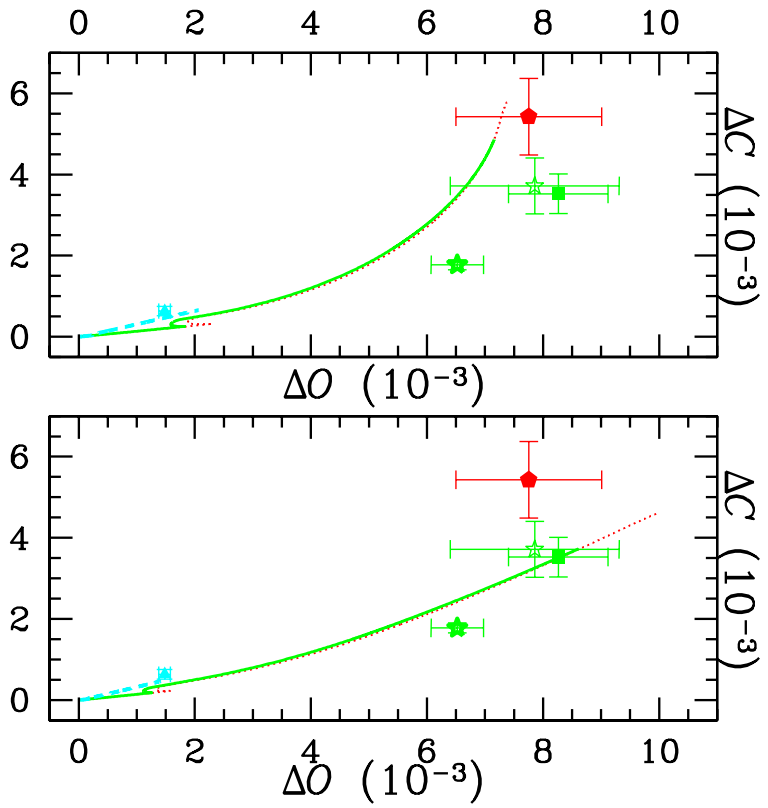

Fig. 5. ΔC vs ΔO diagram. The dotted red line represents the chemical evolution track from 0 ($\Delta C = \Delta O = 0$) to 13 Gyr (present time) for $r = 7$ kpc, the other lines as in Figure 4. A description of the symbols follows. Filled pentagon: Average values of the M17 and M20 H II regions at $r = 6.75$ and 7.19 kpc, respectively. Empty star: Average values of young F-G dwarf stars of the solar vicinity, $r \sim 8$ kpc, from Bensby & Feltzing (2006) (see text). Filled square: Average values of NGC 3576 and Orion H II regions at $r = 7.46$ and 8.40 kpc. Filled star: Average value of B stars by Przybilla et al. (2008). Filled triangle: NGC 2363 H II region in a very metal-poor irregular galaxy (see text). The color figure can be viewed online.

of NGC 3576 and Orion H II regions at $r = 7.46$ and 8.40 kpc, and the correction for the fractions of C and O embedded in dust grains; (b) the young F and G dwarf stars studied by Bensby & Feltzing (2006); (c) the average C and O values of B stars by Przybilla et al. (2008).

In Figure 5 we compare our models with the average ΔC and ΔO values of NGC 3576 and Orion, and find a reasonable agreement. To convert the Xi/H values by number to Xi by mass we adopted the X(Orion) value shown by Carigi et al. (2006).

Bensby & Feltzing (2006) studied 51 F and G dwarf stars of the solar vicinity, 35 belonging to the thin disk and 16 to the thick disk. To compare the abundances predicted by our models with those of the youngest stars presumably recently formed, it is necessary to select the youngest subset of the thin disk stars. The metal richest stars are expected to be the youngest ones. We made three subsets of the metal richest stars of the thin disk containing 4, 8, and 16 objects respectively, and obtained 12+log(O/H) average values of 8.87, 8.84, and 8.83 respectively, and 12+log(C/H) average values of 8.63, 8.64, and 8.59 respectively. In Figure 5 we present the subset of 8 stars as representative of the present day ISM, where we have adopted the X(Orion) by mass (Carigi et al. 2006) for converting Xi/H to Xi by mass. The agreement is very good. As we saw above, the other two subsets of F and G stars produce similar C/H and O/H values, also in good agreement with our models.

To convert the C and O abundances by number to abundances by mass of the B stars by Przybilla et al. (2008) we have taken the Orion X value shown in Carigi et al. (2006). From Figure 5 it can be seen that the ΔC value derived for the B stars is many sigma smaller than that predicted by the HWY and the LWY models. Moreover, it is also considerably