

# Properties of nearby clusters of galaxies.

## II. A 151, A 637, A 646, A 649, A 655, A 1132, A 1314, A 1377, A 1570, A 1589\*

P. Flin<sup>1</sup>, D. Trèvese<sup>2</sup>, G. Cirimele<sup>2</sup> and P. Hickson<sup>3</sup>

<sup>1</sup> Institute of Physics, Pedagogical University, Ul. Podchorążych 2, 30-084 Cracow, Poland

<sup>2</sup> Istituto Astronomico Università di Roma "La Sapienza", Via G.M. Lancisi 29, I-00161 Roma, Italy

<sup>3</sup> Department of Geophysics and Astronomy, University of British Columbia, 2219 Main Mall, Vancouver, BC, V6T 1Z4, Canada

Received August 9; accepted October 24, 1994

**Abstract.** — We present *F* band photometry, from digitized 48-inch Palomar plates, of 1167 galaxies brighter than  $m_3 + 3$  in 10 Abell clusters. For each galaxy, absolute coordinates, magnitude, size, ellipticity and orientation are given. For each cluster we provide finding charts and contour maps of the galaxy surface density.

**Key words:** galaxies: clusters of — galaxies: structure — techniques: image processing

### 1. Introduction

We have undertaken a uniform analysis of a large sample of galaxy clusters to allow statistical studies of the clusters properties (Flin et al. 1988). This is the second of a series of papers giving the positions, magnitudes, ellipticities and orientations of cluster galaxies having magnitudes between  $m_3$  and  $m_3 + 3$ , where  $m_3$  is the magnitude of the third brightest galaxy within one Abell radius of the cluster center, together with finding charts and cluster surface density maps for 1167 galaxies in 10 Abell clusters. Details of the observations and data reduction are described in Trèvese et al. (1992) (T92). Thus in Sect. 2 only the main features of the data and the reduction procedures are briefly described. In addition to the type of data presented in T92 we include here the absolute  $\alpha$ ,  $\delta$  coordinates of all galaxies. The catalog is described in Sect. 3.

### 2. Observational data and reduction procedures

Our data are derived from 10-inch photographic plates taken with the 48-inch Palomar Schmidt Telescope (Hickson 1977). The emulsions employed were Kodak 127-02 or Kodak 098-04, both used with 2 mm Schott RG-1 glass filter, which corresponds to the red photographic *F*-

band of Oemler (1974). Plates were calibrated using the Palomar spot sensitometer.

Fields containing the clusters originally selected by Hickson 1977, as well as some additional Abell clusters well visible on the plates, were scanned in transparency mode using a PDS 1010G microdensitometer in Rome, producing a digital image for each cluster field having pixel sizes ranging from 10 to 25  $\mu\text{m}$ , according to the noise level of the plate and cluster distance. The signal to noise ratio is  $S/N \gtrsim 100$  for a few objects brighter than 12 mag, about 25 for  $F \approx 14$  mag and falls to about 5 for  $F \gtrsim 18$  mag. Objects are automatically detected and magnitude values are computed in many circular apertures, thus producing a magnitude profile from which objects are automatically classified as point-like or diffuse.

Total magnitudes  $m_T$  are computed from the flux integrated in an aperture whose radius is  $R_1 = 1.5 r_1$ , where (Kron 1980):

$$r_1 = \frac{\int_0^{r_{\max}} I(r) r^2 dr}{\int_0^{r_{\max}} I(r) r dr} \quad (1)$$

and  $r_{\max}$  has been determined by the condition that the intensity  $I(r)$  of the objects becomes less than the rms fluctuations of the background intensity about its average value.

With the above definition, total magnitudes correspond on average (see Fig. 1) to the magnitude  $m_{\text{iso}}$  computed in a circular aperture determined by the isophote  $\mu = 24 \text{ mag arcsec}^{-2}$ , with the advantage that  $r_1$  is less noisy than the corresponding isophotal radius. Magnitude

Send offprint requests to: D. Trèvese

\*Tables are also available in electronic form at CDS (ftp 130.79.128.5)

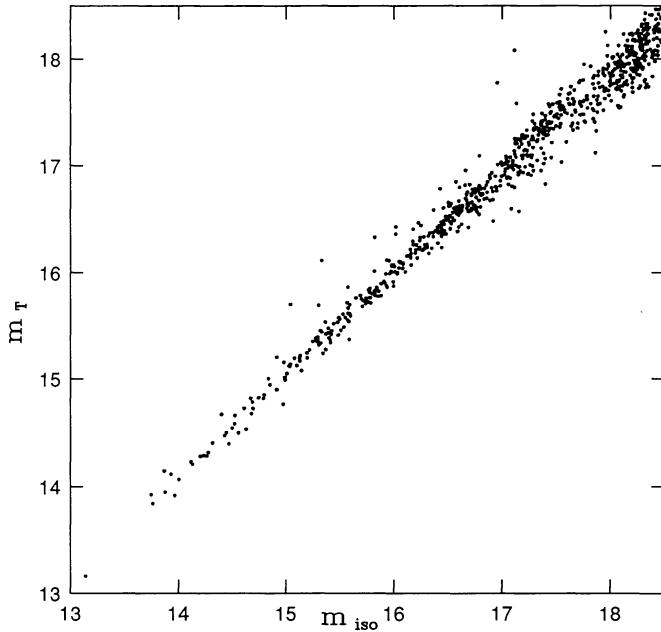


**Fig. 1.** The total magnitude  $m_T$  versus the isophotal magnitude  $m_{iso}$

zero points are taken from the literature as indicated in Sect. 3.

The ellipticity and the orientation of each object are computed from the second-order momenta of the intensity distribution.

In each field a reference set of about 10, properly distributed, stars belonging to the Guide Star Catalog of STScI (GSC), has been selected. Then, the right ascension  $\alpha$  and declination  $\delta$  referred to 1950 have been computed from the rectangular scanning coordinates, using the COORDS utility from the IRAF package (Tody 1986). The resulting  $\alpha$  and  $\delta$  show a rms deviation smaller than 2 arc sec from GSC coordinates.

Density images of the clusters were computed as in T92. Isodensity maps of each cluster field are shown in Sect. 3.

### 3. Description of the catalog

The clusters studied in this paper are listed in Table 1. The column headings are:

- Column 1:* Abell catalog number.
- Column 2:* Identification number of the galaxy used to set the zero of the magnitude scale.
- Column 3:* redshift (from Struble & Rood 1991)
- Column 4:* right ascension (1950) of the same galaxy.
- Column 5:* declination (1950) of the same galaxy.
- Column 6:* radius adopted for fixed aperture photometry, in arcsec.

The zero of the magnitude scale has been established using published photometric data.

In particular for A 151 and A 1377 we have used  $g$  magnitudes of bright galaxies given by Hoessel et al. (1980), and compared our photometry in the same aperture after the transformation  $F = g - 1.05$ , valid for bright elliptical galaxies, for which we assume  $B - V = 0.97$  (Schneider et al. 1983) (SGH).

The clusters A 637, A 646, A 649 and A 655 lie in the same plate, similarly A 1570 and A 1589. In these cases we have used the  $r$  magnitudes of the brightest galaxy of A 655 and A 1589 respectively, taken from Hoessel & Schneider (1985) after the transformation  $F = r - 0.58$ , from SGH.

For A 1132 and A 1314 we have used the  $V$  magnitudes of Gunn & Oke (1975), and Peterson (1970) respectively, after the transformation  $F = V - 0.76$ , from SGH.

**Table 1.**

| <i>Cluster</i>     | <i>N</i> | <i>z</i> | $\alpha^*$ | $\delta^*$ | $\phi_a$ |
|--------------------|----------|----------|------------|------------|----------|
| A151               | 1        | 0.0536   | 01 06 22   | -15 42 24  | 6.7      |
| A637 <sup>a</sup>  |          |          |            |            |          |
| A646 <sup>a</sup>  |          | 0.1303   |            |            |          |
| A649 <sup>a</sup>  |          |          |            |            |          |
| A655               | 1        | 0.1245   | 08 21 57   | +47 17 47  | 5.0      |
| A1132              | 9        | 0.1363   | 10 55 36   | +57 03     | 6.7      |
| A1314              | 2        | 0.0338   | 11 32 07   | +49 20 44  | 6.0      |
| A1377              | 6        | 0.0514   | 11 44 42   | +56 00 22  | 8.4      |
| A1570 <sup>b</sup> |          |          |            |            |          |
| A1589              | 1        | 0.0718   | 12 38 49   | +18 50 59  | 6.7      |

\* coordinates taken from the papers giving the photometric zero point, differing from those reported in Table 2.

<sup>a</sup> same calibration as A655

<sup>b</sup> same calibration as A1589

Error estimates on the zero of the magnitude scale can be deduced from the above references.

Each catalog contains all the galaxies in the area shown in the identification maps, brighter than  $m_3 + 3$ .

Data for the individual galaxies in each cluster are given in Tables 2 to 11. The column headings for these tables are as follows:

*Column 1:* identification number.

*Column 2:* right ascension 1950

*Column 3:* declination 1950

*Column 4:* size in arcsec, defined in Eq. (1) of Paper I.

*Column 5:* ellipticity  $(1 - b/a)$ , where  $b/a$  is the ratio of minor/major axis lengths

*Column 6:* angle between the major axis and to the positive  $y$  direction, in degrees, increasing counterclockwise.

*Column 7:* total  $F$  magnitude integrated in a circular area of radius  $R_1$

*Column 8:*  $F$  magnitude in a fixed circular aperture, whose radius in arcsec is indicated in Table 1.

Galaxies are sorted according to their total magnitude.

For each cluster we give, in Figs. 2 to 11, identification maps with the serial numbers of the first 50 objects

and isodensity plots obtained from the density images, computed according to the method described in T92.

*Acknowledgements.* P. H. is supported by grants from the Natural Science and Engineering Research Council of Canada. P.F. thanks the Istituto Astronomico, Università di Roma "La Sapienza" and the Vatican Observatory for their hospitality. This work has been partly supported by the Polish Committee for Scientific Research under the grant p304 006 05/93 and by the Italian MUNRST and CNR (G.N.A.).

## References

- Flin P., Hickson P., Pittella G. 1988, in Large Scale Structures in the Universe. Observational and Analytical Methods, eds. W.C. Seiter, H.W. Duerbeck, W. Tacke (Springer Verlag) 179
- Gunn J.E., Oke J.B. 1975, ApJ 195, 255
- Hickson P. 1977, ApJ 217, 16
- Hoessel J.G., Gunn J.E., Thuan T.X. 1980, ApJ 241, 486
- Hoessel J.G., Schneider D.P. 1985, AJ 90, 1648
- Kron R.G. 1980, ApJS 43, 305
- Oemler A. 1974, ApJ 194, 1
- Peterson B.A. 1970, AJ 75, 695
- Schneider D.P., Gunn J.E., Hoessel J.G. 1983, ApJ 264, 337 (SGH)
- Struble F.S., Rood H.J. 1991, ApJS 77, 363
- Tody, D. 1986, "The IRAF Data Reduction and Analysis System" in Proc. SPIE Instrumentation in Astronomy VI, ed. D.L. Crawford, 627, 733
- Trévese D., Flin P., Migliori L., Hickson P., Pittella G. 1992, A&AS 94, 327 (T92)

Table 2.

Abell 151

| $N$ | $\alpha$  | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ |
|-----|-----------|-----------|-------|------------|----------|-------|-------|
| 1   | 1 06 22.3 | -15 40 25 | 29    | 0.33       | 30       | 12.6  | 14.2  |
| 2   | 1 06 19.5 | -16 06 41 | 24    | 0.46       | 122      | 12.9  | 14.1  |
| 3   | 1 06 21.8 | -16 12 50 | 26    | 0.59       | 35       | 13.0  | 14.1  |
| 4   | 1 06 37.8 | -16 16 00 | 24    | 0.47       | 42       | 13.2  | 14.4  |
| 5   | 1 06 58.2 | -15 11 22 | 12    | 0.28       | 109      | 13.5  | 14.4  |
| 6   | 1 06 03.4 | -15 39 52 | 25    | 0.78       | 88       | 13.8  | 14.9  |
| 7   | 1 06 43.5 | -15 45 46 | 24    | 0.71       | 92       | 13.9  | 15.4  |
| 8   | 1 08 13.8 | -15 47 08 | 15    | 0.43       | 67       | 13.9  | 14.5  |
| 9   | 1 07 33.2 | -15 53 22 | 19    | 0.61       | 102      | 13.9  | 14.6  |
| 10  | 1 08 42.1 | -16 13 11 | 8     | 0.10       | 44       | 14.1  | 14.4  |
| 11  | 1 06 15.4 | -15 41 13 | 17    | 0.55       | 80       | 14.1  | 14.7  |
| 12  | 1 08 28.7 | -16 12 36 | 16    | 0.53       | 19       | 14.1  | 15.0  |
| 13  | 1 08 13.8 | -16 01 56 | 13    | 0.62       | 16       | 14.2  | 14.8  |
| 14  | 1 07 38.4 | -15 56 51 | 10    | 0.51       | 155      | 14.2  | 14.5  |
| 15  | 1 07 57.0 | -15 31 22 | 13    | 0.39       | 104      | 14.3  | 14.8  |
| 16  | 1 07 15.0 | -15 24 37 | 12    | 0.66       | 33       | 14.3  | 14.7  |
| 17  | 1 05 44.4 | -16 08 59 | 16    | 0.24       | 138      | 14.3  | 15.2  |
| 18  | 1 05 59.0 | -15 54 41 | 17    | 0.70       | 69       | 14.3  | 15.2  |
| 19  | 1 07 36.9 | -15 49 49 | 15    | 0.12       | 58       | 14.3  | 14.8  |
| 20  | 1 06 57.1 | -15 37 44 | 17    | 0.41       | 64       | 14.4  | 14.9  |
| 21  | 1 07 11.0 | -15 37 49 | 15    | 0.23       | 50       | 14.4  | 15.0  |
| 22  | 1 05 41.4 | -15 44 51 | 8     | 0.10       | 0        | 14.4  | 14.6  |
| 23  | 1 06 05.3 | -15 53 15 | 19    | 0.25       | 31       | 14.5  | 15.3  |
| 24  | 1 04 32.9 | -15 33 56 | 13    | 0.63       | 39       | 14.5  | 15.0  |
| 25  | 1 07 39.2 | -15 45 17 | 14    | 0.67       | 161      | 14.5  | 15.0  |
| 26  | 1 06 20.5 | -15 57 40 | 15    | 0.20       | 84       | 14.5  | 15.0  |
| 27  | 1 05 12.6 | -16 14 12 | 11    | 0.30       | 28       | 14.5  | 14.8  |
| 28  | 1 06 19.5 | -15 42 17 | 11    | 0.17       | 167      | 14.6  | 14.9  |
| 29  | 1 06 01.3 | -15 50 23 | 13    | 0.10       | 120      | 14.7  | 15.1  |
| 30  | 1 06 34.1 | -15 49 27 | 13    | 0.51       | 177      | 14.7  | 15.2  |
| 31  | 1 06 02.0 | -15 13 03 | 11    | 0.16       | 92       | 14.7  | 15.2  |
| 32  | 1 06 24.1 | -15 41 18 | 7     | 0.45       | 59       | 14.7  | 14.7  |
| 33  | 1 07 37.9 | -15 46 10 | 11    | 0.19       | 90       | 14.7  | 15.1  |
| 34  | 1 06 24.8 | -15 53 16 | 12    | 0.24       | 109      | 14.8  | 15.2  |
| 35  | 1 06 11.4 | -15 45 51 | 10    | 0.10       | 108      | 14.8  | 15.1  |
| 36  | 1 06 37.6 | -15 38 18 | 17    | 0.83       | 48       | 14.8  | 15.4  |
| 37  | 1 08 45.1 | -15 48 54 | 11    | 0.41       | 111      | 14.8  | 15.2  |
| 38  | 1 06 12.0 | -16 07 16 | 11    | 0.22       | 2        | 14.8  | 15.1  |
| 39  | 1 04 35.7 | -15 29 53 | 11    | 0.63       | 177      | 14.9  | 15.3  |
| 40  | 1 05 05.5 | -16 10 30 | 10    | 0.19       | 6        | 14.9  | 15.0  |
| 41  | 1 05 49.4 | -15 37 20 | 11    | 0.20       | 2        | 14.9  | 15.3  |
| 42  | 1 06 24.8 | -15 36 11 | 13    | 0.10       | 6        | 15.0  | 15.6  |
| 43  | 1 07 09.8 | -15 42 13 | 11    | 0.36       | 77       | 15.0  | 15.3  |
| 44  | 1 05 02.5 | -15 17 25 | 9     | 0.20       | 55       | 15.0  | 15.2  |
| 45  | 1 07 58.5 | -15 31 48 | 9     | 0.10       | 115      | 15.0  | 15.2  |
| 46  | 1 08 32.4 | -16 07 49 | 5     | 0.53       | 21       | 15.0  | 14.4  |
| 47  | 1 06 13.3 | -15 55 30 | 11    | 0.18       | 94       | 15.1  | 15.4  |
| 48  | 1 05 39.9 | -15 27 17 | 11    | 0.23       | 49       | 15.1  | 15.2  |
| 49  | 1 05 23.2 | -15 51 49 | 7     | 0.20       | 91       | 15.1  | 15.1  |
| 50  | 1 07 37.5 | -15 47 11 | 8     | 0.22       | 164      | 15.1  | 15.2  |

Abell 151

| $N$ | $\alpha$  | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ |
|-----|-----------|-----------|-------|------------|----------|-------|-------|
| 51  | 1 04 21.0 | -15 53 26 | 13    | 0.67       | 61       | 15.1  | 16.0  |
| 52  | 1 05 11.5 | -16 15 54 | 8     | 0.27       | 123      | 15.1  | 15.2  |
| 53  | 1 06 37.7 | -16 07 36 | 11    | 0.70       | 133      | 15.2  | 15.6  |
| 54  | 1 05 47.4 | -16 02 22 | 10    | 0.10       | 109      | 15.2  | 15.4  |
| 55  | 1 07 08.7 | -16 15 05 | 7     | 0.27       | 44       | 15.2  | 15.2  |
| 56  | 1 05 57.6 | -15 38 44 | 11    | 0.52       | 85       | 15.2  | 15.5  |
| 57  | 1 05 23.5 | -15 42 08 | 10    | 0.15       | 131      | 15.2  | 15.5  |
| 58  | 1 05 39.0 | -15 27 26 | 9     | 0.10       | 94       | 15.2  | 15.4  |
| 59  | 1 04 20.9 | -15 29 54 | 12    | 0.38       | 39       | 15.2  | 15.5  |
| 60  | 1 05 11.8 | -16 02 30 | 10    | 0.24       | 70       | 15.2  | 15.5  |
| 61  | 1 06 29.7 | -16 15 45 | 13    | 0.27       | 174      | 15.2  | 15.8  |
| 62  | 1 06 12.5 | -16 07 29 | 7     | 0.40       | 35       | 15.2  | 15.3  |
| 63  | 1 07 30.4 | -15 34 44 | 13    | 0.42       | 51       | 15.2  | 15.6  |
| 64  | 1 04 32.3 | -15 56 46 | 12    | 0.48       | 107      | 15.2  | 15.6  |
| 65  | 1 06 27.1 | -15 37 44 | 9     | 0.29       | 110      | 15.3  | 15.4  |
| 66  | 1 04 49.6 | -15 57 36 | 4     | 0.19       | 129      | 15.3  | 14.3  |
| 67  | 1 06 51.1 | -15 32 41 | 13    | 0.10       | 146      | 15.3  | 15.8  |
| 68  | 1 07 11.3 | -15 46 47 | 6     | 0.32       | 0        | 15.3  | 15.3  |
| 69  | 1 08 46.0 | -16 16 27 | 12    | 0.36       | 130      | 15.3  | 15.6  |
| 70  | 1 06 36.7 | -16 03 17 | 8     | 0.33       | 27       | 15.3  | 15.4  |
| 71  | 1 07 57.1 | -16 14 49 | 10    | 0.10       | 150      | 15.3  | 15.5  |
| 72  | 1 06 22.9 | -15 46 28 | 9     | 0.49       | 170      | 15.3  | 15.5  |
| 73  | 1 08 09.8 | -16 10 41 | 9     | 0.19       | 129      | 15.4  | 15.6  |
| 74  | 1 05 42.1 | -16 04 34 | 9     | 0.14       | 25       | 15.4  | 15.6  |
| 75  | 1 05 25.1 | -16 12 20 | 11    | 0.53       | 58       | 15.4  | 15.6  |
| 76  | 1 06 39.1 | -15 59 43 | 9     | 0.35       | 25       | 15.4  | 15.5  |
| 77  | 1 06 46.9 | -15 42 49 | 10    | 0.11       | 8        | 15.4  | 15.6  |
| 78  | 1 05 22.1 | -15 37 32 | 10    | 0.30       | 88       | 15.4  | 15.6  |
| 79  | 1 08 39.3 | -15 19 04 | 9     | 0.22       | 101      | 15.4  | 15.6  |
| 80  | 1 05 46.8 | -15 36 34 | 10    | 0.12       | 91       | 15.4  | 15.5  |
| 81  | 1 06 07.2 | -16 05 55 | 9     | 0.30       | 16       | 15.4  | 15.5  |
| 82  | 1 05 00.9 | -15 25 36 | 10    | 0.10       | 61       | 15.4  | 15.6  |
| 83  | 1 07 48.3 | -16 06 50 | 13    | 0.74       | 151      | 15.4  | 15.8  |
| 84  | 1 05 40.8 | -15 28 47 | 8     | 0.27       | 68       | 15.4  | 15.6  |
| 85  | 1 08 08.9 | -15 52 35 | 10    | 0.15       | 82       | 15.4  | 15.6  |
| 86  | 1 06 12.7 | -15 23 30 | 12    | 0.39       | 176      | 15.4  | 15.8  |
| 87  | 1 06 20.6 | -15 43 35 | 5     | 0.16       | 71       | 15.4  | 14.7  |
| 88  | 1 05 47.4 | -15 08 06 | 10    | 0.52       | 96       | 15.4  | 15.6  |
| 89  | 1 06 34.5 | -16 16 33 | 8     | 0.46       | 130      | 15.4  | 15.5  |
| 90  | 1 06 28.4 | -15 48 25 | 8     | 0.34       | 92       | 15.5  | 15.6  |
| 91  | 1 07 34.1 | -15 58 32 | 11    | 0.15       | 79       | 15.5  | 15.8  |
| 92  | 1 08 05.8 | -15 54 40 | 9     | 0.48       | 30       | 15.5  | 15.7  |
| 93  | 1 06 13.2 | -16 13 38 | 10    | 0.56       | 96       | 15.5  | 15.7  |
| 94  | 1 05 22.9 | -15 37 43 | 7     | 0.39       | 32       | 15.5  | 15.6  |
| 95  | 1 05 41.3 | -15 28 18 | 9     | 0.38       | 40       | 15.5  | 15.7  |
| 96  | 1 06 46.7 | -15 54 22 | 9     | 0.11       | 116      | 15.5  | 15.6  |
| 97  | 1 07 25.5 | -15 51 01 | 8     | 0.26       | 41       | 15.6  | 15.7  |
| 98  | 1 07 18.7 | -15 45 49 | 9     | 0.39       | 46       | 15.6  | 15.8  |
| 99  | 1 07 17.0 | -15 49 01 | 7     | 0.40       | 100      | 15.6  | 15.6  |
| 100 | 1 06 20.6 | -16 06 15 | 18    | 0.52       | 83       | 15.6  | 17.8  |

