

EoS Figures: Ionization and Recombination – integrated over volume

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ABSTRACT

Figures

Key words: binaries: close – stars: evolution – stars: kinematics and dynamics – stars: mass loss – stars: winds, outflows – hydrodynamics

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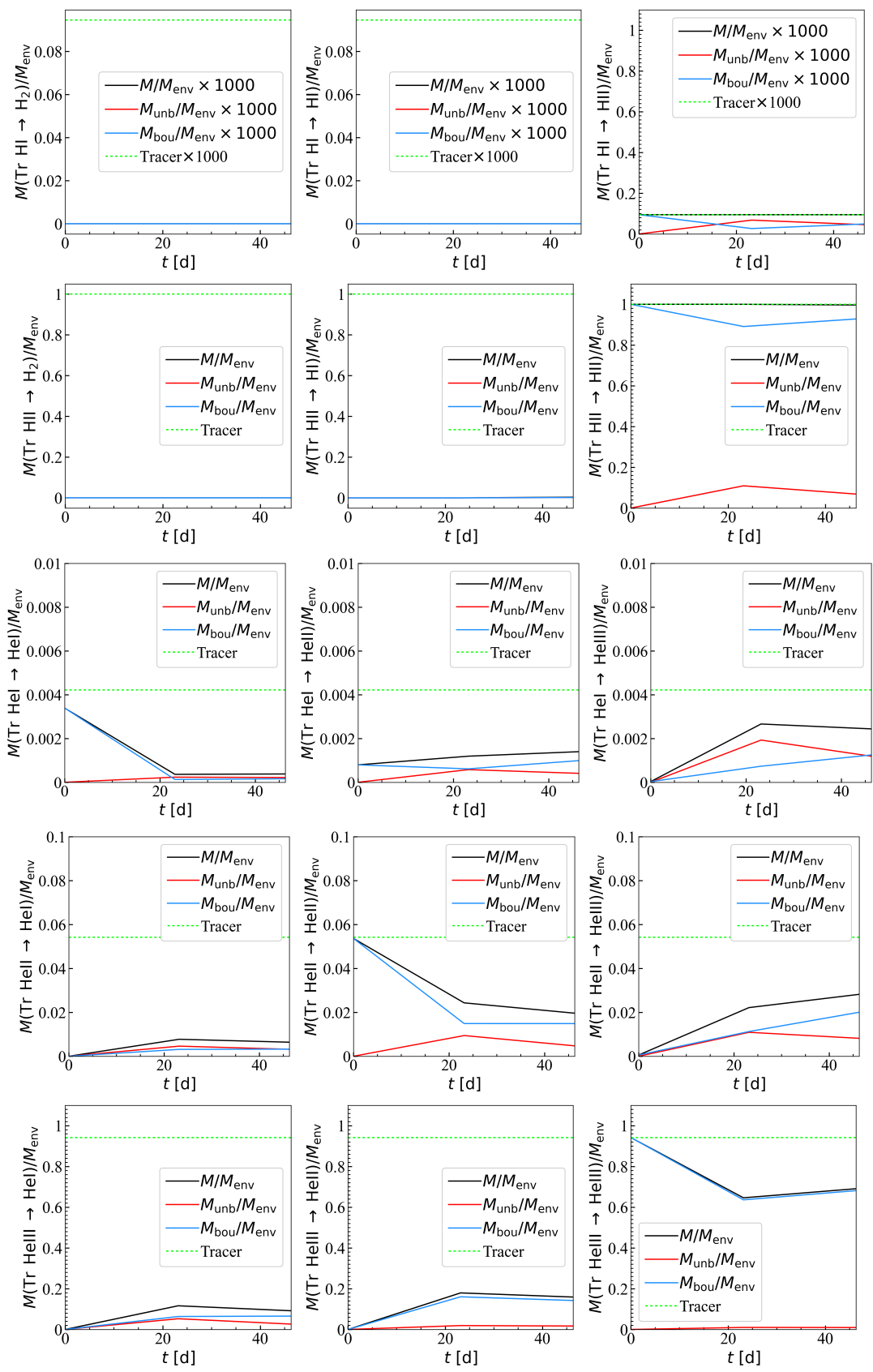


Figure 1. Mass evolution for the various ionic transitions. Note that HI Tracer is immediately ionized to HII at $t = 0$. Likewise, a fraction of the HeI tracer is ionized to HeII at $t = 0$.

