means of an artificial earth satellite (HIPPARCOS); cf. *Messenger* No. 16, p. 35. Positional accuracies of 0.″002 are likely to be achieved. These stars would establish a comprehensive and impressively precise reference frame for position determination of optical counterparts by yielding accuracies comparable with those of radio interferometry. For practical applications, however, it is important that sufficient reference stars are measured in the fields of optical counterparts of point-like radio sources. A selective observing programme of the astrometry satellite is therefore necessary.

Main Results

The new astrometric observations of optically identified radio sources constitute a significant contribution to the network of reference points in the southern sky; we also believe to have demonstrated in practice the great utility of the Perth 70 Catalogue as reference frame for extragalactic objects and, last but not least, the reliability of ESO's plate-measuring system and the associated software (see also this issue, p. 21).

NEWS AND NOTES

Minor Planet Discovered by ESO Night Assistants

During a recent visit to Europe by the astronomer-in-charge, H.-E. Schuster, the smooth running of the ESO Schmidt telescope was assured by night assistants Oscar and Guido Pizarro. Checking through a night's plates they came upon a comparatively bright planet trail. They marked the trail and were able to find trails of the same planet on further plates that were taken for the same programme the following nights.

The first plate was taken on May 19, 1979 and the new planet has been given the preliminary designation 1979 KA. Further observations were obtained on three otherwise useless nights in June and a preliminary orbit has been computed by the Minor Planet Bureau. The mean distance from the Sun is about 400 million kilometres and the size of the new planet is probably about 10 kilometres in diameter.