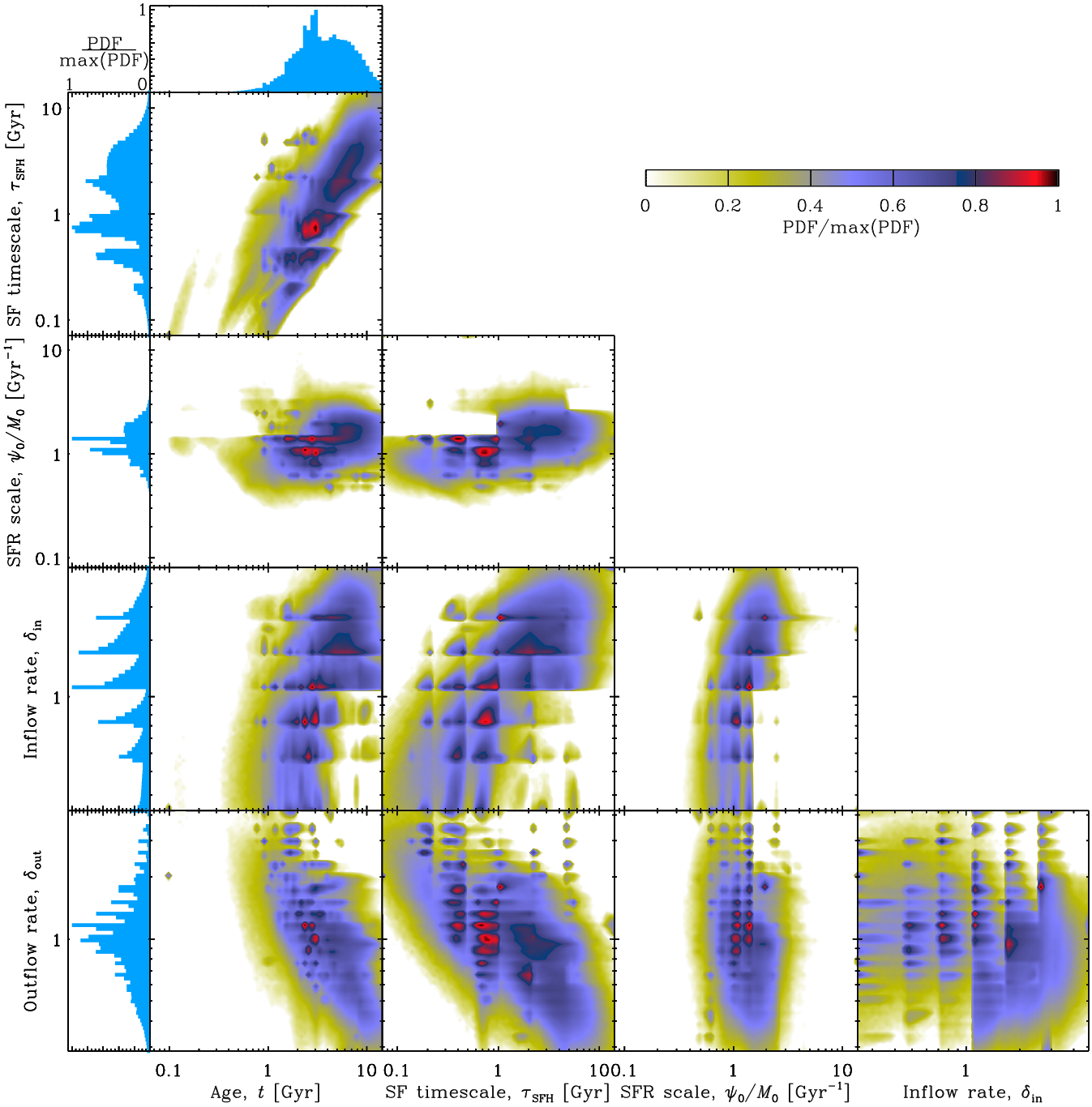

Fig. 17. Posterior distribution of the SFH-related parameters. The plotting conventions are identical to Fig. 16. The displayed PDF is the distribution of the individual parameters of every galaxy, marginalizing over the dust evolution tuning parameters.

explore the sensitivity of our results assuming a Chabrier (2003) IMF. To be consistent, we first need to correct our estimated $M_\star$ and SFR. According to Madau & Dickinson (2014, Sect. 3.1), we need to multiply SFR by 0.63 and $M_\star$ by 0.61. We have then generated another grid of models similar to Table 6 with the Chabrier (2003) IMF, and performed the fitting process of Sect. 5.2.3. The full results are given in Appendix G. The upshot is that the inferred tuning parameters are roughly consistent with our estimates in Sect. 5.3.1: $\langle Y_{SN} \rangle \simeq 2.5^{+0.2}_{-0.3} \times 10^{-2}\,M_\odot/\mathrm{SN}$; $\epsilon_{grow} \simeq 4485^{+11}_{-17}$; $m_{gas}^{dest} \simeq 1289^{+6}_{-7}\,M_\odot/\mathrm{SN}$. The differences can be explained by the different relative contribution from LIMSs. The only value that differs sensibly is $\langle Y_{SN} \rangle$. This difference is however simply due to the fact the low-metallicity dustiness is overshot by the model with the Chabrier (2003) IMF.

This agreement was expected. The reason is that, to first order, LIMSs represent a dead weight in both the SED and the chemical enrichment. The total power emitted by stellar populations is dominated by massive stars. This is the reason why SFR and $M_\star$ estimates are so dependent on the IMF assumption. From the dust evolution modeling, the elemental and stardust enrichment is also dominated by massive stars. The only quantity for which we infer a different value is logically ψ_0. It is ≃50% higher to generate the same number of massive stars, compensating for the 0.63 correction factor.