Abell 151

| $N$ | $\alpha$  | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ |
|-----|-----------|-----------|-------|------------|----------|-------|-------|
| 101 | 1 06 25.5 | -15 46 30 | 7     | 0.44       | 76       | 15.6  | 15.6  |
| 102 | 1 07 09.9 | -15 17 03 | 10    | 0.18       | 96       | 15.6  | 15.8  |
| 103 | 1 04 12.1 | -15 25 59 | 5     | 0.25       | 131      | 15.6  | 15.0  |
| 104 | 1 07 54.3 | -15 27 34 | 9     | 0.63       | 30       | 15.6  | 15.7  |
| 105 | 1 06 38.5 | -15 34 52 | 8     | 0.52       | 154      | 15.6  | 15.7  |
| 106 | 1 06 07.9 | -15 54 47 | 9     | 0.16       | 50       | 15.6  | 15.7  |
| 107 | 1 04 20.2 | -15 53 33 | 9     | 0.14       | 85       | 15.7  | 16.0  |
| 108 | 1 05 02.6 | -15 24 22 | 9     | 0.18       | 97       | 15.7  | 15.9  |
| 109 | 1 06 20.1 | -15 44 21 | 8     | 0.16       | 11       | 15.7  | 15.8  |
| 110 | 1 06 13.4 | -16 02 00 | 9     | 0.45       | 35       | 15.7  | 15.9  |
| 111 | 1 06 02.3 | -16 13 50 | 7     | 0.20       | 81       | 15.7  | 15.7  |
| 112 | 1 05 49.7 | -16 16 10 | 8     | 0.16       | 70       | 15.7  | 15.9  |
| 113 | 1 05 24.8 | -16 12 35 | 8     | 0.30       | 173      | 15.7  | 15.8  |
| 114 | 1 08 09.9 | -15 33 04 | 8     | 0.11       | 59       | 15.7  | 15.8  |
| 115 | 1 06 21.1 | -15 41 25 | 5     | 0.25       | 67       | 15.7  | 15.4  |
| 116 | 1 07 00.6 | -15 42 50 | 7     | 0.40       | 7        | 15.7  | 15.7  |
| 117 | 1 05 19.3 | -15 23 50 | 8     | 0.10       | 104      | 15.7  | 15.8  |
| 118 | 1 05 50.1 | -15 44 54 | 9     | 0.33       | 176      | 15.7  | 15.8  |
| 119 | 1 06 18.6 | -15 22 21 | 11    | 0.62       | 122      | 15.7  | 16.1  |
| 120 | 1 08 09.3 | -16 13 14 | 5     | 0.55       | 167      | 15.7  | 15.2  |
| 121 | 1 07 59.2 | -15 22 39 | 7     | 0.56       | 112      | 15.7  | 15.7  |
| 122 | 1 05 04.1 | -15 27 18 | 7     | 0.35       | 32       | 15.8  | 15.8  |
| 123 | 1 06 36.9 | -15 49 42 | 8     | 0.10       | 103      | 15.8  | 15.8  |
| 124 | 1 08 17.0 | -16 10 30 | 10    | 0.23       | 45       | 15.8  | 16.0  |
| 125 | 1 06 30.2 | -16 13 01 | 13    | 0.43       | 127      | 15.8  | 16.4  |
| 126 | 1 06 13.2 | -16 05 60 | 6     | 0.10       | 95       | 15.8  | 15.7  |
| 127 | 1 06 44.9 | -16 12 24 | 10    | 0.10       | 54       | 15.8  | 16.0  |
| 128 | 1 07 04.4 | -15 22 38 | 9     | 0.36       | 54       | 15.8  | 15.9  |
| 129 | 1 05 46.1 | -15 08 08 | 10    | 0.30       | 143      | 15.8  | 16.5  |
| 130 | 1 06 17.4 | -15 52 58 | 7     | 0.38       | 91       | 15.8  | 15.8  |
| 131 | 1 06 02.2 | -15 40 22 | 6     | 0.14       | 147      | 15.8  | 15.6  |
| 132 | 1 06 00.4 | -15 31 09 | 9     | 0.31       | 148      | 15.8  | 16.0  |
| 133 | 1 07 20.8 | -15 50 41 | 7     | 0.18       | 157      | 15.8  | 15.8  |
| 134 | 1 04 10.7 | -16 01 09 | 8     | 0.37       | 37       | 15.8  | 15.9  |
| 135 | 1 05 14.5 | -15 30 29 | 9     | 0.13       | 63       | 15.8  | 16.0  |
| 136 | 1 07 00.2 | -15 38 45 | 9     | 0.37       | 72       | 15.8  | 15.9  |
| 137 | 1 06 10.3 | -15 38 23 | 8     | 0.37       | 138      | 15.8  | 15.9  |
| 138 | 1 06 03.5 | -15 53 28 | 8     | 0.13       | 118      | 15.8  | 15.9  |
| 139 | 1 05 52.1 | -15 43 58 | 7     | 0.20       | 96       | 15.8  | 15.8  |
| 140 | 1 06 16.9 | -15 42 14 | 5     | 0.72       | 178      | 15.9  | 15.7  |
| 141 | 1 06 56.8 | -15 49 07 | 8     | 0.10       | 77       | 15.9  | 16.0  |
| 142 | 1 06 25.0 | -15 42 52 | 9     | 0.13       | 77       | 15.9  | 16.0  |
| 143 | 1 08 32.2 | -15 31 12 | 8     | 0.24       | 138      | 15.9  | 16.0  |
| 144 | 1 04 16.0 | -15 43 20 | 7     | 0.27       | 18       | 15.9  | 15.9  |
| 145 | 1 05 17.9 | -15 10 36 | 4     | 0.56       | 102      | 15.9  | 14.7  |
| 146 | 1 05 06.3 | -15 17 12 | 10    | 0.47       | 108      | 15.9  | 16.1  |
| 147 | 1 07 52.5 | -15 34 05 | 9     | 0.25       | 43       | 15.9  | 16.0  |
| 148 | 1 05 51.7 | -15 20 24 | 4     | 0.10       | 51       | 15.9  | 14.8  |
| 149 | 1 04 56.6 | -15 48 01 | 10    | 0.55       | 98       | 15.9  | 16.2  |
| 150 | 1 06 34.3 | -15 45 15 | 9     | 0.25       | 147      | 15.9  | 16.0  |

Table 3.

| Abell 637 |           |           |       |            |          |       |       |     |           |           |       | Abell 646  |          |       |       |           |           |           |       |            |          |       |       | Abell 646 |  |  |  |  |  |  |  |  |  |  |  |
|-----------|-----------|-----------|-------|------------|----------|-------|-------|-----|-----------|-----------|-------|------------|----------|-------|-------|-----------|-----------|-----------|-------|------------|----------|-------|-------|-----------|--|--|--|--|--|--|--|--|--|--|--|
| $N$       | $\alpha$  | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ | $N$ | $\alpha$  | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ | $N$       | $\alpha$  | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ |           |  |  |  |  |  |  |  |  |  |  |  |
| 1         | 8 11 33.9 | +48 31 44 | 10    | 0.40       | 2        | 16.0  | 16.8  | 51  | 8 10 04.6 | +48 33 24 | 3     | 0.20       | 143      | 18.9  | 18.4  | 1         | 8 17 35.7 | +47 26 10 | 9     | 0.11       | 38       | 15.6  | 16.0  |           |  |  |  |  |  |  |  |  |  |  |  |
| 2         | 8 11 04.6 | +48 34 37 | 7     | 0.16       | 141      | 16.5  | 16.7  | 52  | 8 10 54.7 | +48 25 53 | 4     | 0.32       | 58       | 19.0  | 18.7  | 2         | 8 18 17.4 | +47 10 33 | 9     | 0.11       | 113      | 15.8  | 16.3  |           |  |  |  |  |  |  |  |  |  |  |  |
| 3         | 8 11 30.4 | +48 31 19 | 9     | 0.10       | 109      | 16.5  | 17.1  | 53  | 8 10 21.5 | +48 24 21 | 3     | 0.33       | 112      | 19.1  | 18.4  | 3         | 8 18 36.8 | +47 15 28 | 10    | 0.27       | 54       | 15.9  | 16.7  |           |  |  |  |  |  |  |  |  |  |  |  |
| 4         | 8 09 50.8 | +48 37 25 | 8     | 0.21       | 117      | 16.5  | 16.8  | 54  | 8 11 40.6 | +48 33 04 | 3     | 0.48       | 104      | 19.1  | 17.9  | 4         | 8 19 40.5 | +47 10 08 | 5     | 0.39       | 57       | 16.1  | 16.1  |           |  |  |  |  |  |  |  |  |  |  |  |
| 5         | 8 11 01.9 | +48 26 35 | 7     | 0.63       | 92       | 16.6  | 17.0  | 55  | 8 09 50.4 | +48 28 10 | 5     | 0.34       | 73       | 19.2  | 19.3  | 5         | 8 19 21.4 | +47 14 02 | 5     | 0.22       | 120      | 16.1  | 15.8  |           |  |  |  |  |  |  |  |  |  |  |  |
| 6         | 8 11 33.8 | +48 31 08 | 6     | 0.23       | 114      | 16.9  | 17.1  | 56  | 8 10 00.2 | +48 24 27 | 3     | 0.41       | 117      | 19.7  | 19.1  | 6         | 8 18 47.1 | +47 20 58 | 8     | 0.13       | 110      | 16.2  | 16.6  |           |  |  |  |  |  |  |  |  |  |  |  |
| 7         | 8 11 19.7 | +48 30 11 | 6     | 0.10       | 105      | 17.1  | 17.3  | 57  | 8 10 54.4 | +48 34 53 | 3     | 0.34       | 94       | 20.2  | 19.1  | 7         | 8 18 49.0 | +47 17 09 | 7     | 0.11       | 104      | 16.2  | 16.5  |           |  |  |  |  |  |  |  |  |  |  |  |
| 8         | 8 11 30.7 | +48 31 31 | 6     | 0.11       | 144      | 17.2  | 17.3  |     |           |           |       |            |          |       | 8     | 18 43.8   | +47 26 40 | 7         | 0.10  | 78         | 16.3     | 16.5  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 9         | 8 11 39.3 | +48 34 47 | 7     | 0.19       | 89       | 17.2  | 17.5  |     |           |           |       |            |          |       | 9     | 17 29.8   | +47 14 39 | 7         | 0.12  | 98         | 16.4     | 16.6  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 10        | 8 11 30.3 | +48 34 21 | 6     | 0.10       | 28       | 17.3  | 17.5  |     |           |           |       |            |          |       | 10    | 8 19 11.8 | +47 33 50 | 17        | 0.66  | 24         | 16.4     | 18.2  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 11        | 8 10 57.7 | +48 25 16 | 4     | 0.14       | 75       | 17.4  | 16.4  |     |           |           |       |            |          |       | 11    | 18 38.4   | +47 16 37 | 7         | 0.28  | 3          | 16.5     | 16.7  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 12        | 8 10 49.5 | +48 32 01 | 6     | 0.31       | 89       | 17.4  | 17.5  |     |           |           |       |            |          |       | 12    | 8 19 45.9 | +47 14 35 | 7         | 0.10  | 144        | 16.5     | 16.8  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 13        | 8 11 28.4 | +48 27 56 | 6     | 0.10       | 19       | 17.4  | 17.4  |     |           |           |       |            |          |       | 13    | 8 18 31.1 | +47 32 18 | 8         | 0.28  | 176        | 16.5     | 16.9  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 14        | 8 10 18.5 | +48 30 16 | 6     | 0.16       | 38       | 17.5  | 17.6  |     |           |           |       |            |          |       | 14    | 8 19 27.0 | +47 06 32 | 7         | 0.23  | 157        | 16.5     | 16.8  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 15        | 8 11 43.2 | +48 36 38 | 5     | 0.30       | 76       | 17.7  | 17.8  |     |           |           |       |            |          |       | 15    | 8 17 48.2 | +47 29 37 | 5         | 0.29  | 111        | 16.5     | 16.5  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 16        | 8 10 22.1 | +48 32 06 | 6     | 0.14       | 118      | 17.7  | 17.7  |     |           |           |       |            |          |       | 16    | 8 18 26.2 | +47 09 23 | 9         | 0.28  | 127        | 16.5     | 16.9  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 17        | 8 11 06.8 | +48 29 56 | 6     | 0.15       | 93       | 17.7  | 17.9  |     |           |           |       |            |          |       | 17    | 8 18 32.2 | +47 14 45 | 7         | 0.12  | 177        | 16.5     | 16.8  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 18        | 8 11 16.3 | +48 36 23 | 6     | 0.44       | 177      | 17.7  | 17.9  |     |           |           |       |            |          |       | 18    | 8 17 52.6 | +47 30 54 | 8         | 0.48  | 22         | 16.6     | 16.9  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 19        | 8 10 30.8 | +48 26 04 | 6     | 0.24       | 152      | 17.7  | 17.8  |     |           |           |       |            |          |       | 19    | 8 17 58.7 | +47 11 34 | 8         | 0.20  | 146        | 16.6     | 16.9  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 20        | 8 11 15.5 | +48 34 05 | 5     | 0.10       | 19       | 17.8  | 17.8  |     |           |           |       |            |          |       | 20    | 8 18 23.5 | +47 18 02 | 6         | 0.15  | 169        | 16.6     | 16.7  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 21        | 8 11 10.2 | +48 29 59 | 5     | 0.18       | 145      | 17.8  | 17.7  |     |           |           |       |            |          |       | 21    | 8 17 12.1 | +47 27 27 | 5         | 0.36  | 130        | 16.7     | 16.6  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 22        | 8 11 22.1 | +48 31 24 | 5     | 0.10       | 150      | 17.8  | 17.9  |     |           |           |       |            |          |       | 22    | 8 19 11.9 | +47 23 01 | 7         | 0.15  | 132        | 16.7     | 17.0  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 23        | 8 10 33.5 | +48 43 15 | 6     | 0.56       | 48       | 17.9  | 18.1  |     |           |           |       |            |          |       | 23    | 8 18 06.0 | +47 13 07 | 8         | 0.11  | 89         | 16.7     | 17.0  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 24        | 8 11 32.9 | +48 30 13 | 6     | 0.60       | 79       | 17.9  | 18.0  |     |           |           |       |            |          |       | 24    | 8 17 25.4 | +47 34 02 | 9         | 0.23  | 53         | 16.7     | 17.7  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 25        | 8 10 13.5 | +48 35 54 | 5     | 0.29       | 128      | 17.9  | 17.9  |     |           |           |       |            |          |       | 25    | 8 20 04.9 | +47 13 17 | 7         | 0.10  | 123        | 16.7     | 16.9  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 26        | 8 11 04.9 | +48 38 20 | 5     | 0.53       | 111      | 18.0  | 18.0  |     |           |           |       |            |          |       | 26    | 8 17 25.5 | +47 02 55 | 6         | 0.10  | 73         | 16.7     | 16.7  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 27        | 8 11 37.6 | +48 35 58 | 5     | 0.17       | 150      | 18.2  | 18.2  |     |           |           |       |            |          |       | 27    | 8 19 50.6 | +47 22 16 | 8         | 0.40  | 21         | 16.7     | 17.0  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 28        | 8 10 33.9 | +48 35 56 | 5     | 0.45       | 16       | 18.2  | 18.3  |     |           |           |       |            |          |       | 28    | 8 18 38.5 | +47 22 52 | 7         | 0.53  | 57         | 16.8     | 17.1  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 29        | 8 10 02.2 | +48 41 06 | 5     | 0.19       | 61       | 18.2  | 18.1  |     |           |           |       |            |          |       | 29    | 8 17 03.8 | +47 16 37 | 5         | 0.10  | 61         | 16.8     | 16.8  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 30        | 8 11 30.3 | +48 32 03 | 5     | 0.28       | 1        | 18.3  | 18.3  |     |           |           |       |            |          |       | 30    | 8 18 19.7 | +47 08 41 | 7         | 0.38  | 72         | 16.8     | 17.1  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 31        | 8 11 27.5 | +48 39 43 | 4     | 0.33       | 177      | 18.3  | 18.2  |     |           |           |       |            |          |       | 31    | 8 18 00.9 | +47 12 10 | 7         | 0.10  | 150        | 16.8     | 17.0  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 32        | 8 10 54.2 | +48 36 50 | 5     | 0.41       | 137      | 18.3  | 18.3  |     |           |           |       |            |          |       | 32    | 8 18 11.8 | +47 29 19 | 8         | 0.49  | 114        | 16.8     | 17.2  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 33        | 8 11 14.6 | +48 36 30 | 5     | 0.32       | 7        | 18.3  | 18.3  |     |           |           |       |            |          |       | 33    | 8 17 09.5 | +47 27 30 | 8         | 0.36  | 129        | 16.9     | 17.2  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 34        | 8 09 57.5 | +48 33 14 | 5     | 0.24       | 68       | 18.3  | 18.3  |     |           |           |       |            |          |       | 34    | 8 17 44.1 | +47 27 26 | 7         | 0.40  | 19         | 16.9     | 17.1  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 35        | 8 10 53.1 | +48 27 40 | 5     | 0.37       | 126      | 18.4  | 18.3  |     |           |           |       |            |          |       | 35    | 8 18 48.3 | +47 10 38 | 7         | 0.32  | 14         | 16.9     | 17.1  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 36        | 8 11 39.0 | +48 25 49 | 5     | 0.10       | 130      | 18.4  | 18.3  |     |           |           |       |            |          |       | 36    | 8 17 53.2 | +47 26 16 | 8         | 0.23  | 65         | 16.9     | 17.3  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 37        | 8 10 44.4 | +48 28 32 | 5     | 0.69       | 26       | 18.4  | 18.4  |     |           |           |       |            |          |       | 37    | 8 17 29.9 | +47 03 02 | 8         | 0.10  | 84         | 16.9     | 17.4  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 38        | 8 10 55.2 | +48 25 41 | 5     | 0.36       | 173      | 18.4  | 18.3  |     |           |           |       |            |          |       | 38    | 8 20 09.0 | +47 10 30 | 4         | 0.10  | 82         | 17.0     | 16.0  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 39        | 8 10 17.7 | +48 27 14 | 5     | 0.32       | 158      | 18.4  | 18.3  |     |           |           |       |            |          |       | 39    | 8 19 10.9 | +47 07 18 | 8         | 0.10  | 33         | 17.0     | 17.5  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 40        | 8 10 11.0 | +48 43 53 | 5     | 0.26       | 174      | 18.5  | 18.4  |     |           |           |       |            |          |       | 40    | 8 19 21.8 | +47 16 33 | 7         | 0.34  | 60         | 17.0     | 17.3  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 41        | 8 11 16.3 | +48 33 13 | 5     | 0.27       | 140      | 18.5  | 18.5  |     |           |           |       |            |          |       | 41    | 8 18 18.6 | +47 29 42 | 7         | 0.23  | 74         | 17.0     | 17.2  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 42        | 8 10 38.5 | +48 36 36 | 3     | 0.35       | 16       | 18.5  | 17.0  |     |           |           |       |            |          |       | 42    | 8 19 33.1 | +47 20 56 | 7         | 0.16  | 169        | 17.0     | 17.3  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 43        | 8 10 20.9 | +48 36 09 | 5     | 0.10       | 177      | 18.5  | 18.5  |     |           |           |       |            |          |       | 43    | 8 17 54.0 | +47 13 06 | 6         | 0.10  | 135        | 17.0     | 17.1  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 44        | 8 11 21.2 | +48 27 43 | 4     | 0.58       | 130      | 18.6  | 18.4  |     |           |           |       |            |          |       | 44    | 8 19 22.3 | +47 20 18 | 8         | 0.59  | 52         | 17.1     | 17.4  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 45        | 8 11 12.1 | +48 35 55 | 4     | 0.63       | 137      | 18.6  | 18.4  |     |           |           |       |            |          |       | 45    | 8 18 17.2 | +47 32 56 | 7         | 0.10  | 137        | 17.1     | 17.3  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 46        | 8 10 59.2 | +48 38 50 | 4     | 0.11       | 25       | 18.7  | 18.5  |     |           |           |       |            |          |       | 46    | 8 18 51.0 | +47 10 06 | 6         | 0.14  | 179        | 17.1     | 17.2  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 47        | 8 11 01.9 | +48 28 49 | 4     | 0.34       | 69       | 18.8  | 18.6  |     |           |           |       |            |          |       | 47    | 8 19 44.1 | +47 14 21 | 7         | 0.49  | 50         | 17.1     | 17.4  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 48        | 8 10 55.3 | +48 35 06 | 5     | 0.50       | 175      | 18.8  | 18.5  |     |           |           |       |            |          |       | 48    | 8 17 09.3 | +47 17 57 | 5         | 0.13  | 171        | 17.2     | 17.2  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 49        | 8 10 31.6 | +48 42 06 | 4     | 0.30       | 101      | 18.8  | 18.6  |     |           |           |       |            |          |       | 49    | 8 18 23.1 | +47 34 09 | 6         | 0.16  | 178        | 17.2     | 17.4  |       |           |  |  |  |  |  |  |  |  |  |  |  |
| 50        | 8 10 53.9 | +48 35 00 | 6     | 0.63       | 166      | 18.8  | 19.0  |     |           |           |       |            |          |       | 50    | 8 17 12.9 | +47 04 03 | 5         | 0.27  | 133        | 17.2     | 17.3  |       |           |  |  |  |  |  |  |  |  |  |  |  |

Table 4. continued

Table 5.

