

OBSERVATIONS OF OB STELLAR ASSOCIATIONS WITH THE SPACE TELESCOPE GLAZAR

H.M. TOVMASSIAN¹, R.Kh. HOVHANNESSIAN², R.A. EPREMIAN² and D. HUGUENIN³

¹ *Byurakan Astrophysical Observatory, Armenia, and INAOE, Mexico*

² *Byurakan Astrophysical Observatory, Armenia*

³ *Geneva Observatory, Switzerland*

Observations in the directions of about a dozen OB stellar associations have been carried out with the UV space telescope *Glazar*, which has been functioning at the *Mir* Space Station since 1987.

The field of view of the telescope is 1°.3. Observations were made at 1640 Å with a passband of about 250 Å. As detector, a Micro Channel Intensifier and a film sensitive to visible light was used. Observations were made without using star trackers, relying only on the stabilization accuracy of the whole Space Station *Mir*, which was maintained with about 1 arcmin in a given direction at the inertial orientation of the Station. The limiting stellar magnitude of observations at these conditions was about 11^m at 1640 Å in the initial period of observations and declined by about 2^m.5 in about two years.

Observations made with the *Glazar* allowed the detection in the observed fields of ~15% new, unknown OB stars, the discovery of hot components of some late type stars, and the detailed study of the distribution of OB stars along line of sight, which resulted in the detection of new OB stellar associations. The reason for the latter is that the larger effect of absorption by interstellar dust on the emission of observed stars at 1640 Å resulted in larger dispersions in determined distances of stars and thus allowed the existence of different groupings of stars to be better revealed.

As a result of observations made with the *Glazar*, a new type of stellar associations, consisting of stars of spectral types later than B3, have been detected.

The results of observations in the directions of stellar associations in the Ori, Per, Sco, Cass, Gem, Mon and Pup have already been published. In this report we present the results of observations in Vela, Car and Aur.

Vela. Three groups of stars at distances 460 pc, (a B association) (Tovmassian 1991), 1100 pc and 1700 pc (OB associations) were detected. To avoid the existing confusion in naming of stellar associations in this region by other investigators we suggest their designation by distances expressed in kpc, i.e. Vela B 0.5, Vela OB 1.1 and Vela OB 1.7.

A new O type star cluster with at least 11 - 12 OB stars with a diameter of ~1° centred at (l,b) = (246°6, -1°8) has been discovered (Tovmassian 1991).

The dust in the association at 1100 pc is concentrated in separate, large clouds. The space between associations is free of dust.

Carina. Six associations at distances 600, 1100, 2000, 3000, 4000 and 5600 pc were discovered. The one at 600 pc and another probable one at 300 pc are B associations. The associations detected are designated as Car B 0.3 (?), Car B 0.6, Car OB 1.1, Car OB 2.0, Car OB 3.0, Car OB 4.0 and Car OB 5.6. The Carina nebula together with four clusters, Tr 14, Tr 16, Cr 228 and Cr 232 is in the content of the stellar association Car OB 2.0 at a distance of 2200 pc. Only two stellar associations, Car OB 1 and Car OB 2 with estimated distances 2500-3000 pc and 2000-3200 pc respectively were previously known in this region.

The distribution of the dust in all associations is patchy and there is no absorbing matter in the space between them.

Auriga. Four stellar associations were detected here. Two definite ones are at distances 1100 pc and 2000 pc. The distance of the first one coincides well with the known distance of the stellar association Aur OB 1. Two other suspected associations with only three stars in each of them are at distances 600 pc and 3000 pc. The latter value coincides with the known distance of the association Aur OB 2.

Thus, instead of two known stellar associations here the observations with the *Glazar* revealed the existence of two more groups, one of which is placed between known OB stellar associations, and the other one is a nearby B association.

Acknowledgements

HMT acknowledges Conacyt (Mexico) for partial support of this work.

References

- Tovmassian, H.M., Khodjayants, Yu.M., Krmoyan, M.N., Kashin, A.L., Zakharian, A.Z., Hovhannessian, R.Kh., Mkrtchian, M.A., Tovmassian, G.H., Huguenin, D., Bootov, V.V., Romanenko, Yu.V., Laveikin, A.I. and Alexandrov, A.P., 1988. *Pis'ma v AZh*, 14, 291.
- Tovmassian, H.M., 1991. *Astrofisika*, 35, 679.