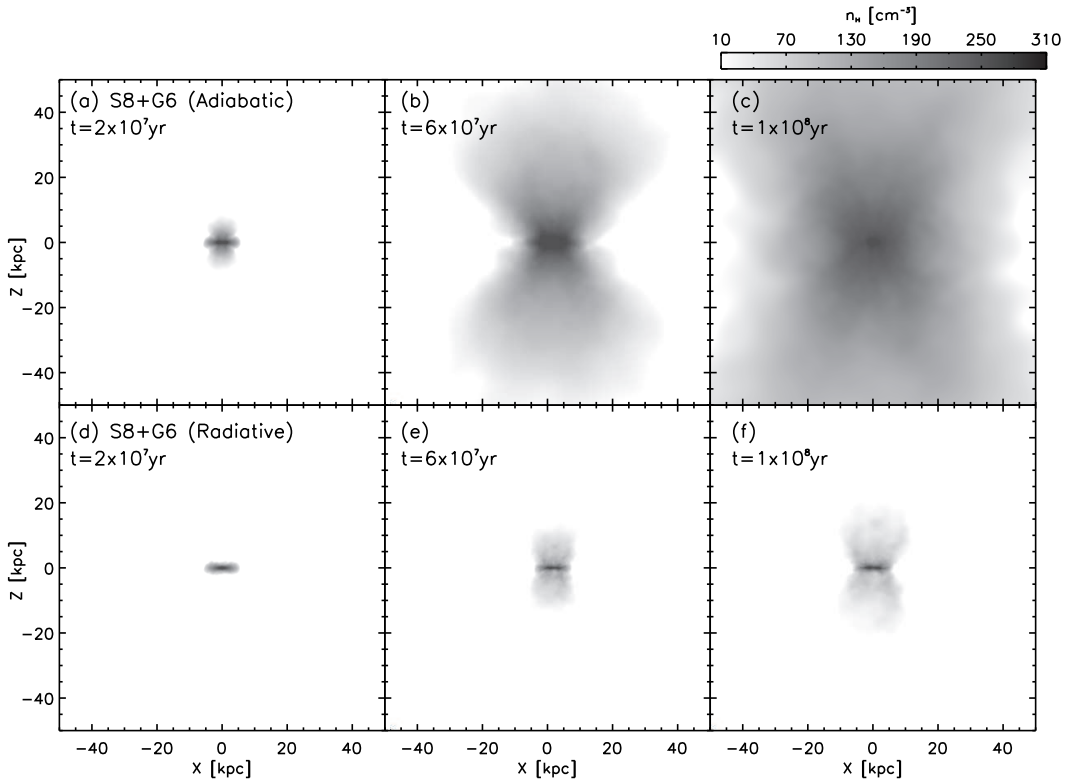

Fig. 1. Time sequence of cuts of number density in the xz-midplane ($y = 0$) for the model S8+G6 (see Tables 1 and 2). The integration times in years are given in the upper left corner of the frames. The top panels (a, b and c) are the adiabatic models, and the bottom panels are the radiative ones.

5.1. *Mass and metal ejection efficiencies*

Total mass and metal ejection efficiencies have been calculated using the definitions given in § 3. In particular, the kinetic and gravitational potential energies as a function of the radial distance r_i (with respect to the center of the potential) were computed for each gas particle. A particle i would escape the galactic gravitational potential if $v_i \geq v_{\rm esc} = \sqrt{-2\Phi_i}$, where v_i is the velocity and Φ_i the total potential at the position of the particle.

We also traced the high metallicity gas particles (injected by the SBs) and the low metallicity gas (galactic ISM gas). The high metallicity gas was tagged with a negative passive scalar, the ISM with a positive one. Therefore, ξ_z was calculated using the gas particles with a negative passive scalar, while ξ_m was calculated with all the gas particles (regardless of the sign of the passive scalar).

Figure 1 shows the temporal evolution of the ejected gas from a central starburst with properties that correspond to starburst model S8 at the center of galaxy model G6 (see Tables 1 and 2). The three timesteps shown are 2×10^7, 6×10^7 and 10^8 yr, for the adiabatic case –panels (a), (b) and (c), respectively–, and the radiative one –(d), (e) and (f), respectively. We can see the ejection of gas from the plane of the dwarf galaxy with a moderate ISM mass (3×10^8 $M_\odot$), produced by a central starburst that ejects a mass of 1.5×10^6 $M_\odot$. Such a SB corresponds to a region with ∼9000 massive stars, injecting a total energy during its lifetime of around 5×10^{55} erg (see the starburst models of Leitherer & Heckman 1995 and Leitherer et al. 1999). From the figure we see right away that the amount of gravitationally unbound gas is larger in the adiabatic than in the radiative case. However, in both cases an important part of the disk gas is pushed above the galactic plane, and in the radiative case a significant part of this gas is returned to the galactic disk.

For this model (S8+G6) the totality of the galaxy gas is pushed above $3H$; however, only 43% of the gas acquires enough energy to leave the galactic potential and become part of the IGM, while the remaining 57% would eventually return to the disk of the galaxy, since this ISM material is gravitationally bound. For the radiative case, the percentage of the