Abell 646

Abell 646

Abell 646

Abell 649

| $N$ | $\alpha$  | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ | $N$ | $\alpha$  | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ |
|-----|-----------|-----------|-------|------------|----------|-------|-------|-----|-----------|-----------|-------|------------|----------|-------|-------|
| 101 | 8 17 00.0 | +47 28 01 | 7     | 0.39       | 174      | 17.7  | 17.9  | 151 | 8 18 26.0 | +47 27 44 | 5     | 0.37       | 82       | 18.1  | 18.1  |
| 102 | 8 17 05.0 | +47 31 52 | 4     | 0.10       | 138      | 17.7  | 17.5  | 152 | 8 18 19.6 | +47 16 09 | 5     | 0.45       | 10       | 18.1  | 18.1  |
| 103 | 8 17 53.5 | +47 27 31 | 6     | 0.10       | 31       | 17.7  | 17.8  | 153 | 8 18 31.5 | +47 22 57 | 5     | 0.26       | 88       | 18.1  | 18.1  |
| 104 | 8 17 17.0 | +47 30 18 | 6     | 0.10       | 130      | 17.7  | 17.8  | 154 | 8 18 15.2 | +47 03 23 | 5     | 0.10       | 104      | 18.1  | 18.1  |
| 105 | 8 17 06.2 | +47 12 25 | 5     | 0.13       | 24       | 17.7  | 17.8  | 155 | 8 19 24.6 | +47 20 40 | 5     | 0.10       | 22       | 18.1  | 18.0  |
| 106 | 8 18 27.5 | +47 11 08 | 5     | 0.30       | 100      | 17.7  | 17.8  | 156 | 8 17 39.1 | +47 13 41 | 5     | 0.25       | 157      | 18.2  | 18.2  |
| 107 | 8 18 03.5 | +47 33 29 | 5     | 0.19       | 66       | 17.7  | 17.8  | 157 | 8 16 59.2 | +47 26 48 | 6     | 0.47       | 110      | 18.2  | 18.2  |
| 108 | 8 18 41.8 | +47 18 22 | 3     | 0.41       | 41       | 17.7  | 16.6  | 158 | 8 20 01.0 | +47 21 35 | 6     | 0.68       | 8        | 18.2  | 18.4  |
| 109 | 8 18 50.4 | +47 16 29 | 6     | 0.12       | 167      | 17.8  | 17.9  | 159 | 8 19 01.3 | +47 11 48 | 5     | 0.13       | 72       | 18.2  | 18.2  |
| 110 | 8 17 15.4 | +47 08 17 | 5     | 0.39       | 106      | 17.8  | 17.8  | 160 | 8 17 53.1 | +47 12 30 | 5     | 0.19       | 172      | 18.2  | 18.2  |
| 111 | 8 19 46.6 | +47 09 31 | 3     | 0.54       | 143      | 17.8  | 16.7  | 161 | 8 18 31.0 | +47 15 21 | 5     | 0.21       | 101      | 18.2  | 18.2  |
| 112 | 8 18 27.8 | +47 15 22 | 5     | 0.10       | 2        | 17.8  | 17.8  | 162 | 8 18 01.1 | +47 27 22 | 5     | 0.10       | 175      | 18.2  | 18.2  |
| 113 | 8 18 50.7 | +47 11 01 | 6     | 0.23       | 172      | 17.8  | 17.9  | 163 | 8 19 34.1 | +47 24 21 | 5     | 0.10       | 9        | 18.2  | 18.1  |
| 114 | 8 18 00.0 | +47 13 17 | 5     | 0.10       | 157      | 17.8  | 17.7  | 164 | 8 19 31.5 | +47 18 27 | 5     | 0.53       | 128      | 18.3  | 18.3  |
| 115 | 8 18 24.6 | +47 30 14 | 5     | 0.22       | 161      | 17.8  | 17.8  | 165 | 8 18 33.3 | +47 17 40 | 6     | 0.55       | 166      | 18.3  | 18.3  |
| 116 | 8 18 37.7 | +47 17 55 | 5     | 0.10       | 176      | 17.8  | 17.8  | 166 | 8 17 35.8 | +47 26 29 | 4     | 0.17       | 11       | 18.3  | 18.1  |
| 117 | 8 18 12.5 | +47 06 22 | 5     | 0.19       | 152      | 17.8  | 17.8  | 167 | 8 19 02.4 | +47 09 35 | 5     | 0.33       | 30       | 18.3  | 18.3  |
| 118 | 8 18 34.0 | +47 21 29 | 5     | 0.28       | 157      | 17.8  | 17.8  | 168 | 8 18 49.8 | +47 30 52 | 5     | 0.15       | 24       | 18.3  | 18.3  |
| 119 | 8 17 14.6 | +47 19 35 | 5     | 0.31       | 149      | 17.8  | 17.8  | 169 | 8 17 53.8 | +47 13 22 | 4     | 0.27       | 128      | 18.3  | 18.1  |
| 120 | 8 19 05.6 | +47 17 45 | 6     | 0.24       | 110      | 17.8  | 17.9  | 170 | 8 19 14.6 | +47 14 39 | 5     | 0.17       | 22       | 18.3  | 18.3  |
| 121 | 8 19 57.7 | +47 20 40 | 6     | 0.16       | 143      | 17.8  | 17.9  | 171 | 8 17 02.8 | +47 24 45 | 4     | 0.15       | 77       | 18.3  | 18.1  |
| 122 | 8 18 33.4 | +47 13 32 | 6     | 0.55       | 58       | 17.8  | 17.9  | 172 | 8 17 20.2 | +47 16 39 | 5     | 0.37       | 94       | 18.3  | 18.2  |
| 123 | 8 17 09.5 | +47 19 46 | 6     | 0.10       | 29       | 17.8  | 17.8  | 173 | 8 18 31.5 | +47 14 03 | 5     | 0.43       | 141      | 18.3  | 18.0  |
| 124 | 8 18 52.5 | +47 07 38 | 5     | 0.21       | 119      | 17.8  | 17.8  | 174 | 8 18 24.7 | +47 34 03 | 5     | 0.10       | 106      | 18.3  | 18.2  |
| 125 | 8 18 15.3 | +47 26 13 | 6     | 0.30       | 147      | 17.8  | 17.9  | 175 | 8 16 59.5 | +47 23 08 | 4     | 0.59       | 19       | 18.4  | 18.1  |
| 126 | 8 19 43.0 | +47 09 16 | 4     | 0.55       | 71       | 17.9  | 16.7  | 176 | 8 19 16.0 | +47 14 03 | 5     | 0.51       | 107      | 18.4  | 18.3  |
| 127 | 8 17 10.8 | +47 03 24 | 5     | 0.10       | 82       | 17.9  | 17.9  | 177 | 8 17 41.4 | +47 02 49 | 4     | 0.10       | 88       | 18.4  | 18.2  |
| 128 | 8 17 45.5 | +47 22 54 | 3     | 0.37       | 57       | 17.9  | 16.4  | 178 | 8 19 24.7 | +47 15 34 | 5     | 0.11       | 79       | 18.4  | 18.3  |
| 129 | 8 18 07.3 | +47 11 16 | 5     | 0.32       | 43       | 17.9  | 17.9  | 179 | 8 17 02.6 | +47 16 06 | 5     | 0.47       | 102      | 18.4  | 18.3  |
| 130 | 8 17 50.1 | +47 17 37 | 6     | 0.30       | 124      | 17.9  | 17.9  | 180 | 8 18 34.2 | +47 15 40 | 5     | 0.44       | 21       | 18.4  | 18.3  |
| 131 | 8 18 00.2 | +47 16 54 | 6     | 0.29       | 138      | 17.9  | 18.0  | 181 | 8 18 30.5 | +47 13 47 | 5     | 0.39       | 5        | 18.4  | 18.4  |
| 132 | 8 17 50.5 | +47 09 18 | 5     | 0.10       | 158      | 17.9  | 17.9  | 182 | 8 17 03.4 | +47 11 51 | 5     | 0.10       | 90       | 18.4  | 18.4  |
| 133 | 8 18 27.8 | +47 16 22 | 6     | 0.22       | 156      | 17.9  | 17.9  | 183 | 8 17 50.2 | +47 27 09 | 5     | 0.15       | 158      | 18.4  | 18.3  |
| 134 | 8 19 43.0 | +47 19 40 | 6     | 0.36       | 152      | 17.9  | 17.9  | 184 | 8 18 34.2 | +47 20 12 | 5     | 0.40       | 82       | 18.4  | 18.4  |
| 135 | 8 19 40.4 | +47 25 39 | 5     | 0.25       | 151      | 17.9  | 17.9  | 185 | 8 18 53.2 | +47 14 15 | 5     | 0.28       | 65       | 18.5  | 18.4  |
| 136 | 8 17 24.3 | +47 22 00 | 5     | 0.29       | 133      | 17.9  | 17.9  | 186 | 8 17 39.3 | +47 29 40 | 5     | 0.33       | 57       | 18.5  | 18.5  |
| 137 | 8 19 31.1 | +47 25 41 | 5     | 0.36       | 23       | 18.0  | 18.1  | 187 | 8 19 48.5 | +47 12 36 | 4     | 0.33       | 124      | 18.5  | 18.5  |
| 138 | 8 17 23.7 | +47 16 07 | 5     | 0.19       | 119      | 18.0  | 17.9  | 188 | 8 17 11.3 | +47 20 40 | 5     | 0.28       | 87       | 18.5  | 18.4  |
| 139 | 8 19 15.1 | +47 33 35 | 5     | 0.10       | 0        | 18.0  | 18.0  | 189 | 8 18 15.7 | +47 23 34 | 6     | 0.48       | 63       | 18.5  | 18.7  |
| 140 | 8 17 01.8 | +47 18 30 | 5     | 0.44       | 167      | 18.0  | 18.1  | 190 | 8 17 28.7 | +47 24 07 | 4     | 0.10       | 152      | 18.5  | 18.4  |
| 141 | 8 18 42.9 | +47 21 43 | 5     | 0.20       | 156      | 18.0  | 18.0  | 191 | 8 19 31.8 | +47 02 09 | 5     | 0.40       | 101      | 18.5  | 18.6  |
| 142 | 8 18 59.1 | +47 17 49 | 5     | 0.36       | 90       | 18.0  | 18.0  | 192 | 8 17 01.4 | +47 11 45 | 5     | 0.74       | 55       | 18.5  | 18.6  |
| 143 | 8 18 16.1 | +47 20 26 | 5     | 0.22       | 40       | 18.0  | 17.9  | 193 | 8 18 11.3 | +47 28 39 | 5     | 0.33       | 43       | 18.5  | 18.6  |
| 144 | 8 17 23.2 | +47 34 18 | 6     | 0.24       | 134      | 18.0  | 18.4  | 194 | 8 17 48.4 | +47 32 41 | 4     | 0.41       | 95       | 18.5  | 18.3  |
| 145 | 8 17 34.9 | +47 31 40 | 6     | 0.41       | 122      | 18.0  | 18.1  | 195 | 8 19 42.0 | +47 10 43 | 5     | 0.23       | 123      | 18.5  | 18.4  |
| 146 | 8 19 47.9 | +47 05 47 | 5     | 0.14       | 278      | 18.1  | 18.1  | 196 | 8 18 42.5 | +47 29 04 | 5     | 0.23       | 36       | 18.5  | 18.4  |
| 147 | 8 18 29.9 | +47 22 44 | 5     | 0.63       | 177      | 18.1  | 18.1  | 197 | 8 18 30.6 | +47 14 55 | 4     | 0.42       | 12       | 18.5  | 18.3  |
| 148 | 8 18 43.9 | +47 17 09 | 5     | 0.31       | 102      | 18.1  | 18.0  | 198 | 8 18 31.3 | +47 16 59 | 5     | 0.39       | 168      | 18.5  | 18.5  |
| 149 | 8 18 14.2 | +47 14 26 | 5     | 0.10       | 138      | 18.1  | 18.0  | 199 | 8 19 07.3 | +47 25 51 | 5     | 0.30       | 175      | 18.5  | 18.6  |
| 150 | 8 18 33.9 | +47 10 46 | 5     | 0.25       | 98       | 18.1  | 18.2  | 200 | 8 18 08.3 | +47 03 02 | 4     | 0.12       | 46       | 18.6  | 18.5  |

| $N$ | $\alpha$  | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ | $N$ | $\alpha$  | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ |
|-----|-----------|-----------|-------|------------|----------|-------|-------|-----|-----------|-----------|-------|------------|----------|-------|-------|
| 201 | 8 20 09.7 | +47 16 36 | 5     | 0.50       | 63       | 18.6  | 18.6  | 1   | 8 20 45.5 | +49 14 48 | 13    | 0.49       | 98       | 14.3  | 14.9  |
| 202 | 8 17 57.1 | +47 07 17 | 4     | 0.54       | 121      | 18.6  | 18.4  | 2   | 8 20 44.0 | +49 01 31 | 10    | 0.31       | 50       | 15.9  | 16.7  |
| 203 | 8 18 48.6 | +47 20 04 | 4     | 0.38       | 58       | 18.6  | 18.4  | 3   | 8 20 19.7 | +49 05 02 | 9     | 0.39       | 160      | 16.2  | 16.7  |
| 204 | 8 17 30.3 | +47 34 12 | 6     | 0.40       | 96       | 18.6  | 18.8  | 4   | 8 19 30.4 | +49 11 50 | 8     | 0.10       | 120      | 16.5  | 16.8  |
| 205 | 8 18 25.1 | +47 27 41 | 4     | 0.10       | 178      | 18.6  | 18.4  | 5   | 8 19 32.1 | +48 59 19 | 6     | 0.47       | 98       | 16.8  | 16.9  |
| 206 | 8 17 16.9 | +47 15 16 | 4     | 0.27       | 94       | 18.6  | 18.5  | 6   | 8 20 16.4 | +48 58 50 | 6     | 0.12       | 95       | 17.1  | 17.2  |
| 207 | 8 19 09.7 | +47 26 29 | 4     | 0.45       | 155      | 18.7  | 18.5  | 7   | 8 19 34.1 | +49 01 51 | 5     | 0.10       | 137      | 17.1  | 17.1  |
| 208 | 8 19 18.6 | +47 33 42 | 5     | 0.39       | 126      | 18.7  | 18.7  | 8   | 8 19 55.5 | +49 07 56 | 6     | 0.12       | 90       | 17.2  | 17.3  |
| 209 | 8 17 28.6 | +47 16 44 | 4     | 0.20       | 63       | 18.7  | 18.6  | 9   | 8 20 58.7 | +49 06 23 | 6     | 0.11       | 53       | 17.2  | 17.3  |
| 210 | 8 18 38.7 | +47 29 09 | 5     | 0.29       | 121      | 18.7  | 18.6  | 10  | 8 19 28.3 | +49 00 30 | 7     | 0.31       | 136      | 17.2  | 17.4  |
| 211 | 8 19 13.1 | +47 14 37 | 4     | 0.56       | 22       | 18.7  | 18.3  | 11  | 8 20 21.1 | +49 03 52 | 6     | 0.26       | 153      | 17.3  | 17.4  |
| 212 | 8 18 38.4 | +47 20 33 | 4     | 0.12       | 162      | 18.7  | 18.4  | 12  | 8 20 53.5 | +49 06 11 | 6     | 0.13       | 153      | 17.3  | 17.4  |
| 213 | 8 17 55.3 | +47 29 31 | 5     | 0.49       | 17       | 18.7  | 18.6  | 13  | 8 20 48.0 | +49 01 30 | 6     | 0.10       | 95       | 17.3  | 17.5  |
| 214 | 8 19 05.2 | +47 31 05 | 4     | 0.10       | 30       | 18.7  | 18.5  | 14  | 8 20 09.7 | +49 15 00 | 7     | 0.37       | 93       | 17.3  | 17.5  |
| 215 | 8 17 17.1 | +47 32 26 | 3     | 0.10       | 122      | 18.7  | 17.0  | 15  | 8 20 19.8 | +49 04 08 | 7     | 0.48       | 42       | 17.3  | 17.6  |
| 216 | 8 19 11.5 | +47 08 25 | 5     | 0.35       | 45       | 18.7  | 18.7  | 16  | 8 20 54.0 | +49 02 35 | 6     | 0.27       | 107      | 17.4  | 17.4  |
| 217 | 8 18 40.2 | +47 28 35 | 5     | 0.51       | 120      | 18.7  | 18.5  | 17  | 8 20 49.9 | +49 03 21 | 7     | 0.40       | 148      | 17.4  | 17.7  |
| 218 | 8 19 07.3 | +47 17 46 | 4     | 0.32       | 58       | 18.7  | 18.4  | 18  | 8 20 05.2 | +49 02 44 | 7     | 0.65       | 171      | 17.5  | 17.7  |
| 219 | 8 17 27.1 | +47 34 06 | 2     | 0.10       | 0        | 18.8  | 17.5  | 19  | 8 19 51.9 | +49 15 26 | 7     | 0.22       | 47       | 17.5  | 17.8  |
| 220 | 8 18 12.4 | +47 33 53 | 4     | 0.50       | 36       | 18.8  | 18.5  | 20  | 8 19 30.5 | +49 02 10 | 5     | 0.22       | 127      | 17.7  | 17.6  |
| 221 | 8 18 15.5 | +47 23 37 | 4     | 0.55       | 45       | 18.8  | 18.3  | 21  | 8 20 11.1 | +49 06 33 | 5     | 0.33       | 14       | 17.7  | 17.7  |
| 222 | 8 18 31.4 | +47 13 57 | 4     | 0.17       | 93       | 18.8  | 18.5  | 22  | 8 19 40.8 | +48 59 14 | 6     | 0.16       | 111      | 17.7  | 17.8  |
| 223 | 8 17 30.9 | +47 10 25 | 4     | 0.42       | 154      | 18.8  | 18.6  | 23  | 8 20 16.1 | +48 57 31 | 6     | 0.31       | 66       | 17.7  | 17.8  |
| 224 | 8 17 55.4 | +47 31 51 | 4     | 0.40       | 179      | 18.8  | 18.5  | 24  | 8 19 32.9 | +49 13 18 | 5     | 0.12       | 3        | 17.8  | 17.8  |
| 225 | 8 17 00.4 | +47 28 51 | 5     | 0.67       | 132      | 18.8  | 18.6  | 25  | 8 19 23.2 | +49 13 24 | 6     | 0.16       | 9        | 17.8  | 17.8  |
| 226 | 8 18 25.0 | +47 06 39 | 4     | 0.30       | 166      | 18.8  | 18.5  | 26  | 8 20 40.0 | +49 02 10 | 5     | 0.11       | 69       | 17.8  | 17.8  |
| 227 | 8 17 45.4 | +47 26 12 | 4     | 0.57       | 3        | 18.8  | 18.4  | 27  | 8 20 54.7 | +49 06 17 | 5     | 0.21       | 129      | 17.9  | 17.9  |
| 228 | 8 19 47.7 | +47 20 47 | 5     | 0.10       | 0        | 18.8  | 18.8  | 28  | 8 19 28.4 | +49 15 24 | 6     | 0.22       | 95       | 17.9  | 18.0  |
| 229 | 8 17 38.1 | +47 34 20 | 5     | 0.54       | 63       | 18.8  | 18.9  | 29  | 8 19 37.4 | +48 57 56 | 5     | 0.34       | 60       | 17.9  | 17.9  |
| 230 | 8 20 04.1 | +47 13 46 | 5     | 0.66       | 158      | 18.8  | 18.9  | 30  | 8 20 51.9 | +49 03 50 | 5     | 0.27       | 147      | 17.9  | 17.9  |
| 231 | 8 19 27.1 | +47 32 52 | 4     | 0.15       | 50       | 18.9  | 18.6  | 31  | 8 20 17.3 | +49 11 07 | 5     | 0.13       | 27       | 18.0  | 18.0  |
| 232 | 8 18 48.0 | +47 18 04 | 4     | 0.43       | 51       | 18.9  | 18.7  | 32  | 8 20 35.7 | +49 06 25 | 5     | 0.17       | 68       | 18.0  | 18.0  |
| 233 | 8 19 52.2 | +47 28 07 | 3     | 0.22       | 103      | 18.9  | 18.3  | 33  | 8 19 24.4 | +49 08 21 | 6     | 0.27       | 40       | 18.0  | 18.2  |
| 234 | 8 17 23.7 | +47 14 09 | 4     | 0.12       | 45       | 18.9  | 18.6  | 34  | 8 20 13.0 | +49 06 55 | 5     | 0.48       | 1        | 18.0  | 18.0  |
| 235 | 8 18 28.1 | +47 17 39 | 4     | 0.20       | 123      | 19.0  | 18.9  | 35  | 8 20 53.2 | +49 01 52 | 6     | 0.48       | 72       | 18.0  | 18.1  |
| 236 | 8 21 06.4 | +49 04 15 | 5     | 0.39       | 142      | 18.0  | 18.0  | 36  | 8 21 06.4 | +49 06 12 | 5     | 0.39       | 142      | 18.0  | 18.0  |
| 237 | 8 20 56.5 | +49 06 02 | 5     | 0.29       | 82       | 18.1  | 18.1  | 37  | 8 20 56.5 | +49 06 02 | 5     | 0.29       | 82       | 18.1  | 18.1  |
| 238 | 8 20 57.5 | +49 00 06 | 5     | 0.66       | 59       | 18.1  | 18.1  | 38  | 8 20 57.5 | +49 00 06 | 5     | 0.66       | 59       | 18.1  | 18.1  |
| 239 | 8 20 46.3 | +49 01 43 | 5     | 0.87       | 103      | 18.1  | 18.0  | 39  | 8 20 46.3 | +49 01 43 | 5     | 0.87       | 103      | 18.1  | 18.0  |
| 240 | 8 19 57.8 | +49 10 14 | 5     | 0.26       | 78       | 18.1  | 18.1  | 40  | 8 19 57.8 | +49 10 14 | 5     | 0.26       | 78       | 18.1  | 18.1  |
| 241 | 8 21 01.2 | +49 00 51 | 5     | 0.32       | 11       | 18.1  | 18.0  | 41  | 8 21 01.2 | +49 00 51 | 5     | 0.32       | 11       | 18.1  | 18.0  |
| 242 | 8 21 08.4 | +49 01 50 | 5     | 0.20       | 59       | 18.1  | 18.0  | 42  | 8 21 08.4 | +49 01 50 | 5     | 0.20       | 59       | 18.1  | 18.0  |
| 243 | 8 20 15.9 | +49 04 02 | 4     | 0.15       | 16       | 18.2  | 18.0  | 43  | 8 20 15.9 | +49 04 02 | 4     | 0.15       | 16       | 18.2  | 18.0  |
| 244 | 8 21 09.0 | +49 01 40 | 5     | 0.79       | 26       | 18.2  | 18.2  | 44  | 8 21 09.0 | +49 01 40 | 5     | 0.79       | 26       | 18.2  | 18.2  |
| 245 | 8 21 07.4 | +48 58 04 | 4     | 0.44       | 125      | 18.2  | 18.1  | 45  | 8 21 07.4 | +48 58 04 | 4     | 0.44       | 125      | 18.2  | 18.1  |