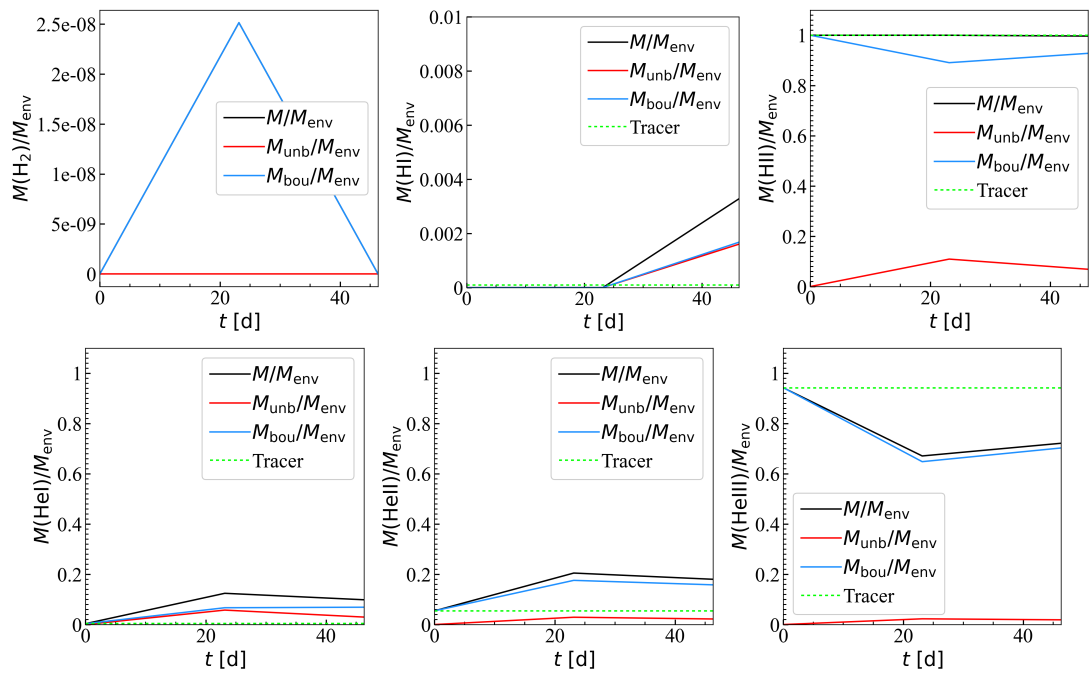


Figure 2. Mass evolution for each ionic species. Note that HI Tracer is immediately ionized to HII at $t = 0$. Likewise, a fraction of the HeI tracer is ionized to HeII at $t = 0$.

