

## THREE-DIMENSIONAL PICTURE OF THE GALACTIC DISK AS DEFINED BY THE YOUNG STELLAR COMPONENT

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### 1. SUMMARY

Recently, Alfaro *et al.* (1991) [ApJ, 378, 106] have noted and stressed the clear spatial connection between the vertical structure of the galactic disk, defined by the young open cluster distribution (YOC), and the large scale star-forming activity in the Milky Way. In this context the estimate and study of the vertical pattern displayed by the Wolf-Rayet (WR) star population, as representative of the formation places of massive stars, could provide new insights on the connection between the morphological properties and the stellar-formation processes in our Galaxy.

With this aim in mind we have estimated a set of Z values for a grid of points on the X-Y plane from a sample of WR stars with measured Z, X, and Y coordinates (Vacca & Conti 1990 [AJ, 100, 431]) by using Automatic Cartography techniques (Kriging) (Cabrera-Caño *et al.* 1990 [in *Bias, Errors and Uncertainties in Astronomy*, Cambridge University Press, p. 101], Alfaro *et al.* 1991). The obtaining of this grid of points has allowed us to construct contour-maps and/or three-dimensional pictures of the galactic disk, as defined by this component, in the neighborhood of the Sun.

A comparative analysis between the two vertical patterns displayed by the YOC and WR distributions, has lead us to the following conclusions:

- 1.- At distances from the Sun lower than  $\approx 1.5$  kpc, both stellar populations show a very similar vertical behaviour.
- 2.- The WR distribution appears to be shifted down,  $\approx 20$  pc in average, with respect to the YOC Z-structure.
- 3.- The existence of a large and deep depression (*Big Dent*) in the galactic third quadrant (Alfaro *et al.* 1991), is corroborated by the distribution of the WR stars.
- 4.- At distance from the Sun larger than 1.5 kpc, both population show clear differences in their vertical patterns. Whether these discrepancies are mainly due to large errors in the distances of the remote WR stars or to actual differences in the Z-structure for both populations remains as an open question.