Table 6.

| Abell 655 |           |           |       |            |          |       |       |          |           | Abell 655 |       |            |          |       |       |          |           |           |       | Abell 655  |          |       |       |          |           |           |       |            |          |       |       |
|-----------|-----------|-----------|-------|------------|----------|-------|-------|----------|-----------|-----------|-------|------------|----------|-------|-------|----------|-----------|-----------|-------|------------|----------|-------|-------|----------|-----------|-----------|-------|------------|----------|-------|-------|
| <i>N</i>  | $\alpha$  | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ | <i>N</i> | $\alpha$  | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ | <i>N</i> | $\alpha$  | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ | <i>N</i> | $\alpha$  | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ |
| 1         | 8 21 56.9 | +47 17 47 | 16    | 0.24       | 112      | 14.7  | 15.6  | 51       | 8 21 08.3 | +47 31 28 | 7     | 0.31       | 6        | 17.4  | 17.7  | 101      | 8 21 57.4 | +47 18 31 | 6     | 0.69       | 83       | 18.0  | 18.1  | 151      | 8 21 56.6 | +47 10 13 | 5     | 0.25       | 15       | 18.3  | 18.2  |
| 2         | 8 21 33.4 | +47 19 02 | 9     | 0.17       | 121      | 15.9  | 16.4  | 52       | 8 21 46.2 | +47 15 28 | 4     | 0.49       | 179      | 17.4  | 17.1  | 102      | 8 22 24.3 | +47 16 03 | 5     | 0.28       | 49       | 18.0  | 18.0  | 152      | 8 21 36.8 | +47 18 27 | 5     | 0.34       | 79       | 18.3  | 18.3  |
| 3         | 8 22 17.3 | +47 20 16 | 10    | 0.27       | 134      | 15.9  | 16.5  | 53       | 8 22 37.2 | +47 12 25 | 7     | 0.10       | 57       | 17.5  | 17.7  | 103      | 8 21 55.5 | +47 14 54 | 6     | 0.13       | 89       | 18.0  | 18.1  | 153      | 8 20 47.8 | +47 22 17 | 5     | 0.24       | 121      | 18.3  | 18.3  |
| 4         | 8 22 28.7 | +47 12 23 | 8     | 0.28       | 156      | 16.0  | 16.3  | 54       | 8 22 16.5 | +47 30 39 | 6     | 0.10       | 147      | 17.5  | 17.6  | 104      | 8 21 46.4 | +47 22 10 | 5     | 0.23       | 38       | 18.0  | 18.0  | 154      | 8 22 18.0 | +47 21 16 | 5     | 0.19       | 62       | 18.3  | 18.2  |
| 5         | 8 21 51.3 | +47 23 38 | 9     | 0.20       | 73       | 16.3  | 16.8  | 55       | 8 21 43.5 | +47 16 36 | 6     | 0.10       | 82       | 17.5  | 17.5  | 105      | 8 22 16.8 | +47 16 15 | 5     | 0.19       | 141      | 18.0  | 18.0  | 155      | 8 22 10.7 | +47 29 30 | 5     | 0.66       | 166      | 18.3  | 18.4  |
| 6         | 8 22 31.3 | +47 28 59 | 8     | 0.10       | 36       | 16.3  | 16.7  | 56       | 8 20 55.5 | +47 15 47 | 7     | 0.38       | 77       | 17.5  | 17.7  | 106      | 8 20 47.8 | +47 20 55 | 5     | 0.25       | 78       | 18.0  | 18.0  | 156      | 8 21 47.9 | +47 17 34 | 5     | 0.25       | 99       | 18.4  | 18.3  |
| 7         | 8 21 44.6 | +47 18 20 | 8     | 0.10       | 76       | 16.4  | 16.7  | 57       | 8 20 36.7 | +47 11 50 | 6     | 0.25       | 102      | 17.5  | 17.6  | 107      | 8 20 58.5 | +47 25 11 | 5     | 0.10       | 158      | 18.0  | 18.0  | 157      | 8 21 01.9 | +47 17 02 | 5     | 0.10       | 112      | 18.4  | 18.3  |
| 8         | 8 21 40.2 | +47 17 57 | 8     | 0.33       | 129      | 16.4  | 16.8  | 58       | 8 21 11.3 | +47 18 13 | 6     | 0.10       | 38       | 17.5  | 17.6  | 108      | 8 21 07.7 | +47 22 11 | 5     | 0.33       | 109      | 18.0  | 18.0  | 158      | 8 22 06.3 | +47 23 56 | 4     | 0.25       | 104      | 18.4  | 18.3  |
| 9         | 8 21 28.5 | +47 12 34 | 8     | 0.10       | 46       | 16.5  | 16.8  | 59       | 8 22 37.2 | +47 15 44 | 5     | 0.18       | 69       | 17.6  | 17.6  | 109      | 8 22 20.6 | +47 24 20 | 6     | 0.34       | 154      | 18.0  | 18.1  | 159      | 8 21 12.3 | +47 22 24 | 5     | 0.19       | 54       | 18.4  | 18.3  |
| 10        | 8 22 01.5 | +47 27 36 | 8     | 0.11       | 88       | 16.5  | 16.8  | 60       | 8 21 47.6 | +47 16 57 | 5     | 0.11       | 38       | 17.6  | 17.7  | 110      | 8 21 16.9 | +47 15 54 | 5     | 0.43       | 92       | 18.0  | 18.0  | 160      | 8 21 55.1 | +47 17 45 | 5     | 0.42       | 144      | 18.4  | 18.4  |
| 11        | 8 21 37.2 | +47 26 04 | 7     | 0.12       | 41       | 16.5  | 16.8  | 61       | 8 20 54.7 | +47 24 17 | 3     | 0.30       | 147      | 17.6  | 16.2  | 111      | 8 22 25.6 | +47 17 28 | 5     | 0.11       | 114      | 18.0  | 18.0  | 161      | 8 21 57.4 | +47 27 39 | 6     | 0.16       | 75       | 18.4  | 18.4  |
| 12        | 8 21 08.3 | +47 31 05 | 4     | 0.56       | 89       | 16.6  | 16.1  | 62       | 8 21 16.7 | +47 17 08 | 6     | 0.30       | 50       | 17.6  | 17.7  | 112      | 8 22 00.7 | +47 22 12 | 5     | 0.17       | 108      | 18.0  | 18.0  | 162      | 8 21 32.6 | +47 28 40 | 5     | 0.26       | 109      | 18.4  | 18.3  |
| 13        | 8 21 13.3 | +47 22 08 | 9     | 0.11       | 174      | 16.6  | 17.0  | 63       | 8 22 12.1 | +47 15 01 | 5     | 0.10       | 152      | 17.6  | 17.7  | 113      | 8 21 36.4 | +47 22 18 | 5     | 0.10       | 162      | 18.0  | 18.0  | 163      | 8 22 03.0 | +47 12 59 | 5     | 0.25       | 176      | 18.4  | 18.4  |
| 14        | 8 21 42.8 | +47 13 47 | 6     | 0.10       | 15       | 16.6  | 16.8  | 64       | 8 22 44.9 | +47 17 02 | 5     | 0.25       | 92       | 17.6  | 17.6  | 114      | 8 22 06.6 | +47 20 26 | 5     | 0.11       | 164      | 18.1  | 18.1  | 164      | 8 20 54.8 | +47 31 33 | 5     | 0.43       | 98       | 18.4  | 18.3  |
| 15        | 8 22 45.3 | +47 14 24 | 8     | 0.10       | 83       | 16.6  | 16.9  | 65       | 8 21 47.4 | +47 24 31 | 5     | 0.16       | 97       | 17.6  | 17.6  | 115      | 8 21 28.5 | +47 20 32 | 6     | 0.20       | 102      | 18.1  | 18.1  | 165      | 8 22 10.9 | +47 24 00 | 3     | 0.30       | 135      | 18.4  | 17.8  |
| 16        | 8 21 20.7 | +47 24 05 | 7     | 0.10       | 115      | 16.8  | 17.1  | 66       | 8 20 39.2 | +47 18 15 | 5     | 0.10       | 137      | 17.6  | 17.6  | 116      | 8 21 59.7 | +47 19 35 | 5     | 0.10       | 102      | 18.1  | 18.1  | 166      | 8 21 20.3 | +47 26 02 | 5     | 0.41       | 50       | 18.4  | 18.3  |
| 17        | 8 21 23.2 | +47 19 12 | 7     | 0.16       | 133      | 16.8  | 17.0  | 67       | 8 22 22.1 | +47 14 47 | 7     | 0.10       | 5        | 17.6  | 17.8  | 117      | 8 22 20.2 | +47 17 19 | 6     | 0.72       | 67       | 18.1  | 18.2  | 167      | 8 21 09.8 | +47 16 07 | 5     | 0.32       | 76       | 18.4  | 18.4  |
| 18        | 8 22 20.9 | +47 25 57 | 7     | 0.20       | 102      | 16.8  | 17.0  | 68       | 8 22 23.7 | +47 12 57 | 6     | 0.19       | 127      | 17.6  | 17.6  | 118      | 8 21 18.6 | +47 23 45 | 5     | 0.38       | 80       | 18.1  | 18.1  | 168      | 8 21 39.1 | +47 21 10 | 5     | 0.43       | 2        | 18.4  | 18.4  |
| 19        | 8 22 09.9 | +47 24 04 | 7     | 0.17       | 165      | 16.8  | 17.1  | 69       | 8 21 50.6 | +47 20 04 | 6     | 0.19       | 140      | 17.6  | 17.7  | 119      | 8 21 44.2 | +47 20 06 | 4     | 0.24       | 73       | 18.1  | 17.7  | 169      | 8 21 55.3 | +47 25 37 | 5     | 0.28       | 89       | 18.4  | 18.5  |
| 20        | 8 21 54.9 | +47 19 10 | 8     | 0.43       | 54       | 16.9  | 17.3  | 70       | 8 21 36.4 | +47 19 33 | 6     | 0.11       | 139      | 17.6  | 17.6  | 120      | 8 21 58.3 | +47 14 49 | 5     | 0.17       | 169      | 18.1  | 18.1  | 170      | 8 22 02.3 | +47 18 28 | 5     | 0.25       | 72       | 18.4  | 18.3  |
| 21        | 8 20 34.9 | +47 30 22 | 7     | 0.11       | 142      | 16.9  | 17.0  | 71       | 8 22 03.1 | +47 16 17 | 5     | 0.15       | 97       | 17.6  | 17.6  | 121      | 8 22 19.7 | +47 16 20 | 5     | 0.14       | 47       | 18.1  | 18.1  | 171      | 8 22 12.5 | +47 11 46 | 5     | 0.10       | 129      | 18.5  | 18.5  |
| 22        | 8 22 34.3 | +47 14 39 | 7     | 0.28       | 89       | 16.9  | 17.1  | 72       | 8 22 45.1 | +47 26 11 | 6     | 0.28       | 42       | 17.7  | 17.7  | 122      | 8 22 05.7 | +47 16 02 | 5     | 0.22       | 78       | 18.1  | 18.1  | 172      | 8 21 45.2 | +47 16 31 | 5     | 0.35       | 170      | 18.5  | 18.4  |
| 23        | 8 21 48.1 | +47 14 38 | 8     | 0.10       | 161      | 16.9  | 17.0  | 73       | 8 20 42.0 | +47 21 56 | 6     | 0.41       | 156      | 17.7  | 17.8  | 123      | 8 22 20.6 | +47 14 01 | 5     | 0.28       | 73       | 18.1  | 18.1  | 173      | 8 21 48.9 | +47 28 06 | 6     | 0.30       | 45       | 18.5  | 18.5  |
| 24        | 8 21 58.3 | +47 17 32 | 8     | 0.17       | 84       | 16.9  | 17.5  | 74       | 8 22 21.7 | +47 16 02 | 5     | 0.24       | 141      | 17.7  | 17.7  | 124      | 8 22 42.9 | +47 24 19 | 5     | 0.31       | 108      | 18.1  | 18.1  | 174      | 8 21 19.3 | +47 22 01 | 5     | 0.26       | 102      | 18.5  | 18.5  |
| 25        | 8 21 20.3 | +47 18 44 | 7     | 0.19       | 141      | 16.9  | 17.1  | 75       | 8 21 28.3 | +47 14 30 | 5     | 0.24       | 80       | 17.7  | 17.7  | 125      | 8 22 23.9 | +47 16 20 | 5     | 0.34       | 88       | 18.1  | 18.1  | 175      | 8 21 39.2 | +47 14 15 | 5     | 0.10       | 63       | 18.5  | 18.5  |
| 26        | 8 21 35.8 | +47 10 19 | 6     | 0.38       | 28       | 17.0  | 17.2  | 76       | 8 21 20.6 | +47 11 32 | 5     | 0.19       | 39       | 17.7  | 17.7  | 126      | 8 22 41.8 | +47 16 50 | 6     | 0.54       | 83       | 18.1  | 18.2  | 176      | 8 22 20.0 | +47 27 33 | 4     | 0.16       | 174      | 18.5  | 18.3  |
| 27        | 8 21 45.5 | +47 15 35 | 6     | 0.12       | 172      | 17.1  | 17.1  | 77       | 8 21 46.7 | +47 25 02 | 6     | 0.51       | 23       | 17.7  | 17.8  | 127      | 8 22 44.8 | +47 13 25 | 5     | 0.15       | 86       | 18.1  | 18.1  | 177      | 8 20 35.0 | +47 23 04 | 5     | 0.16       | 35       | 18.5  | 18.4  |
| 28        | 8 22 02.4 | +47 14 47 | 6     | 0.52       | 133      | 17.1  | 17.2  | 78       | 8 21 56.8 | +47 19 03 | 7     | 0.20       | 129      | 17.7  | 17.9  | 128      | 8 22 04.3 | +47 20 27 | 6     | 0.13       | 98       | 18.1  | 18.1  | 178      | 8 21 49.4 | +47 18 56 | 5     | 0.39       | 59       | 18.5  | 18.5  |
| 29        | 8 22 01.0 | +47 28 06 | 6     | 0.12       | 102      | 17.1  | 17.3  | 79       | 8 22 14.5 | +47 18 12 | 7     | 0.72       | 117      | 17.7  | 17.9  | 129      | 8 22 21.0 | +47 21 48 | 5     | 0.34       | 108      | 18.2  | 18.2  | 179      | 8 21 15.6 | +47 17 10 | 5     | 0.29       | 140      | 18.5  | 18.5  |
| 30        | 8 21 50.3 | +47 23 40 | 4     | 0.25       | 89       | 17.1  | 16.8  | 80       | 8 21 29.0 | +47 08 39 | 7     | 0.54       | 72       | 17.7  | 17.9  | 130      | 8 22 10.4 | +47 15 40 | 5     | 0.11       | 121      | 18.2  | 18.2  | 180      | 8 21 53.2 | +47 23 37 | 4     | 0.66       | 32       | 18.5  | 18.2  |
| 31        | 8 21 07.6 | +47 29 04 | 6     | 0.32       | 145      | 17.1  | 17.1  | 81       | 8 21 56.7 | +47 21 39 | 5     | 0.10       | 111      | 17.7  | 17.7  | 131      | 8 22 32.0 | +47 27 11 | 5     | 0.10       | 45       | 18.2  | 18.1  | 181      | 8 22 35.5 | +47 16 05 | 5     | 0.54       | 58       | 18.5  | 18.4  |
| 32        | 8 20 51.9 | +47 23 51 | 7     | 0.10       | 34       | 17.1  | 17.4  | 82       | 8 21 06.3 | +47 20 56 | 5     | 0.11       | 145      | 17.7  | 17.7  | 132      | 8 22 04.9 | +47 27 12 | 5     | 0.21       | 137      | 18.2  | 18.2  | 182      | 8 21 53.2 | +47 25 15 | 5     | 0.41       | 178      | 18.5  | 18.5  |
| 33        | 8 23 43.4 | +47 19 12 | 7     | 0.13       | 3        | 17.2  | 17.4  | 83       | 8 22 01.8 | +47 14 03 | 6     | 0.10       | 47       | 17.7  | 17.8  | 133      | 8 21 50.8 | +47 12 47 | 6     | 0.36       | 127      | 18.2  | 18.3  | 183      | 8 21 13.4 | +47 14 49 | 5     | 0.29       | 95       | 18.5  | 18.4  |
| 34        | 8 21 32.3 | +47 20 32 | 6     | 0.17       | 140      | 17.2  |       |          |           |           |       |            |          |       |       |          |           |           |       |            |          |       |       |          |           |           |       |            |          |       |       |