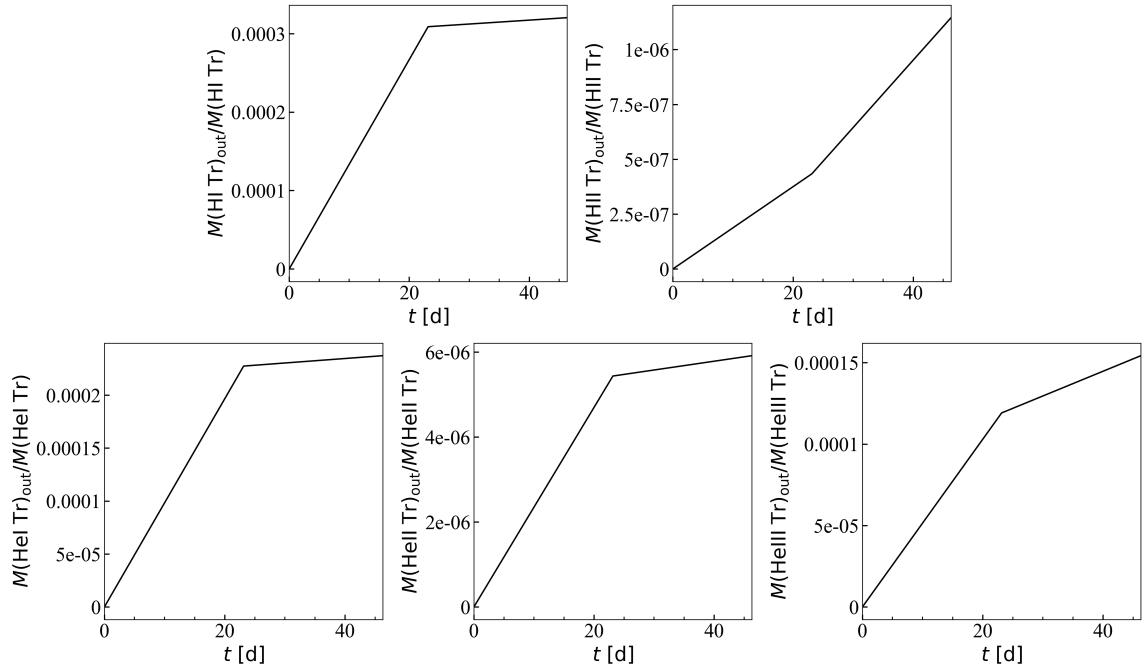


Figure 3. Fraction of tracer mass that has exited the simulation. As these fractions are small, the flux out of the domain can generally be neglected.

