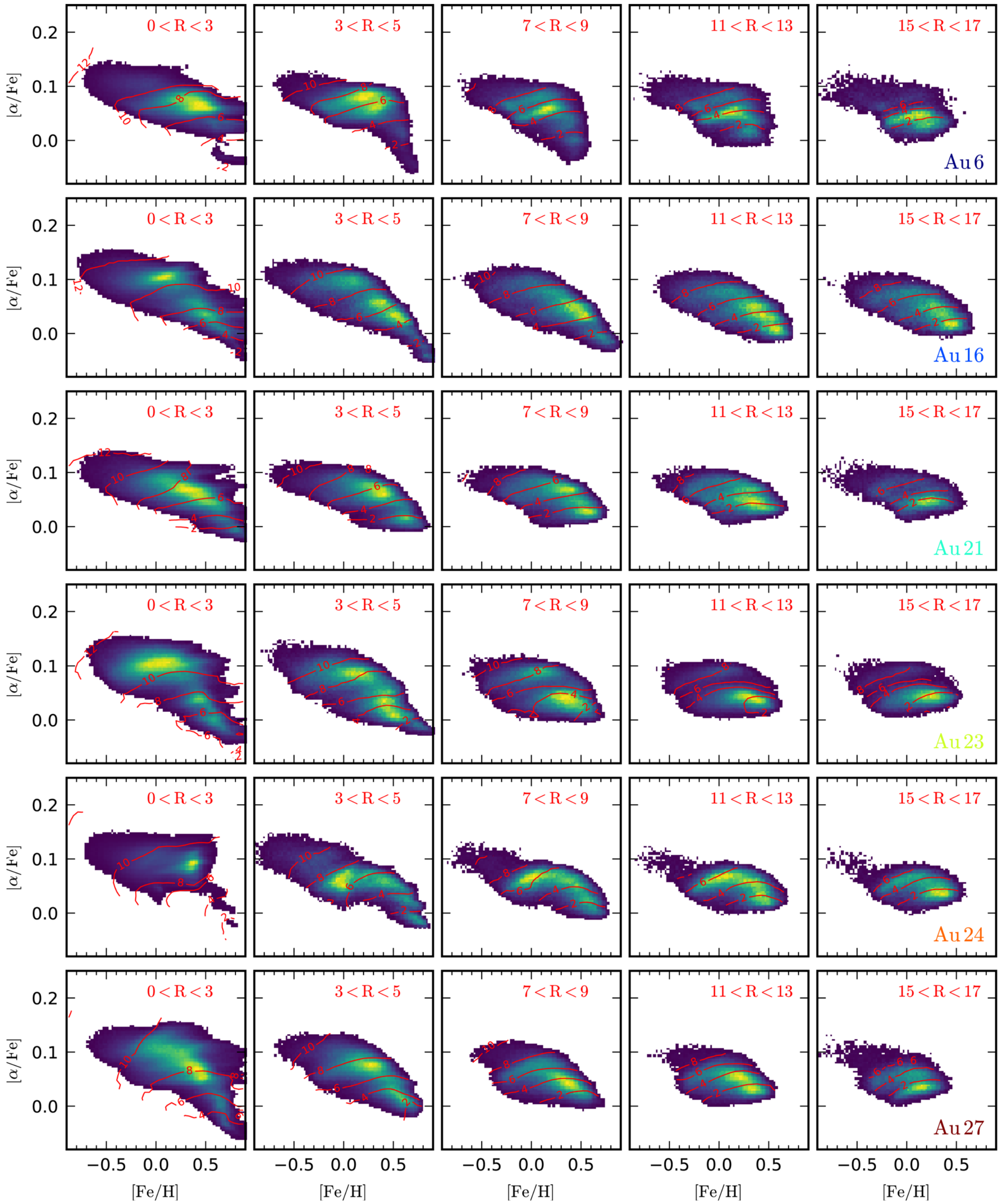

Figure 1. The normalized number density of all star particles in the [α/Fe]–[Fe/H] plane, at different galactocentric radii, R, in the disc plane, for all simulations. Contours mark the regions of mean stellar age (all pixels above a contour have a mean age greater than that indicated on the contour): evolution proceeds towards lower [α/Fe] and higher [Fe/H] values. Distinct high-[α/Fe] and low-[α/Fe] components are visible at some radii in some simulations, whereas in others the distribution is smooth. The histograms are linear in scale and normalized to one in each panel in order to elucidate the features at each radius.

maximum physical softening length of 185 pc is reached. The physical softening value for the gas cells is scaled by the gas cell radius (assuming a spherical cell shape given the volume), with a minimum softening set to that of the collisionless particles. We reiterate that in this study we analyse the 2-dimensional distribution of stars in chemical space in kiloparsec-scale spatial regions of the disc, which requires of the order of 10^7 star particles in the main galaxy in order to sufficiently resolve the features for which we are searching.

3 RESULTS

Following Bovy et al. (2016b), we define $\alpha = (\mathrm{O} + \mathrm{Mg} + \mathrm{Si})/3$.[1] In Fig. 1, we show the distribution of star particles in the [α/Fe]–[Fe/H] plane at different radii, overlaid with contours of mean age,

[1] We do not follow the evolution of Sulphur and Calcium, therefore we do not include these elements in the average α definition.