Table 6. continued

Abell 655

| $N$ | $\alpha$  | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ |
|-----|-----------|-----------|-------|------------|----------|-------|-------|
| 201 | 8 21 31.6 | +47 19 36 | 5     | 0.70       | 25       | 18.7  | 18.7  |
| 202 | 8 20 44.9 | +47 12 41 | 4     | 0.60       | 56       | 18.7  | 18.4  |
| 203 | 8 22 22.5 | +47 28 22 | 4     | 0.18       | 104      | 18.7  | 18.5  |
| 204 | 8 21 34.4 | +47 12 37 | 4     | 0.34       | 126      | 18.7  | 18.5  |
| 205 | 8 21 50.0 | +47 08 14 | 5     | 0.18       | 99       | 18.7  | 18.7  |
| 206 | 8 22 09.4 | +47 13 47 | 5     | 0.17       | 108      | 18.7  | 18.7  |
| 207 | 8 22 02.1 | +47 17 50 | 6     | 0.53       | 105      | 18.7  | 18.9  |
| 208 | 8 21 28.4 | +47 12 19 | 4     | 0.26       | 41       | 18.7  | 18.5  |
| 209 | 8 21 11.2 | +47 21 29 | 4     | 0.26       | 51       | 18.7  | 18.6  |
| 210 | 8 21 39.9 | +47 19 44 | 5     | 0.11       | 148      | 18.7  | 18.6  |
| 211 | 8 21 40.5 | +47 14 24 | 5     | 0.10       | 90       | 18.7  | 18.7  |
| 212 | 8 21 13.9 | +47 26 57 | 5     | 0.10       | 149      | 18.7  | 18.7  |
| 213 | 8 22 09.6 | +47 20 26 | 4     | 0.45       | 43       | 18.8  | 18.6  |
| 214 | 8 22 37.2 | +47 29 26 | 5     | 0.38       | 17       | 18.8  | 18.8  |
| 215 | 8 22 30.3 | +47 25 07 | 5     | 0.50       | 35       | 18.8  | 18.8  |
| 216 | 8 21 53.4 | +47 19 13 | 4     | 0.25       | 81       | 18.8  | 18.7  |
| 217 | 8 22 09.8 | +47 19 53 | 4     | 0.37       | 7        | 18.8  | 18.6  |
| 218 | 8 21 51.6 | +47 16 55 | 4     | 0.16       | 47       | 18.8  | 18.6  |
| 219 | 8 22 43.3 | +47 19 53 | 4     | 0.34       | 121      | 18.8  | 18.7  |
| 220 | 8 22 18.5 | +47 19 21 | 4     | 0.30       | 16       | 18.8  | 18.5  |
| 221 | 8 21 08.2 | +47 20 18 | 4     | 0.17       | 140      | 18.9  | 18.7  |
| 222 | 8 21 18.2 | +47 08 22 | 4     | 0.56       | 67       | 18.9  | 18.4  |
| 223 | 8 22 07.0 | +47 16 28 | 4     | 0.10       | 0        | 18.9  | 18.7  |
| 224 | 8 22 32.4 | +47 18 51 | 4     | 0.33       | 175      | 18.9  | 18.7  |
| 225 | 8 20 59.3 | +47 26 13 | 4     | 0.59       | 21       | 18.9  | 18.7  |
| 226 | 8 21 45.6 | +47 15 21 | 4     | 0.38       | 162      | 18.9  | 18.5  |
| 227 | 8 21 50.8 | +47 14 09 | 4     | 0.32       | 176      | 18.9  | 18.6  |
| 228 | 8 21 14.5 | +47 19 45 | 3     | 0.61       | 118      | 18.9  | 17.6  |
| 229 | 8 22 47.9 | +47 22 23 | 4     | 0.21       | 170      | 19.0  | 18.7  |

Abell 1132

| $N$ | $\alpha$   | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ |
|-----|------------|-----------|-------|------------|----------|-------|-------|
| 1   | 10 55 13.1 | +57 02 17 | 13    | 0.66       | 37       | 14.3  | 14.8  |
| 2   | 10 55 16.1 | +57 02 32 | 7     | 0.10       | 72       | 14.5  | 14.5  |
| 3   | 10 55 24.3 | +57 15 29 | 9     | 0.32       | 12       | 14.6  | 14.7  |
| 4   | 10 56 30.1 | +57 11 37 | 6     | 0.18       | 2        | 14.7  | 14.7  |
| 5   | 10 53 51.8 | +56 56 10 | 7     | 0.17       | 65       | 14.8  | 14.8  |
| 6   | 10 56 45.2 | +57 04 11 | 8     | 0.12       | 144      | 15.3  | 15.4  |
| 7   | 10 56 06.4 | +56 58 25 | 9     | 0.10       | 121      | 15.5  | 15.7  |
| 8   | 10 55 22.0 | +57 03 48 | 12    | 0.10       | 63       | 15.6  | 16.1  |
| 9   | 10 55 03.1 | +57 04 07 | 11    | 0.69       | 144      | 15.7  | 16.3  |
| 10  | 10 53 25.7 | +57 07 22 | 5     | 0.60       | 91       | 15.7  | 14.6  |
| 11  | 10 56 07.7 | +57 11 13 | 8     | 0.26       | 152      | 15.8  | 15.9  |
| 12  | 10 56 27.8 | +56 57 19 | 9     | 0.10       | 103      | 15.9  | 16.0  |
| 13  | 10 55 22.4 | +57 04 00 | 7     | 0.50       | 118      | 16.0  | 16.0  |
| 14  | 10 56 38.9 | +56 56 48 | 8     | 0.46       | 28       | 16.2  | 16.3  |
| 15  | 10 56 00.4 | +57 06 08 | 7     | 0.10       | 46       | 16.2  | 16.3  |
| 16  | 10 54 00.5 | +57 01 09 | 7     | 0.10       | 38       | 16.2  | 16.3  |
| 17  | 10 54 00.0 | +57 00 56 | 7     | 0.13       | 97       | 16.3  | 16.3  |
| 18  | 10 56 26.5 | +57 19 00 | 8     | 0.48       | 104      | 16.3  | 16.3  |
| 19  | 10 53 52.2 | +57 13 07 | 8     | 0.10       | 170      | 16.3  | 16.3  |
| 20  | 10 55 35.2 | +57 07 58 | 7     | 0.10       | 39       | 16.3  | 16.3  |
| 21  | 10 54 38.9 | +57 12 44 | 4     | 0.22       | 63       | 16.4  | 15.1  |
| 22  | 10 56 35.0 | +56 56 20 | 6     | 0.32       | 11       | 16.4  | 16.4  |
| 23  | 10 54 35.6 | +56 54 58 | 7     | 0.14       | 71       | 16.4  | 16.4  |
| 24  | 10 54 54.8 | +57 01 21 | 7     | 0.14       | 174      | 16.5  | 16.6  |
| 25  | 10 56 02.7 | +56 59 36 | 6     | 0.47       | 8        | 16.5  | 16.5  |
| 26  | 10 55 30.5 | +57 03 25 | 9     | 0.64       | 5        | 16.5  | 16.9  |
| 27  | 10 55 24.8 | +57 05 53 | 8     | 0.16       | 168      | 16.6  | 16.8  |
| 28  | 10 54 11.2 | +57 10 25 | 6     | 0.10       | 58       | 16.6  | 16.6  |
| 29  | 10 55 30.9 | +57 04 06 | 6     | 0.10       | 9        | 16.7  | 16.6  |
| 30  | 10 55 50.9 | +57 18 40 | 6     | 0.15       | 71       | 16.7  | 16.7  |
| 31  | 10 55 49.6 | +56 59 16 | 6     | 0.17       | 26       | 16.8  | 16.7  |
| 32  | 10 54 00.1 | +57 18 26 | 8     | 0.10       | 30       | 16.9  | 16.9  |
| 33  | 10 53 42.2 | +56 57 34 | 7     | 0.10       | 59       | 16.9  | 16.9  |
| 34  | 10 54 31.2 | +57 13 43 | 6     | 0.14       | 139      | 16.9  | 16.9  |
| 35  | 10 54 44.7 | +57 10 48 | 6     | 0.16       | 52       | 16.9  | 16.9  |
| 36  | 10 56 25.7 | +56 57 18 | 7     | 0.47       | 107      | 16.9  | 16.9  |
| 37  | 10 55 27.5 | +57 01 14 | 6     | 0.10       | 100      | 16.9  | 16.9  |
| 38  | 10 54 10.8 | +56 54 45 | 7     | 0.29       | 28       | 17.0  | 17.0  |
| 39  | 10 55 43.3 | +57 04 17 | 6     | 0.12       | 12       | 17.1  | 17.0  |
| 40  | 10 54 11.9 | +57 03 08 | 8     | 0.36       | 67       | 17.1  | 17.2  |
| 41  | 10 55 28.4 | +57 02 42 | 6     | 0.14       | 52       | 17.2  | 17.1  |
| 42  | 10 54 09.4 | +57 12 50 | 6     | 0.10       | 27       | 17.2  | 17.1  |
| 43  | 10 55 35.4 | +57 06 12 | 6     | 0.17       | 10       | 17.2  | 17.1  |
| 44  | 10 55 29.6 | +57 02 34 | 6     | 0.24       | 86       | 17.2  | 17.1  |
| 45  | 10 55 23.7 | +57 05 29 | 6     | 0.11       | 164      | 17.2  | 17.1  |
| 46  | 10 55 10.4 | +56 59 23 | 6     | 0.10       | 21       | 17.2  | 17.1  |
| 47  | 10 55 51.3 | +57 02 08 | 6     | 0.24       | 13       | 17.2  | 17.1  |
| 48  | 10 53 42.4 | +57 16 39 | 6     | 0.10       | 96       | 17.3  | 17.2  |
| 49  | 10 53 54.1 | +56 53 47 | 5     | 0.17       | 137      | 17.3  | 16.1  |
| 50  | 10 53 48.7 | +56 59 16 | 6     | 0.10       | 69       | 17.4  | 17.3  |

Abell 1132

| $N$ | $\alpha$   | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ |
|-----|------------|-----------|-------|------------|----------|-------|-------|
| 51  | 10 55 50.5 | +56 59 38 | 5     | 0.12       | 64       | 17.4  | 17.3  |
| 52  | 10 54 40.3 | +57 20 50 | 6     | 0.13       | 171      | 17.4  | 17.4  |
| 53  | 10 55 39.9 | +57 09 22 | 6     | 0.11       | 139      | 17.5  | 17.4  |
| 54  | 10 54 39.5 | +57 00 04 | 6     | 0.10       | 78       | 17.5  | 17.4  |
| 55  | 10 55 45.5 | +57 02 40 | 6     | 0.10       | 82       | 17.5  | 17.5  |
| 56  | 10 56 08.3 | +57 04 44 | 7     | 0.70       | 168      | 17.6  | 17.6  |
| 57  | 10 54 32.9 | +56 56 27 | 5     | 0.18       | 26       | 17.6  | 17.4  |
| 58  | 10 56 31.8 | +56 55 01 | 5     | 0.10       | 11       | 17.6  | 17.4  |
| 59  | 10 55 22.3 | +57 04 24 | 5     | 0.20       | 71       | 17.6  | 17.5  |
| 60  | 10 53 49.0 | +56 55 00 | 7     | 0.48       | 77       | 17.6  | 17.6  |
| 61  | 10 56 02.4 | +57 05 51 | 5     | 0.10       | 108      | 17.6  | 17.4  |
| 62  | 10 55 46.3 | +56 59 32 | 6     | 0.19       | 80       | 17.6  | 17.6  |

Abell 1314

| $N$ | $\alpha$   | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ |
|-----|------------|-----------|-------|------------|----------|-------|-------|
| 1   | 11 31 16.3 | +49 20 19 | 22    | 0.12       | 166      | 12.8  | 13.7  |
| 2   | 11 32 06.6 | +49 21 15 | 22    | 0.41       | 90       | 12.9  | 14.1  |
| 3   | 11 31 31.4 | +49 19 14 | 23    | 0.79       | 149      | 13.1  | 13.9  |
| 4   | 11 33 48.5 | +49 24 29 | 17    | 0.10       | 143      | 13.3  | 13.9  |
| 5   | 11 31 59.0 | +49 13 19 | 20    | 0.73       | 161      | 13.4  | 14.3  |
| 6   | 11 32 03.9 | +49 13 57 | 16    | 0.10       | 19       | 13.5  | 14.0  |
| 7   | 11 33 54.6 | +49 20 23 | 17    | 0.12       | 60       | 13.5  | 14.1  |
| 8   | 11 30 45.7 | +49 30 54 | 27    | 0.33       | 139      | 13.6  | 15.5  |
| 9   | 11 31 01.5 | +49 12 33 | 24    | 0.83       | 116      | 13.7  | 14.6  |
| 10  | 11 29 25.9 | +49 17 11 | 14    | 0.35       | 129      | 13.8  | 14.3  |
| 11  | 11 32 46.8 | +49 23 01 | 14    | 0.52       | 127      | 13.9  | 14.4  |
| 12  | 11 33 21.4 | +49 43 38 | 12    | 0.32       | 102      | 14.2  | 14.6  |
| 13  | 11 33 01.3 | +49 26 36 | 15    | 0.10       | 165      | 14.4  | 15.0  |
| 14  | 11 33 01.6 | +49 18 51 | 11    | 0.62       | 104      | 14.5  | 14.8  |
| 15  | 11 33 02.9 | +49 32 55 | 11    | 0.10       | 81       | 14.5  | 14.9  |
| 16  | 11 31 48.2 | +49 24 15 | 9     | 0.22       | 152      | 14.6  | 14.9  |
| 17  | 11 32 58.8 | +49 04 48 | 14    | 0.36       | 103      | 14.6  | 15.5  |
| 18  | 11 32 17.2 | +49 21 29 | 9     | 0.14       | 119      | 14.7  | 14.8  |
| 19  | 11 33 51.9 | +49 08 27 | 9     | 0.37       | 145      | 14.7  | 15.0  |
| 20  | 11 32 43.8 | +49 21 49 | 8     | 0.10       | 95       | 14.7  | 14.8  |
| 21  | 11 33 20.2 | +49 33 52 | 6     | 0.45       | 4        | 14.8  | 14.7  |
| 22  | 11 33 03.5 | +49 25 39 | 8     | 0.39       | 117      | 14.8  | 14.9  |
| 23  | 11 33 16.9 | +49 32 28 | 12    | 0.64       | 49       | 14.8  | 15.4  |
| 24  | 11 31 33.5 | +49 16 50 | 8     | 0.12       | 18       | 14.8  | 14.9  |
| 25  | 11 31 45.2 | +49 14 23 | 12    | 0.15       | 170      | 15.0  | 15.2  |
| 26  | 11 33 04.1 | +49 33 00 | 6     | 0.43       | 176      | 15.0  | 15.0  |
| 27  | 11 30 33.7 | +49 33 40 | 15    | 0.43       | 165      | 15.0  | 16.0  |
| 28  | 11 31 50.1 | +49 22 41 | 9     | 0.13       | 156      | 15.0  | 15.1  |
| 29  | 11 32 00.2 | +49 22 02 | 8     | 0.31       | 50       | 15.0  | 15.2  |
| 30  | 11 29 54.9 | +49 30 20 | 5     | 0.29       | 58       | 15.0  | 14.8  |
| 31  | 11 30 06.4 | +49 22 35 | 12    | 0.56       | 93       | 15.1  | 15.6  |
| 32  | 11 32 37.0 | +49 30 48 | 5     | 0.33       | 147      | 15.1  | 14.8  |
| 33  | 11 30 11.5 | +49 36 58 | 10    | 0.37       | 36       | 15.3  | 15.6  |
| 34  | 11 31 13.2 | +49 36 29 | 10    | 0.43       | 44       | 15.3  | 15.8  |
| 35  | 11 34 23.4 | +49 32 58 | 7     | 0.10       | 139      | 15.3  | 15.4  |
| 36  | 11 33 03.5 | +49 07 38 | 9     | 0.62       | 32       | 15.4  | 15.6  |
| 37  | 11 30 22.5 | +49 21 10 | 8     | 0.53       | 12       | 15.4  | 15.6  |
| 38  | 11 34 44.7 | +49 12 57 | 12    | 0.19       | 28       | 15.4  | 16.3  |
| 39  | 11 33 48.3 | +48 57 50 | 15    | 0.23       | 151      | 15.4  | 16.5  |
| 40  | 11 33 03.6 | +49 12 28 | 12    | 0.29       | 9        | 15.4  | 16.1  |
| 41  | 11 31 46.4 | +49 13 39 | 10    | 0.29       | 63       | 15.5  | 15.9  |
| 42  | 11 30 59.6 | +49 12 25 | 5     | 0.32       | 67       | 15.5  | 14.9  |
| 43  | 11 30 39.9 | +49 18 52 | 11    | 0.63       | 37       | 15.5  | 16.0  |
| 44  | 11 34 37.6 | +49 41 30 | 10    | 0.75       | 108      | 15.5  | 15.9  |
| 45  | 11 31 26.1 | +49 31 51 | 8     | 0.13       | 24       | 15.6  | 15.8  |
| 46  | 11 34 14.9 | +49 27 14 | 9     | 0.13       | 142      | 15.6  | 15.9  |
| 47  | 11 34 46.0 | +49 12 33 | 9     | 0.47       | 142      | 15.7  | 16.0  |
| 48  | 11 32 09.8 | +49 30 40 | 7     | 0.23       | 53       | 15.7  | 15.7  |
| 49  | 11 33 45.0 | +49 44 56 | 12    | 0.78       | 147      | 15.7  | 16.3  |
| 50  | 11 31 51.2 | +49 21 51 | 8     | 0.26       | 1        | 15.7  | 15.8  |

Table 8.

