

Evolution of a stellar cluster during the winds phase of massive stars

Mercedes Mollá¹ and Roberto Terlevich²

¹ CIEMAT, Avda. Complutense 22, 28040 Madrid

² INAOE, Luis Enrique Erro 1, Tonanzintla, Puebla 72840, (Mexico)

Abstract

We study the evolution of the elemental abundances of He, C, N y O of a stellar cluster during the first 20 Myr by taking into account the contribution of the WRs stars. In order to do that, we calculate the ejected mass and the proportion of the different chemical elements in the stellar cluster with solar initial abundance $Z = Z_{\odot}$ and an initial mass function (IMF) from Salpeter (1955, ApJ, 121, 161). This ejected mass is computed from the mass lost by the massive stars ($M > 30 M_{\odot}$) during their winds phase, mainly for WR stars. To this, we add the ejections of elements due to massive stars dying as SN type II. Finally we may compare the effects of both contributions on the final abundances and analyze the impact of the WR over the evolution of the cluster.

Acknowledgments

This work has been partially supported by DGICYT grant AYA2007-67965-C03-03. and partially funded by the Spanish MEC under the Consolider-Ingenio 2010 Program grant CSD2006-00070: First Science with the GTC (<http://www.iac.es/consolider-ingenio-gtc/>). Also, partial support from the Comunidad de Madrid under grant S-0505/ESP/000237 (ASTROCAM) and CAM S2009/ESP-1496 (AstroMadrid). is acknowledged.