Table 8. continued

### Abell 1314

| $N$ | $\alpha$   | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ |
|-----|------------|-----------|-------|------------|----------|-------|-------|
| 51  | 11 33 37.0 | +49 03 34 | 4     | 0.40       | 128      | 15.7  | 15.0  |
| 52  | 11 29 42.4 | +49 07 21 | 6     | 0.32       | 124      | 15.7  | 16.2  |
| 53  | 11 31 38.7 | +49 24 09 | 11    | 0.12       | 146      | 15.7  | 15.8  |
| 54  | 11 35 31.4 | +49 29 54 | 7     | 0.16       | 97       | 15.7  | 15.8  |
| 55  | 11 34 00.6 | +49 26 53 | 8     | 0.11       | 118      | 15.7  | 15.8  |
| 56  | 11 31 38.4 | +49 08 11 | 10    | 0.15       | 51       | 15.7  | 16.1  |
| 57  | 11 32 49.6 | +49 13 14 | 8     | 0.23       | 155      | 15.7  | 15.9  |
| 58  | 11 32 56.1 | +49 14 29 | 6     | 0.10       | 6        | 15.7  | 15.7  |
| 59  | 11 32 59.7 | +49 21 16 | 8     | 0.23       | 88       | 15.7  | 15.8  |
| 60  | 11 30 32.2 | +48 58 18 | 10    | 0.10       | 64       | 15.7  | 16.0  |
| 61  | 11 29 48.0 | +49 13 02 | 4     | 0.19       | 151      | 15.8  | 14.7  |
| 62  | 11 31 60.0 | +49 05 06 | 5     | 0.52       | 7        | 15.8  | 14.9  |
| 63  | 11 30 39.2 | +49 14 15 | 7     | 0.40       | 45       | 15.8  | 15.8  |
| 64  | 11 34 41.4 | +49 27 18 | 8     | 0.33       | 154      | 15.9  | 16.1  |
| 65  | 11 31 40.3 | +49 04 29 | 9     | 0.18       | 61       | 15.9  | 16.1  |
| 66  | 11 31 52.8 | +49 29 56 | 9     | 0.59       | 151      | 15.9  | 16.2  |
| 67  | 11 32 47.4 | +49 32 54 | 8     | 0.10       | 48       | 15.9  | 16.1  |
| 68  | 11 33 33.7 | +49 25 50 | 11    | 0.73       | 84       | 15.9  | 16.7  |
| 69  | 11 30 42.6 | +49 46 55 | 8     | 0.15       | 69       | 15.9  | 16.1  |
| 70  | 11 31 43.3 | +49 41 24 | 8     | 0.39       | 38       | 15.9  | 16.1  |
| 71  | 11 34 46.3 | +49 48 56 | 9     | 0.48       | 124      | 16.0  | 16.3  |
| 72  | 11 30 57.2 | +49 23 20 | 7     | 0.50       | 172      | 16.0  | 16.0  |
| 73  | 11 31 20.7 | +49 18 35 | 8     | 0.16       | 26       | 16.0  | 16.1  |
| 74  | 11 31 27.7 | +49 22 57 | 10    | 0.29       | 15       | 16.0  | 16.5  |
| 75  | 11 32 38.2 | +49 28 04 | 8     | 0.10       | 9        | 16.0  | 16.2  |
| 76  | 11 31 11.5 | +48 59 49 | 10    | 0.10       | 178      | 16.0  | 16.3  |
| 77  | 11 34 52.6 | +49 08 20 | 8     | 0.28       | 138      | 16.0  | 16.1  |
| 78  | 11 29 30.5 | +49 29 15 | 6     | 0.10       | 172      | 16.0  | 16.1  |
| 79  | 11 33 30.9 | +49 33 05 | 7     | 0.35       | 81       | 16.1  | 16.1  |
| 80  | 11 35 18.1 | +49 05 31 | 7     | 0.10       | 36       | 16.1  | 16.1  |
| 81  | 11 31 12.4 | +49 18 12 | 9     | 0.17       | 159      | 16.1  | 16.3  |
| 82  | 11 34 41.5 | +49 17 43 | 8     | 0.11       | 136      | 16.1  | 16.4  |
| 83  | 11 34 36.1 | +48 57 54 | 4     | 0.20       | 36       | 16.1  | 15.3  |
| 84  | 11 33 11.3 | +49 39 31 | 4     | 0.24       | 39       | 16.1  | 15.0  |
| 85  | 11 33 56.6 | +49 28 03 | 6     | 0.57       | 90       | 16.1  | 16.1  |
| 86  | 11 33 58.0 | +49 33 50 | 8     | 0.45       | 170      | 16.1  | 16.3  |
| 87  | 11 33 25.1 | +49 21 14 | 7     | 0.38       | 169      | 16.2  | 16.3  |
| 88  | 11 32 05.9 | +49 31 06 | 8     | 0.14       | 116      | 16.2  | 16.4  |
| 89  | 11 33 50.3 | +49 36 33 | 7     | 0.30       | 67       | 16.2  | 16.4  |
| 90  | 11 31 10.9 | +48 59 37 | 7     | 0.10       | 1        | 16.2  | 16.4  |
| 91  | 11 32 23.8 | +49 20 04 | 8     | 0.10       | 98       | 16.2  | 16.4  |
| 92  | 11 34 21.3 | +49 49 36 | 8     | 0.10       | 92       | 16.2  | 16.4  |
| 93  | 11 30 08.6 | +49 10 09 | 8     | 0.25       | 61       | 16.2  | 16.3  |
| 94  | 11 30 20.9 | +49 12 05 | 8     | 0.22       | 168      | 16.2  | 16.4  |
| 95  | 11 33 44.0 | +49 02 58 | 9     | 0.26       | 52       | 16.2  | 16.5  |
| 96  | 11 32 31.1 | +49 24 12 | 8     | 0.28       | 159      | 16.3  | 16.6  |
| 97  | 11 30 55.3 | +49 19 32 | 8     | 0.47       | 72       | 16.3  | 16.6  |
| 98  | 11 33 47.8 | +49 10 25 | 6     | 0.23       | 130      | 16.3  | 16.3  |
| 99  | 11 29 27.0 | +49 29 17 | 9     | 0.53       | 50       | 16.3  | 16.7  |

Table 9.

| $N$ | $\alpha$   | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ |
|-----|------------|-----------|-------|------------|----------|-------|-------|
| 1   | 11 46 36.1 | +56 21 42 | 52    | 0.42       | 107      | 11.5  | 14.0  |
| 2   | 11 44 54.6 | +56 14 41 | 39    | 0.35       | 119      | 11.6  | 14.0  |
| 3   | 11 48 28.9 | +55 21 26 | 31    | 0.20       | 16       | 12.3  | 14.1  |
| 4   | 11 42 55.1 | +56 09 50 | 35    | 0.60       | 117      | 12.9  | 14.6  |
| 5   | 11 48 13.4 | +55 25 21 | 26    | 0.67       | 45       | 13.1  | 14.3  |
| 6   | 11 44 42.0 | +56 00 30 | 26    | 0.74       | 70       | 13.4  | 14.4  |
| 7   | 11 45 21.4 | +56 02 21 | 23    | 0.17       | 50       | 13.6  | 14.4  |
| 8   | 11 43 10.9 | +56 21 56 | 17    | 0.36       | 121      | 14.2  | 14.8  |
| 9   | 11 44 40.2 | +55 57 39 | 19    | 0.25       | 78       | 14.2  | 14.7  |
| 10  | 11 40 50.1 | +55 45 22 | 20    | 0.35       | 27       | 14.4  | 15.3  |
| 11  | 11 47 06.4 | +56 24 08 | 12    | 0.44       | 30       | 14.5  | 14.7  |
| 12  | 11 44 39.8 | +56 18 50 | 14    | 0.11       | 131      | 14.5  | 14.8  |
| 13  | 11 46 31.1 | +55 58 36 | 11    | 0.28       | 55       | 14.6  | 14.7  |
| 14  | 11 46 35.7 | +55 58 42 | 11    | 0.32       | 35       | 14.6  | 14.8  |
| 15  | 11 47 55.1 | +55 46 04 | 13    | 0.50       | 100      | 14.6  | 14.9  |
| 16  | 11 48 35.6 | +55 24 41 | 16    | 0.19       | 119      | 14.6  | 15.0  |
| 17  | 11 47 37.1 | +56 24 53 | 11    | 0.10       | 29       | 14.7  | 14.8  |
| 18  | 11 43 04.6 | +56 04 38 | 14    | 0.37       | 49       | 14.7  | 15.0  |
| 19  | 11 43 57.8 | +55 59 04 | 12    | 0.24       | 108      | 14.7  | 14.9  |
| 20  | 11 44 13.6 | +55 39 56 | 12    | 0.35       | 145      | 14.8  | 15.1  |
| 21  | 11 41 45.4 | +55 54 30 | 12    | 0.60       | 148      | 14.8  | 15.1  |
| 22  | 11 43 58.6 | +56 00 18 | 13    | 0.15       | 2        | 14.8  | 15.1  |
| 23  | 11 42 14.4 | +56 19 00 | 13    | 0.33       | 79       | 14.8  | 15.0  |
| 24  | 11 41 05.1 | +55 29 28 | 13    | 0.74       | 143      | 14.8  | 15.1  |
| 25  | 11 46 10.2 | +55 48 59 | 12    | 0.23       | 14       | 14.8  | 15.0  |
| 26  | 11 44 58.0 | +55 59 44 | 9     | 0.28       | 94       | 14.9  | 14.9  |
| 27  | 11 43 02.8 | +55 33 35 | 13    | 0.72       | 171      | 14.9  | 15.2  |
| 28  | 11 43 56.8 | +56 02 31 | 11    | 0.51       | 45       | 14.9  | 15.1  |
| 29  | 11 44 16.4 | +55 49 15 | 10    | 0.10       | 82       | 14.9  | 15.1  |
| 30  | 11 42 52.1 | +56 20 33 | 11    | 0.48       | 94       | 14.9  | 15.1  |
| 31  | 11 46 03.0 | +56 10 45 | 10    | 0.18       | 80       | 15.0  | 15.1  |
| 32  | 11 44 30.2 | +56 07 50 | 10    | 0.15       | 92       | 15.0  | 15.0  |
| 33  | 11 44 01.8 | +55 58 37 | 14    | 0.10       | 145      | 15.0  | 15.2  |
| 34  | 11 44 27.2 | +56 01 03 | 14    | 0.85       | 115      | 15.0  | 15.5  |
| 35  | 11 43 15.6 | +55 43 60 | 13    | 0.77       | 87       | 15.1  | 15.4  |
| 36  | 11 45 11.1 | +56 16 01 | 10    | 0.16       | 49       | 15.1  | 15.2  |
| 37  | 11 45 07.3 | +55 40 04 | 9     | 0.36       | 163      | 15.1  | 15.1  |
| 38  | 11 44 10.0 | +55 59 43 | 11    | 0.55       | 7        | 15.1  | 15.2  |
| 39  | 11 44 04.2 | +55 59 04 | 10    | 0.79       | 151      | 15.1  | 15.1  |
| 40  | 11 44 47.7 | +55 55 18 | 12    | 0.44       | 151      | 15.1  | 15.4  |

| $N$ | $\alpha$   | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ |
|-----|------------|-----------|-------|------------|----------|-------|-------|
| 51  | 11 45 03.8 | +55 59 29 | 10    | 0.29       | 61       | 15.2  | 15.2  |
| 52  | 11 43 51.0 | +56 00 48 | 10    | 0.32       | 70       | 15.2  | 15.3  |
| 53  | 11 44 15.4 | +56 03 49 | 9     | 0.36       | 135      | 15.3  | 15.3  |
| 54  | 11 48 25.8 | +55 39 36 | 9     | 0.31       | 120      | 15.3  | 15.3  |
| 55  | 11 48 21.3 | +55 20 55 | 9     | 0.55       | 90       | 15.3  | 15.3  |
| 56  | 11 40 46.6 | +56 06 29 | 11    | 0.22       | 99       | 15.3  | 15.4  |
| 57  | 11 40 50.8 | +56 13 07 | 9     | 0.16       | 92       | 15.3  | 15.3  |
| 58  | 11 41 35.4 | +55 22 46 | 10    | 0.37       | 38       | 15.4  | 15.4  |
| 59  | 11 46 52.4 | +55 40 53 | 10    | 0.32       | 38       | 15.4  | 15.5  |
| 60  | 11 49 01.0 | +56 01 11 | 9     | 0.27       | 176      | 15.4  | 15.4  |
| 61  | 11 47 32.6 | +56 14 48 | 9     | 0.27       | 17       | 15.4  | 15.4  |
| 62  | 11 45 35.6 | +56 02 33 | 8     | 0.32       | 30       | 15.5  | 15.5  |
| 63  | 11 45 28.6 | +56 10 39 | 9     | 0.20       | 37       | 15.5  | 15.5  |
| 64  | 11 47 13.1 | +56 25 31 | 9     | 0.35       | 117      | 15.5  | 15.6  |
| 65  | 11 43 12.7 | +55 35 24 | 9     | 0.30       | 63       | 15.5  | 15.5  |
| 66  | 11 45 40.0 | +56 05 29 | 9     | 0.15       | 77       | 15.5  | 15.5  |
| 67  | 11 42 20.3 | +56 28 39 | 9     | 0.14       | 108      | 15.6  | 15.6  |
| 68  | 11 42 41.2 | +56 03 05 | 9     | 0.16       | 68       | 15.6  | 15.7  |
| 69  | 11 40 44.3 | +56 19 01 | 9     | 0.10       | 19       | 15.6  | 15.6  |
| 70  | 11 46 37.8 | +56 14 42 | 9     | 0.10       | 72       | 15.6  | 15.6  |
| 71  | 11 46 23.0 | +56 25 25 | 11    | 0.10       | 38       | 15.6  | 15.7  |
| 72  | 11 42 00.7 | +56 17 59 | 10    | 0.26       | 112      | 15.7  | 15.8  |
| 73  | 11 43 20.7 | +56 04 23 | 10    | 0.12       | 90       | 15.7  | 15.7  |
| 74  | 11 46 15.4 | +55 29 38 | 8     | 0.50       | 63       | 15.7  | 15.7  |
| 75  | 11 45 45.0 | +55 51 25 | 9     | 0.30       | 141      | 15.7  | 15.8  |
| 76  | 11 44 29.4 | +55 26 21 | 9     | 0.37       | 104      | 15.7  | 15.8  |
| 77  | 11 45 28.0 | +55 54 24 | 8     | 0.10       | 140      | 15.8  | 15.8  |
| 78  | 11 44 53.5 | +55 55 44 | 8     | 0.31       | 110      | 15.8  | 15.8  |
| 79  | 11 44 33.0 | +56 01 13 | 8     | 0.58       | 95       | 15.8  | 15.7  |
| 80  | 11 40 44.9 | +56 05 18 | 11    | 0.47       | 86       | 15.8  | 16.0  |
| 81  | 11 46 46.9 | +56 15 21 | 12    | 0.11       | 52       | 15.8  | 16.1  |
| 82  | 11 44 17.8 | +56 22 17 | 7     | 0.12       | 104      | 15.8  | 15.8  |
| 83  | 11 40 47.6 | +56 24 23 | 10    | 0.45       | 146      | 15.8  | 15.9  |
| 84  | 11 46 10.7 | +56 02 36 | 8     | 0.36       | 74       | 15.9  | 15.9  |
| 85  | 11 43 06.5 | +55 45 07 | 8     | 0.18       | 93       | 15.9  | 15.9  |
| 86  | 11 44 11.6 | +56 02 22 | 8     | 0.16       | 47       | 15.9  | 15.9  |
| 87  | 11 45 10.2 | +55 48 46 | 9     | 0.45       | 11       | 15.9  | 16.0  |
| 88  | 11 42 56.2 | +56 27 55 | 8     | 0.34       | 77       | 16.9  | 16.9  |
| 89  | 11 44 45.2 | +55 34 41 | 8     | 0.31       | 104      | 15.9  | 15.9  |
| 90  | 11 43 43.8 | +56 02 22 | 8     | 0.10       | 19       | 16.0  | 16.0  |

Table 11. continued

| Abell 1570 |            |           |       |            |          |       |       |     |            |           | Abell 1589 |            |          |       |       |     |            |           |       |            |          | Abell 1589 |       |  |  |  |  |  |  |  |  |  |
|------------|------------|-----------|-------|------------|----------|-------|-------|-----|------------|-----------|------------|------------|----------|-------|-------|-----|------------|-----------|-------|------------|----------|------------|-------|--|--|--|--|--|--|--|--|--|
| $N$        | $\alpha$   | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ | $N$ | $\alpha$   | $\delta$  | $R_1$      | $\epsilon$ | $\theta$ | $m_T$ | $m_a$ | $N$ | $\alpha$   | $\delta$  | $R_1$ | $\epsilon$ | $\theta$ | $m_T$      | $m_a$ |  |  |  |  |  |  |  |  |  |
| 1          | 12 33 56.0 | +19 55 01 | 13    | 0.37       | 16       | 13.7  | 14.3  | 51  | 12 34 04.7 | +20 05 07 | 6          | 0.36       | 35       | 18.6  | 18.6  | 24  | 12 39 15.6 | +18 53 51 | 4     | 0.10       | 75       | 15.9       | 15.6  |  |  |  |  |  |  |  |  |  |
| 2          | 12 33 56.0 | +20 01 15 | 8     | 0.10       | 12       | 15.5  | 15.6  | 52  | 12 33 28.5 | +20 09 29 | 5          | 0.22       | 163      | 18.6  | 18.6  | 25  | 12 38 06.8 | +18 47 50 | 8     | 0.12       | 124      | 15.9       | 15.9  |  |  |  |  |  |  |  |  |  |
| 3          | 12 34 13.0 | +20 02 12 | 7     | 0.19       | 108      | 15.9  | 15.9  | 53  | 12 34 04.8 | +19 54 04 | 11         | 0.61       | 152      | 18.6  | 19.1  | 26  | 12 39 00.7 | +18 57 28 | 8     | 0.34       | 94       | 16.0       | 16.0  |  |  |  |  |  |  |  |  |  |
| 4          | 12 33 42.8 | +20 02 48 | 9     | 0.80       | 66       | 15.9  | 16.0  | 54  | 12 34 24.9 | +20 06 21 | 5          | 0.18       | 148      | 18.6  | 18.4  | 27  | 12 39 24.4 | +18 56 54 | 6     | 0.17       | 87       | 16.0       | 15.9  |  |  |  |  |  |  |  |  |  |
| 5          | 12 34 25.5 | +20 09 44 | 8     | 0.10       | 7        | 16.2  | 16.2  | 55  | 12 33 55.2 | +20 11 41 | 4          | 0.29       | 94       | 18.6  | 18.4  | 28  | 12 38 57.7 | +18 26 45 | 8     | 0.14       | 91       | 16.0       | 16.0  |  |  |  |  |  |  |  |  |  |
| 6          | 12 33 00.7 | +20 04 14 | 8     | 0.43       | 56       | 16.7  | 16.8  | 56  | 12 33 41.4 | +19 58 32 | 7          | 0.59       | 101      | 18.7  | 18.7  | 29  | 12 38 54.5 | +18 35 13 | 7     | 0.41       | 64       | 16.2       | 16.2  |  |  |  |  |  |  |  |  |  |
| 7          | 12 33 39.3 | +20 01 29 | 9     | 0.11       | 58       | 16.9  | 17.0  | 57  | 12 33 05.3 | +20 08 25 | 6          | 0.10       | 100      | 18.7  | 18.6  | 30  | 12 38 56.7 | +18 53 09 | 9     | 0.31       | 174      | 16.2       | 16.2  |  |  |  |  |  |  |  |  |  |
| 8          | 12 34 01.6 | +19 56 21 | 13    | 0.38       | 5        | 16.9  | 17.6  | 58  | 12 33 46.8 | +20 08 48 | 4          | 0.27       | 56       | 18.7  | 18.4  | 31  | 12 38 36.6 | +18 46 43 | 5     | 0.18       | 115      | 16.2       | 16.0  |  |  |  |  |  |  |  |  |  |
| 9          | 12 33 46.9 | +19 59 26 | 6     | 0.18       | 145      | 17.0  | 16.9  | 59  | 12 33 31.5 | +20 12 14 | 6          | 0.12       | 35       | 18.7  | 18.6  | 32  | 12 38 40.0 | +18 54 05 | 7     | 0.16       | 169      | 16.2       | 16.2  |  |  |  |  |  |  |  |  |  |
| 10         | 12 33 47.0 | +19 59 54 | 7     | 0.38       | 23       | 17.1  | 17.1  | 60  | 12 33 49.2 | +20 08 15 | 7          | 0.28       | 157      | 18.7  | 18.7  | 33  | 12 38 42.9 | +18 29 18 | 6     | 0.20       | 92       | 16.2       | 16.1  |  |  |  |  |  |  |  |  |  |
| 11         | 12 33 48.1 | +20 06 34 | 11    | 0.66       | 38       | 17.2  | 17.6  | 61  | 12 32 58.9 | +20 13 06 | 5          | 0.22       | 96       | 18.8  | 18.6  | 34  | 12 38 16.2 | +18 42 04 | 7     | 0.24       | 88       | 16.2       | 16.2  |  |  |  |  |  |  |  |  |  |
| 12         | 12 34 06.6 | +19 56 41 | 6     | 0.48       | 113      | 17.2  | 17.1  | 62  | 12 34 31.0 | +20 15 21 | 6          | 0.58       | 179      | 18.8  | 18.7  | 35  | 12 39 52.4 | +18 51 08 | 7     | 0.12       | 50       | 16.3       | 16.3  |  |  |  |  |  |  |  |  |  |
| 13         | 12 33 39.8 | +20 13 58 | 10    | 0.47       | 116      | 17.3  | 17.8  | 63  | 12 33 39.0 | +20 10 54 | 6          | 0.34       | 94       | 18.8  | 18.7  | 36  | 12 37 55.9 | +18 58 28 | 6     | 0.46       | 126      | 16.3       | 16.3  |  |  |  |  |  |  |  |  |  |
| 14         | 12 34 30.3 | +19 58 57 | 5     | 0.25       | 67       | 17.4  | 17.3  | 64  | 12 33 13.3 | +19 56 41 | 7          | 0.41       | 57       | 18.9  | 18.9  | 37  | 12 38 49.2 | +18 55 49 | 9     | 0.31       | 94       | 16.3       | 16.3  |  |  |  |  |  |  |  |  |  |
| 15         | 12 34 19.2 | +19 54 13 | 7     | 0.14       | 73       | 17.6  | 17.6  | 65  | 12 34 14.9 | +19 54 18 | 8          | 0.58       | 84       | 18.9  | 19.2  | 38  | 12 38 33.2 | +18 59 04 | 7     | 0.10       | 107      | 16.4       | 16.4  |  |  |  |  |  |  |  |  |  |
| 16         | 12 33 34.2 | +19 58 37 | 7     | 0.35       | 125      | 17.6  | 17.6  | 66  | 12 33 29.4 | +19 54 20 | 8          | 0.68       | 47       | 18.9  | 19.2  | 39  | 12 40 00.9 | +18 55 57 | 7     | 0.16       | 41       | 16.4       | 16.4  |  |  |  |  |  |  |  |  |  |
| 17         | 12 33 08.8 | +19 56 22 | 5     | 0.10       | 28       | 17.7  | 17.6  | 67  | 12 34 04.3 | +20 02 09 | 5          | 0.22       | 75       | 18.9  | 18.7  | 40  | 12 38 57.6 | +18 42 47 | 7     | 0.30       | 27       | 16.4       | 16.4  |  |  |  |  |  |  |  |  |  |
| 18         | 12 33 51.4 | +20 08 41 | 7     | 0.14       | 4        | 17.7  | 17.8  | 68  | 12 34 27.7 | +19 55 08 | 6          | 0.25       | 132      | 18.9  | 18.9  | 41  | 12 38 42.7 | +18 27 58 | 10    | 0.76       | 69       | 16.4       | 16.8  |  |  |  |  |  |  |  |  |  |
| 19         | 12 33 54.7 | +20 09 10 | 7     | 0.10       | 94       | 17.7  | 17.7  | 69  | 12 34 31.0 | +20 15 37 | 5          | 0.10       | 0        | 19.0  | 18.7  | 42  | 12 39 15.6 | +18 56 36 | 6     | 0.39       | 88       | 16.5       | 16.4  |  |  |  |  |  |  |  |  |  |
| 20         | 12 34 10.8 | +19 54 14 | 11    | 0.41       | 77       | 17.8  | 18.7  | 70  | 12 33 49.2 | +20 08 15 | 7          | 0.28       | 157      | 18.7  | 18.7  | 43  | 12 38 36.6 | +18 31 22 | 9     | 0.23       | 178      | 16.5       | 16.7  |  |  |  |  |  |  |  |  |  |
| 21         | 12 34 13.1 | +19 54 44 | 6     | 0.13       | 0        | 17.8  | 17.7  | 71  | 12 33 59.8 | +18 30 30 | 11         | 0.70       | 153      | 16.5  | 16.9  | 44  | 12 38 59.8 | +18 30 30 | 11    | 0.70       | 153      | 16.5       | 16.9  |  |  |  |  |  |  |  |  |  |
| 22         | 12 34 20.0 | +19 54 18 | 4     | 0.20       | 23       | 17.8  | 17.6  | 72  | 12 33 39.0 | +20 10 54 | 6          | 0.34       | 94       | 18.8  | 18.7  | 45  | 12 39 19.0 | +18 53 05 | 5     | 0.41       | 11       | 16.6       | 15.8  |  |  |  |  |  |  |  |  |  |
| 23         | 12 33 47.6 | +20 07 29 | 7     | 0.10       | 138      | 17.9  | 17.9  | 73  | 12 33 48.1 | +18 51 03 | 7          | 0.15       | 32       | 16.6  | 16.6  | 46  | 12 39 48.1 | +18 52 32 | 7     | 0.32       | 177      | 16.6       | 16.6  |  |  |  |  |  |  |  |  |  |
| 24         | 12 34 07.7 | +20 04 26 | 7     | 0.33       | 67       | 18.0  | 18.0  | 74  | 12 39 41.0 | +18 51 32 | 7          | 0.15       | 32       | 16.6  | 16.6  | 47  | 12 39 50.7 | +19 13 19 | 7     | 0.51       | 116      | 16.7       | 16.7  |  |  |  |  |  |  |  |  |  |
| 25         | 12 33 47.0 | +20 06 31 | 7     | 0.16       | 13       | 18.0  | 18.1  | 75  | 12 39 50.7 | +19 13 19 | 7          | 0.51       | 116      | 16.7  | 16.7  | 48  | 12 39 22.2 | +18 48 55 | 8     | 0.57       | 140      | 16.7       | 16.8  |  |  |  |  |  |  |  |  |  |
| 26         | 12 33 57.6 | +20 08 04 | 6     | 0.24       | 93       | 18.0  | 18.0  | 76  | 12 39 33.6 | +19 07 13 | 8          | 0.54       | 125      | 16.7  | 16.8  | 49  | 12 39 33.6 | +19 07 13 | 8     | 0.54       | 125      | 16.7       | 16.8  |  |  |  |  |  |  |  |  |  |
| 27         | 12 33 08.6 | +20 07 04 | 7     | 0.17       | 75       | 18.1  | 18.2  | 77  | 12 39 31.4 | +18 37 42 | 7          | 0.21       | 106      | 16.7  | 16.7  | 50  | 12 39 31.4 | +18 37 42 | 7     | 0.21       | 106      | 16.7       | 16.7  |  |  |  |  |  |  |  |  |  |
| 28         | 12 33 40.7 | +19 58 51 | 8     | 0.46       | 41       | 18.1  | 18.2  | 78  | 12 38 43.1 | +18 52 42 | 10         | 0.65       | 179      | 15.2  | 15.3  | 51  | 12 39 31.4 | +18 37 42 | 7     | 0.21       | 106      | 16.7       | 16.7  |  |  |  |  |  |  |  |  |  |
| 29         | 12 34 34.9 | +20 04 52 | 5     | 0.11       | 86       | 18.1  | 17.9  | 79  | 12 38 54.7 | +18 52 07 | 14         | 0.71       | 160      | 14.4  | 14.8  | 52  | 12 39 02.9 | +18 29 49 | 7     | 0.64       | 148      | 16.7       | 16.7  |  |  |  |  |  |  |  |  |  |
| 30         | 12 34 26.6 | +19 54 24 | 10    | 0.57       | 134      | 18.1  | 18.7  | 80  | 12 40 37.3 | +18 38 22 | 8          | 0.47       | 73       | 14.6  | 14.8  | 53  | 12 38 54.9 | +18 54 57 | 7     | 0.33       | 56       | 16.7       | 16.7  |  |  |  |  |  |  |  |  |  |
| 31         | 12 34 30.5 | +20 15 30 | 10    | 0.42       | 82       | 18.1  | 18.4  | 81  | 12 38 39.8 | +18 46 40 | 10         | 0.19       | 140      | 14.7  | 14.8  | 54  | 12 39 07.1 | +18 48 31 | 7     | 0.27       | 17       | 16.7       | 16.7  |  |  |  |  |  |  |  |  |  |
| 32         | 12 34 30.5 | +20 01 46 | 5     | 0.42       | 1        | 18.2  | 18.0  | 82  | 12 38 43.9 | +18 47 39 | 15         | 0.24       | 19       | 15.0  | 15.4  | 55  | 12 38 35.3 | +18 50 16 | 6     | 0.28       | 71       | 16.7       | 16.1  |  |  |  |  |  |  |  |  |  |
| 33         | 12 33 16.0 | +19 57 42 | 6     | 0.18       | 147      | 18.2  | 18.1  | 83  | 12 38 30.5 | +18 49 41 | 10         | 0.11       | 77       | 15.0  | 15.2  | 56  | 12 39 35.5 | +18 57 00 | 10    | 0.11       | 129      | 16.8       | 17.1  |  |  |  |  |  |  |  |  |  |
| 34         | 12 33 59.6 | +20 12 08 | 6     | 0.15       | 119      | 18.2  | 18.1  | 84  | 12 38 43.1 | +18 52 42 | 10         | 0.65       | 179      | 15.2  | 15.3  | 57  | 12 38 43.2 | +18 34 36 | 8     | 0.21       | 42       | 16.8       | 16.9  |  |  |  |  |  |  |  |  |  |
| 35         | 12 33 50.1 | +20 12 28 | 7     | 0.10       | 55       | 18.2  | 18.2  | 85  | 12 39 46.4 | +18 54 37 | 8          | 0.19       | 143      | 15.4  | 15.5  | 58  | 12 38 19.7 | +18 48 06 | 7     | 0.10       | 141      | 16.8       | 16.9  |  |  |  |  |  |  |  |  |  |
| 36         | 12 33 50.8 | +20 00 56 | 6     | 0.10       | 30       | 18.3  | 18.3  | 86  | 12 38 25.1 | +18 54 12 | 8          | 0.10       | 48       | 15.4  | 15.5  | 59  | 12 37 18.8 | +19 07 55 | 7     | 0.20       | 20       | 16.8       | 16.8  |  |  |  |  |  |  |  |  |  |
| 37         | 12 33 15.9 | +20 00 19 | 6     | 0.33       | 57       | 18.3  | 18.2  | 87  | 12 38 20.7 | +18 54 04 | 8          | 0.10       | 48       | 15.4  | 15.5  | 60  | 12 38 43.4 | +18 59 27 | 8     | 0.53       | 158      | 16.8       | 16.8  |  |  |  |  |  |  |  |  |  |
| 38         | 12 34 31.8 | +19 54 30 | 7     | 0.24       | 80       | 18.3  | 18.2  | 88  | 12 39 09.7 | +18 26 25 | 8          | 0.18       | 13       | 15.5  | 15.6  | 61  | 12 39 36.6 | +18 56 37 | 8     | 0.31       | 95       | 16.9       | 17.0  |  |  |  |  |  |  |  |  |  |
| 39         | 12 33 19.2 | +20 13 30 | 8     | 0.82       | 98       | 18.3  | 18.7  | 89  | 12 39 44.9 | +18 36 55 | 11         | 0.22       | 144      | 15.5  | 15.7  | 62  | 12 39 24.1 | +18 55 04 | 7     | 0.34       | 76       | 16.9       | 17.0  |  |  |  |  |  |  |  |  |  |
| 40         | 12 33 32.0 | +20 09 17 | 5     | 0.10       | 127      | 18.3  | 18.2  | 90  | 12 38 25.1 | +18 51 13 | 9          | 0.55       | 155      | 15.6  | 15.7  | 63  | 12 39 45.8 | +18 55 34 | 6     | 0.34       | 34       | 16.9       | 16.9  |  |  |  |  |  |  |  |  |  |
| 41         | 12 33 49.2 | +20 04 52 | 6     | 0.22       | 146      | 18.4  | 18.3  | 91  | 12 38 28.1 | +18 49 10 | 7          | 0.10       | 166      | 15.6  | 15.6  | 64  | 12 39 35.5 | +18 56 28 | 7     | 0.66       | 72       | 16.9       | 16.9  |  |  |  |  |  |  |  |  |  |
| 42         | 12 33 13.5 | +20 15 01 | 6     | 0.11       | 179      | 18.4  | 18.3  | 92  | 12 38 32.7 | +18 39 58 | 8          | 0.38       | 171      | 15.6  | 15.6  | 65  | 12 39 05.7 | +18 59 08 | 7     | 0.54       | 149      | 16.9       | 16.9  |  |  |  |  |  |  |  |  |  |
| 43         | 12 33 38.8 | +20 14 07 | 5     | 0.14       | 142      | 18.4  | 18.0  | 93  | 12 38 52.8 | +18 53 15 | 5          | 0.10       | 47       | 15.7  | 15.5  | 66  | 12 38 30.6 | +19 04 05 | 6     | 0.12       | 67       | 16.9       | 16.9  |  |  |  |  |  |  |  |  |  |
| 44         | 12 34 24.8 | +20 05 09 | 7     | 0.34       |          |       |       |     |            |           |            |            |          |       |       |     |            |           |       |            |          |            |       |  |  |  |  |  |  |  |  |  |

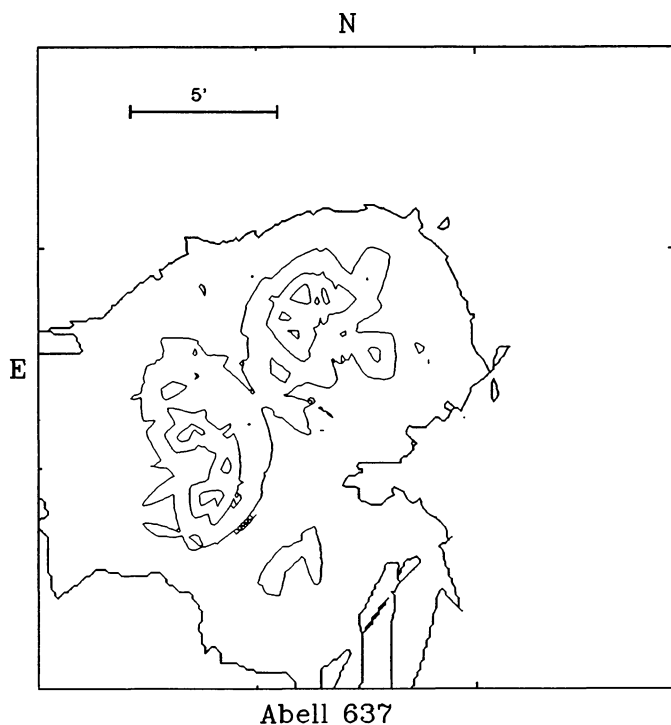
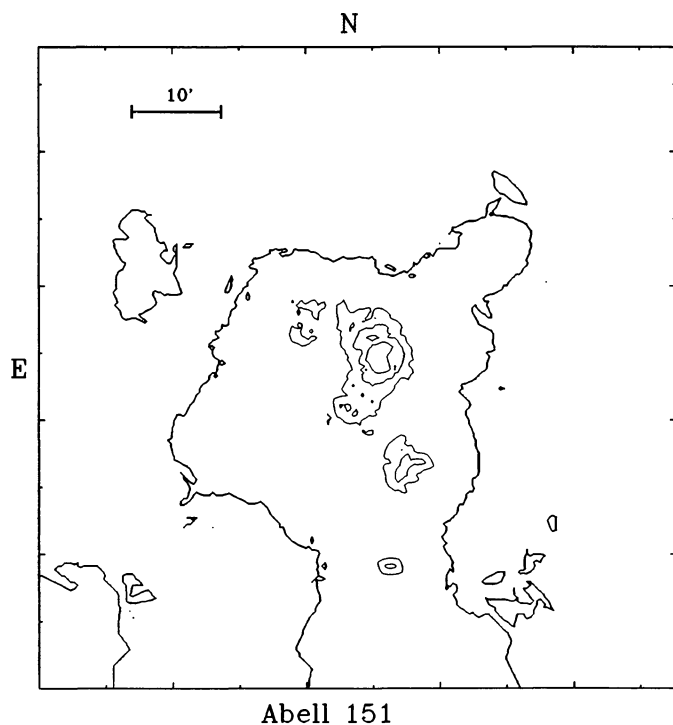
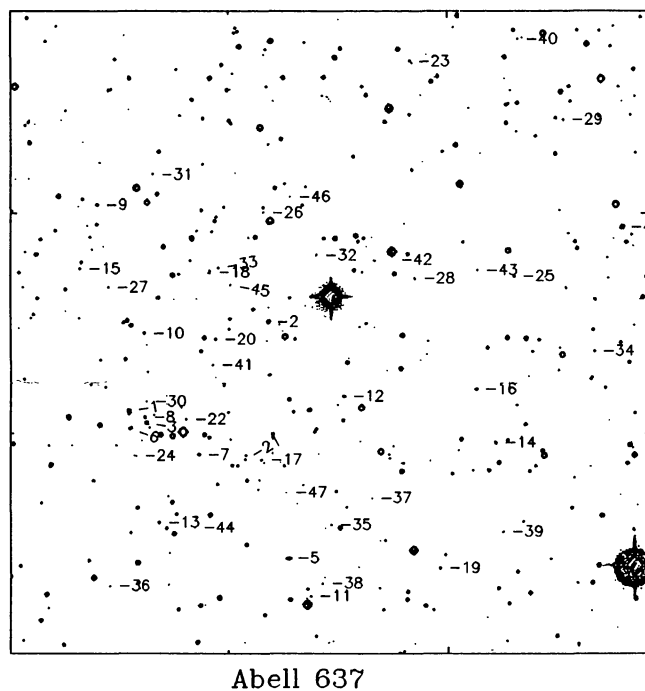
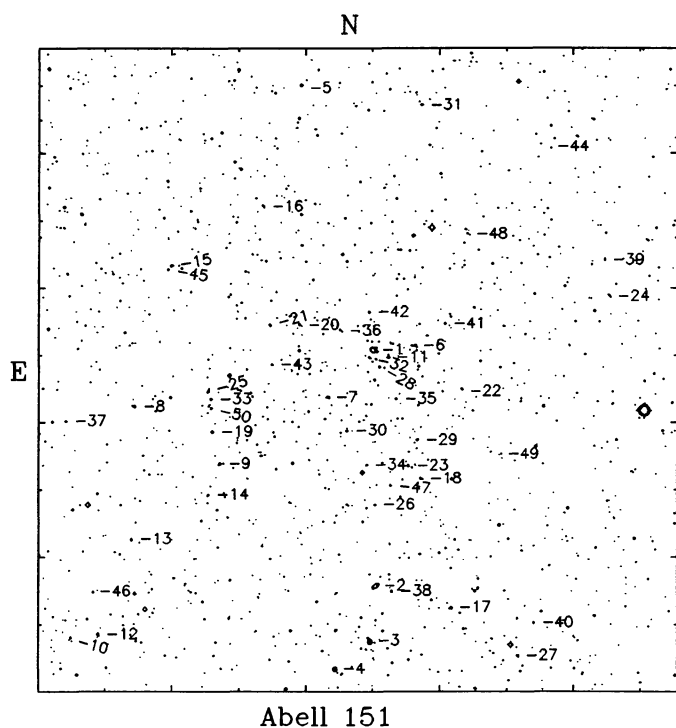


Fig. 2.

Fig. 3.

**Fig. 2 to 10.** For each cluster field: a) identification maps with labels indicating the 50 brightest galaxies; b) isodensity maps, with the thick line indicating the average density of the field. The orientation is N at top, E at left. Big ticks are spaced by 15 arcmin. For each cluster the scale is the same in Figs. a) and b)

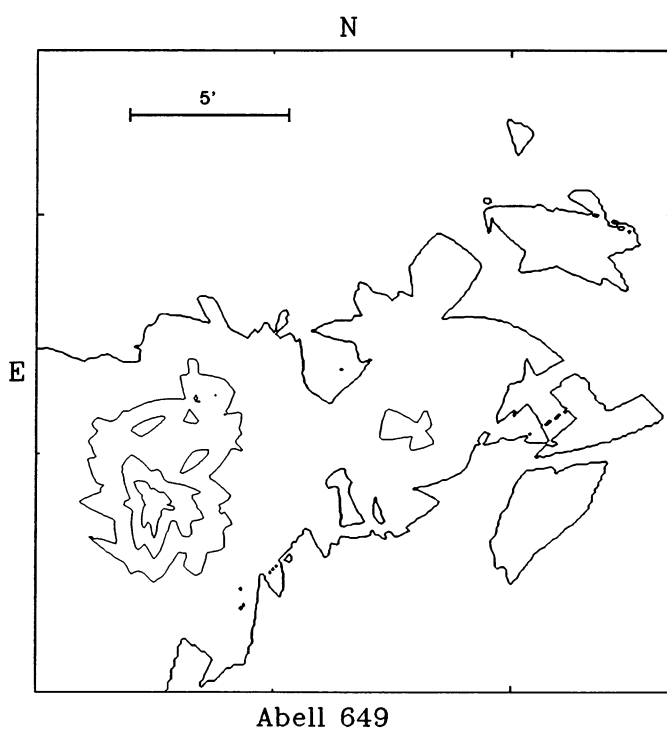
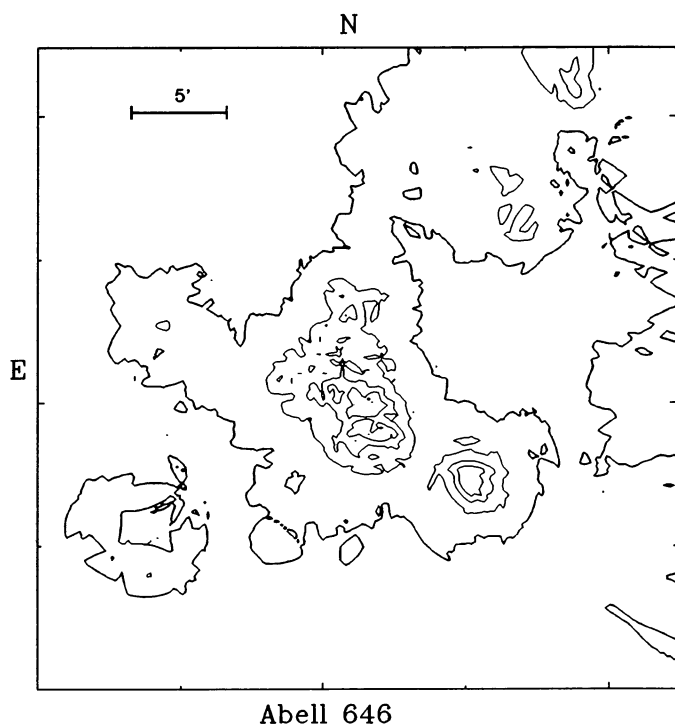
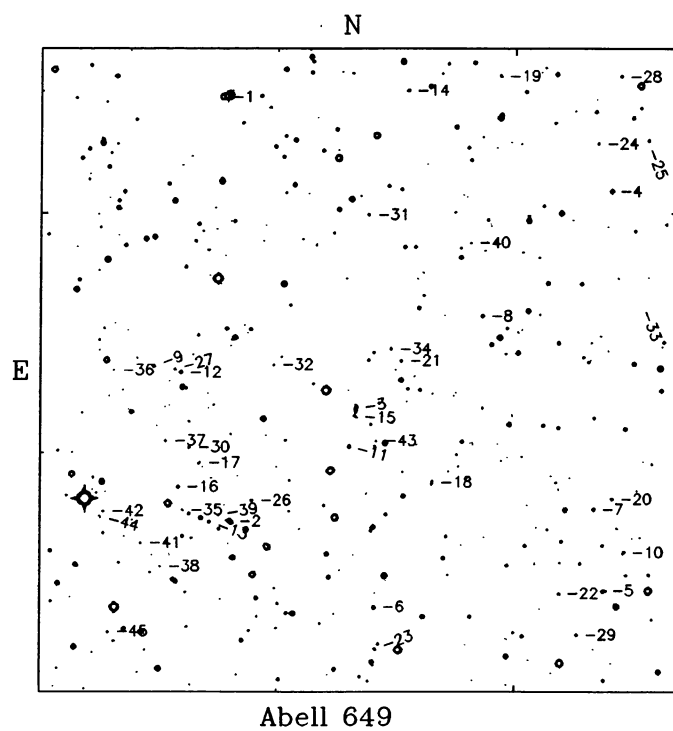
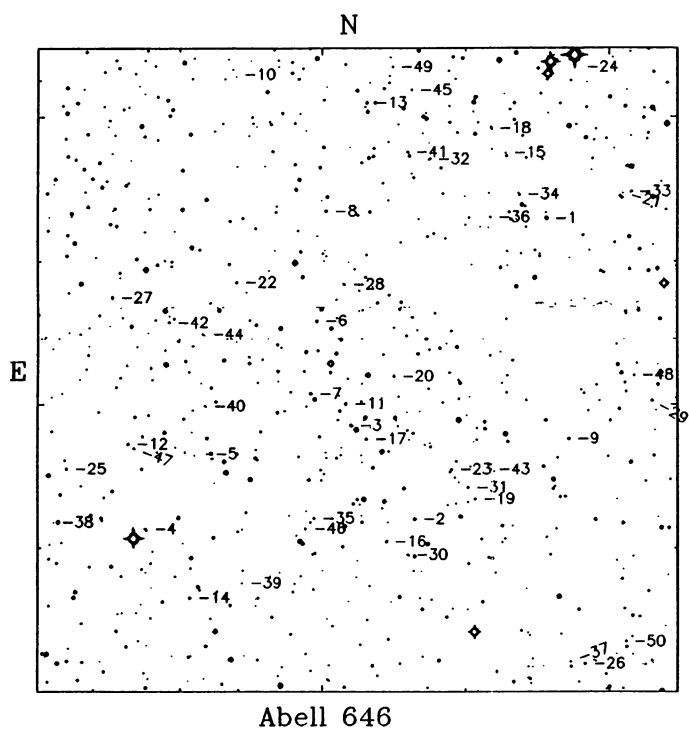
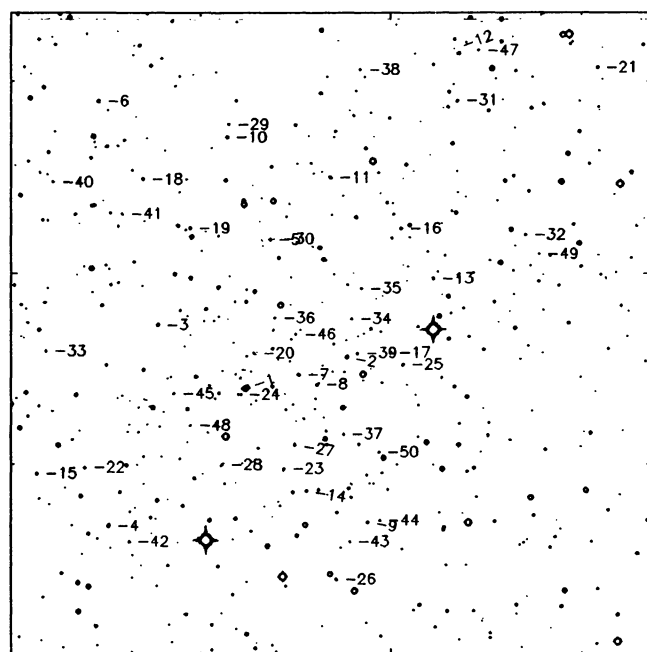
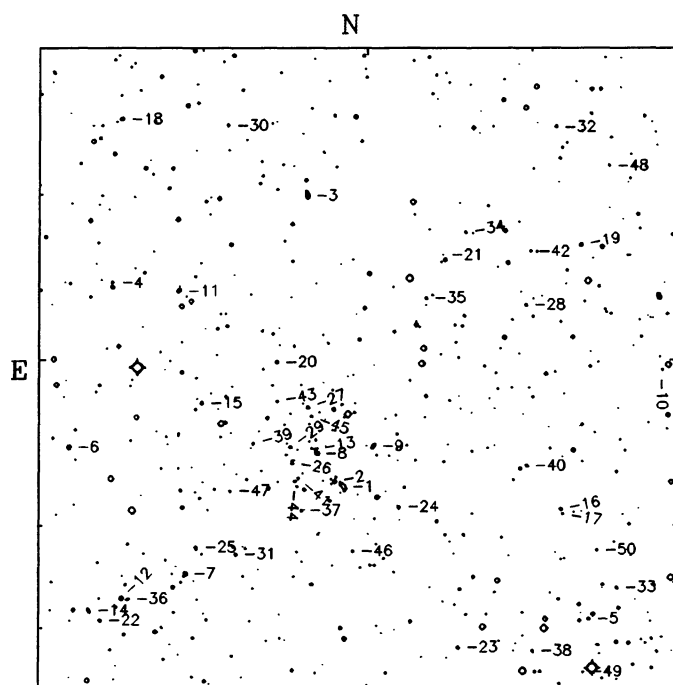


**Fig. 4.**

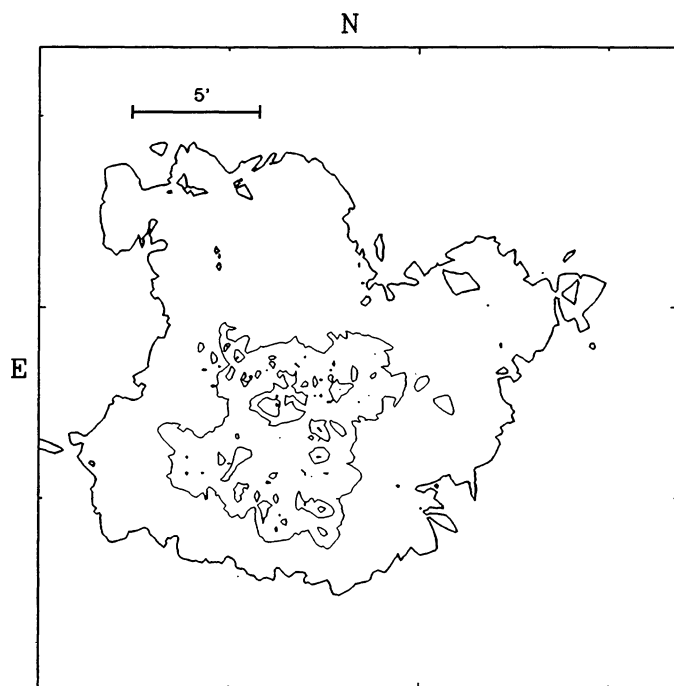
**Fig. 5.**



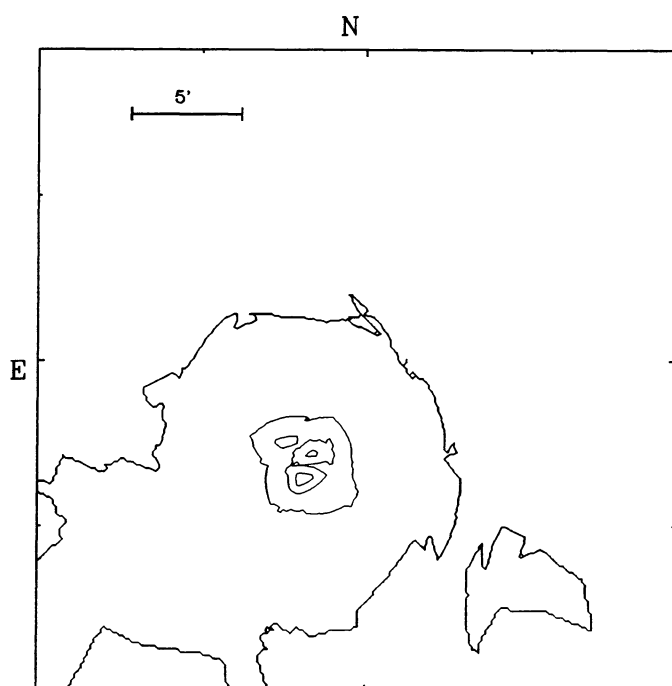
Abell 655



Abell 1132



Abell 655



Abell 1132

Fig. 6.

Fig. 7.

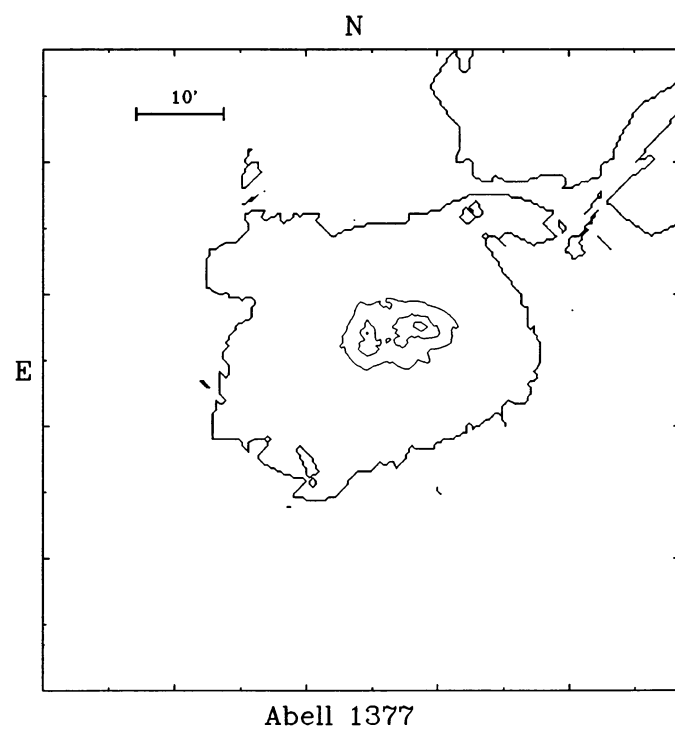
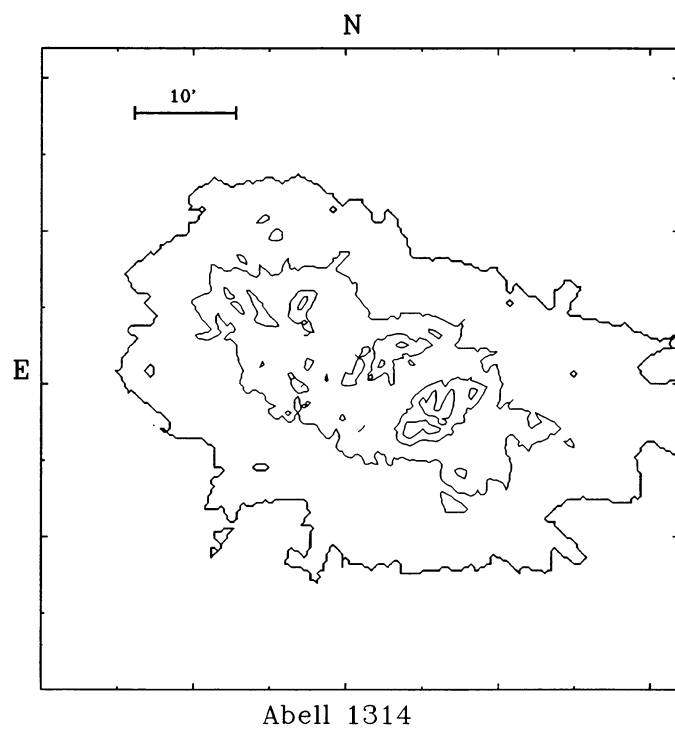
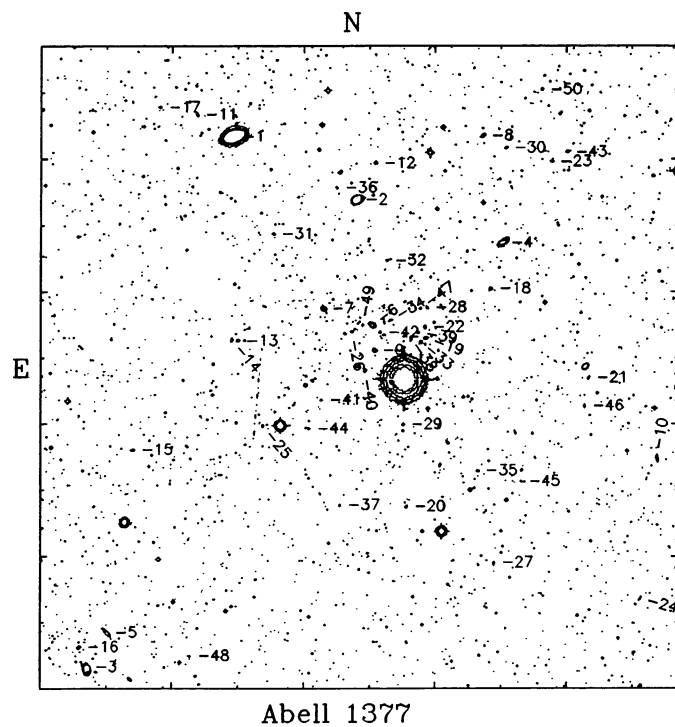
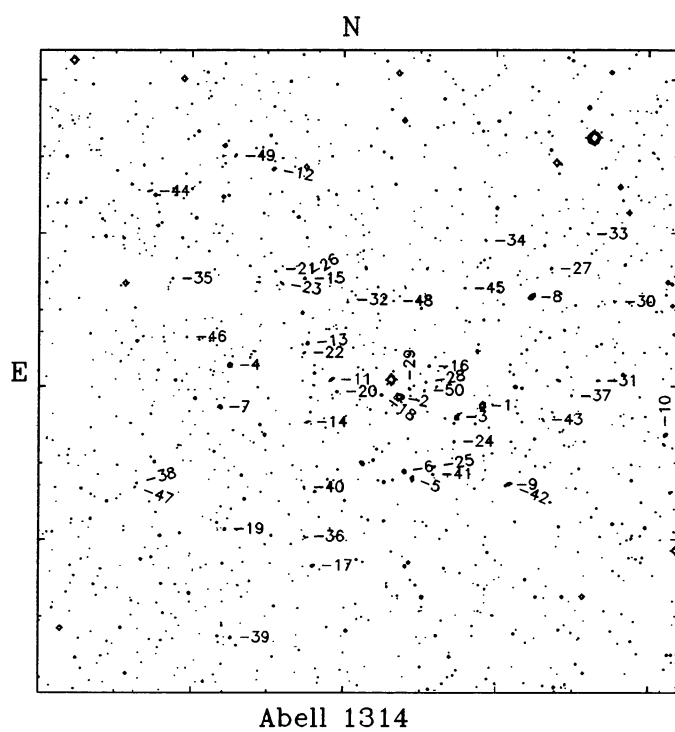


Fig. 8.

**Fig. 9.**

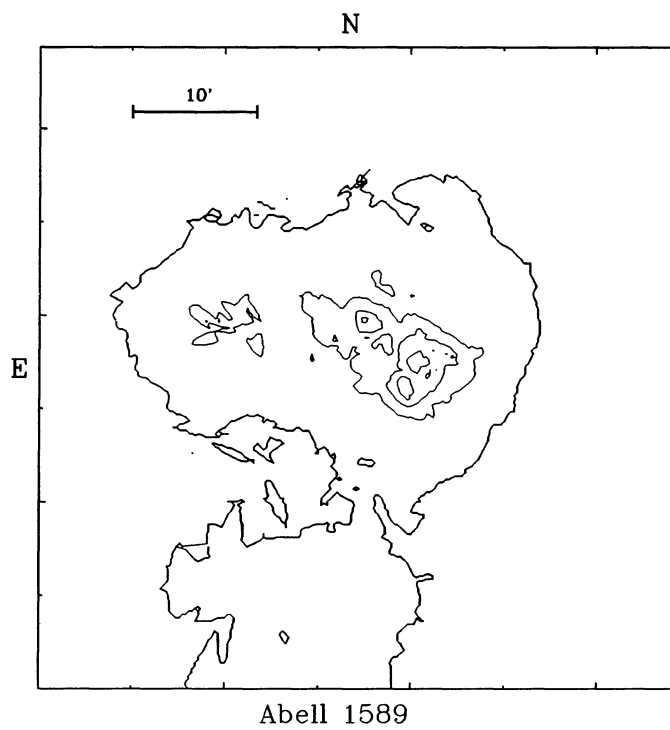
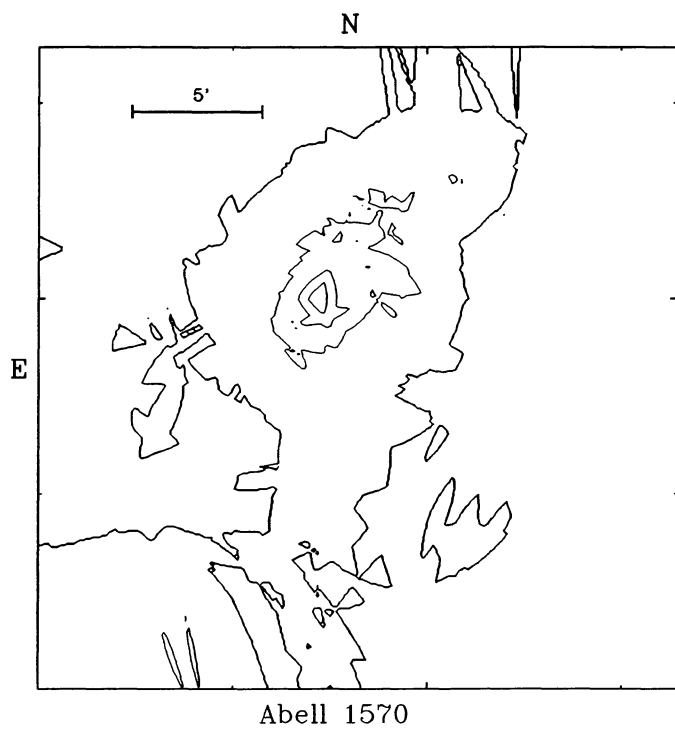
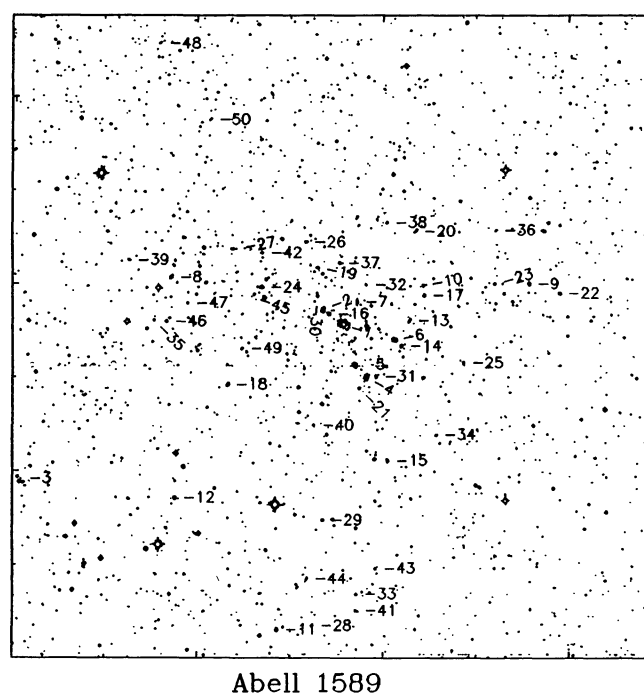
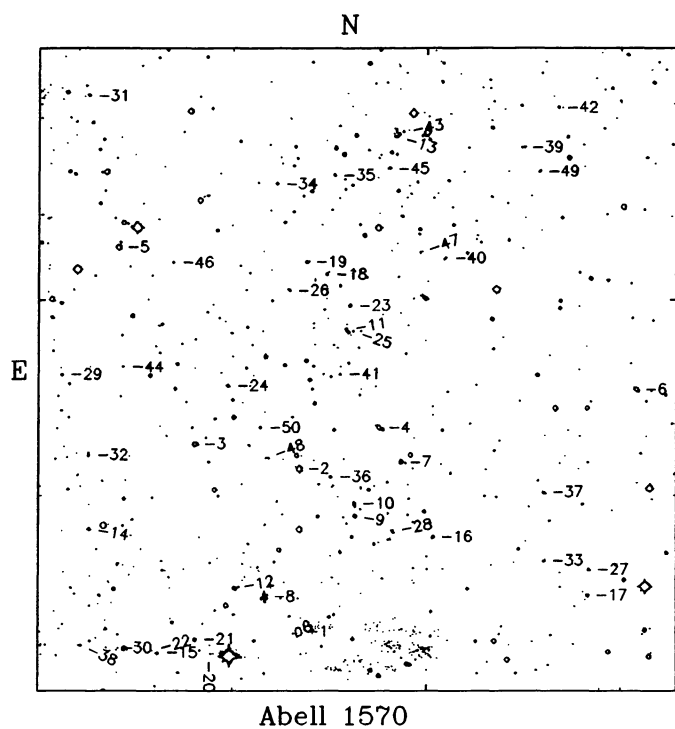


Fig. 10.

Fig. 11.