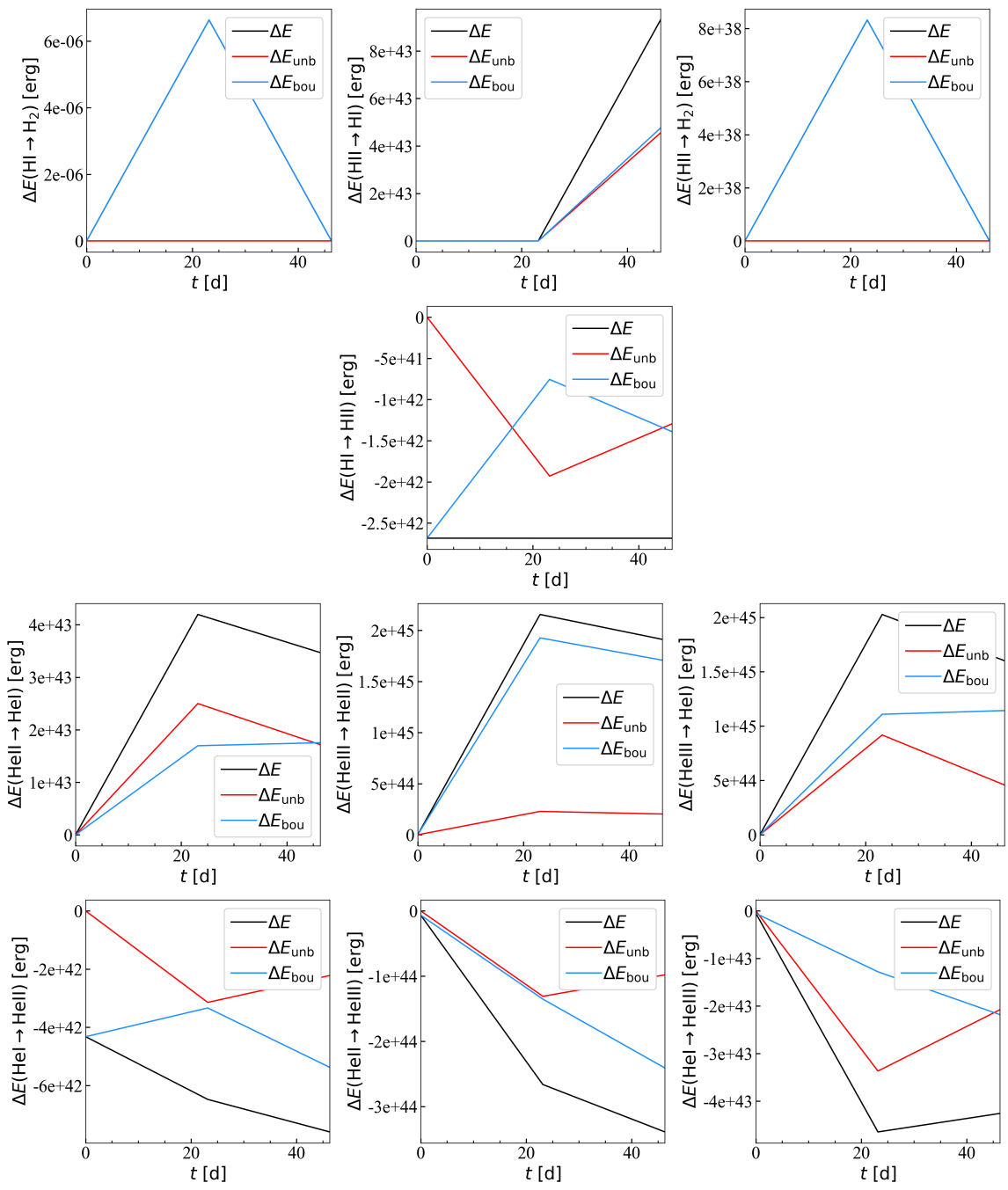


Figure 4. Energy released by each ionic transition. Recombination results in positive values whereas ionization results in negative values. The red (blue) curve shows the amount of energy that has been released by gas that is unbound (bound) at time t .

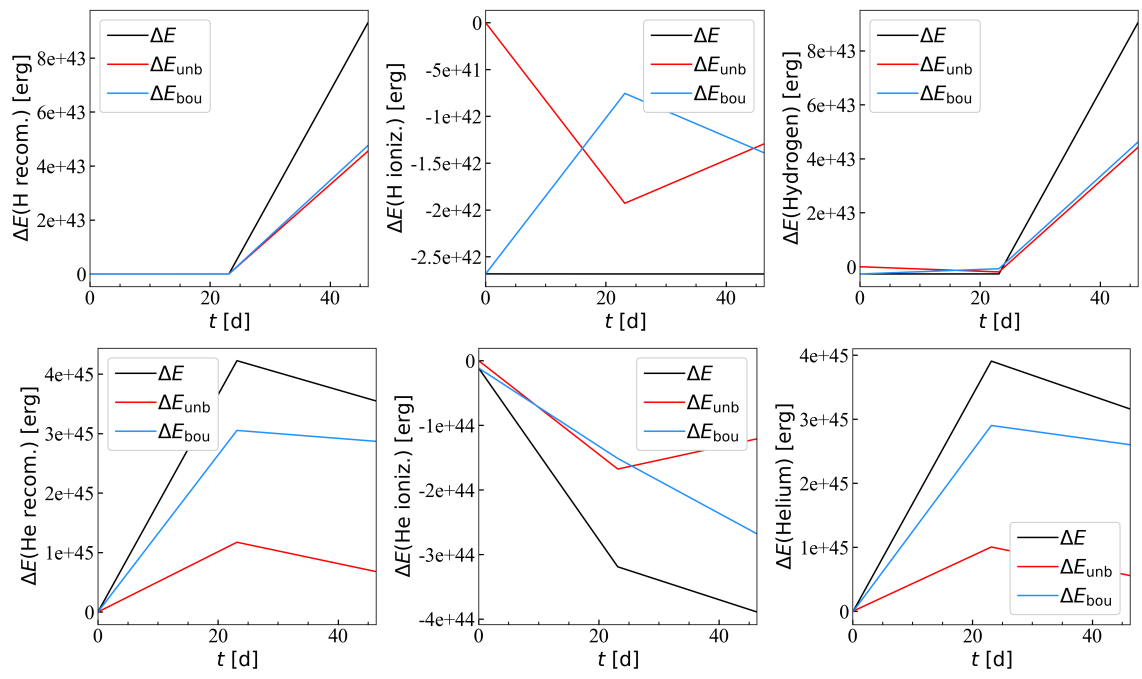


Figure 5. Release of energy from recombination (left column) and ionization (middle column) of H (top row) and He (bottom row). The net energy release is plotted in the right column. Note that the ambient gas is excluded (as it should be). The red (blue) curve shows the amount of energy that has been released by gas that is unbound (bound) at time t .

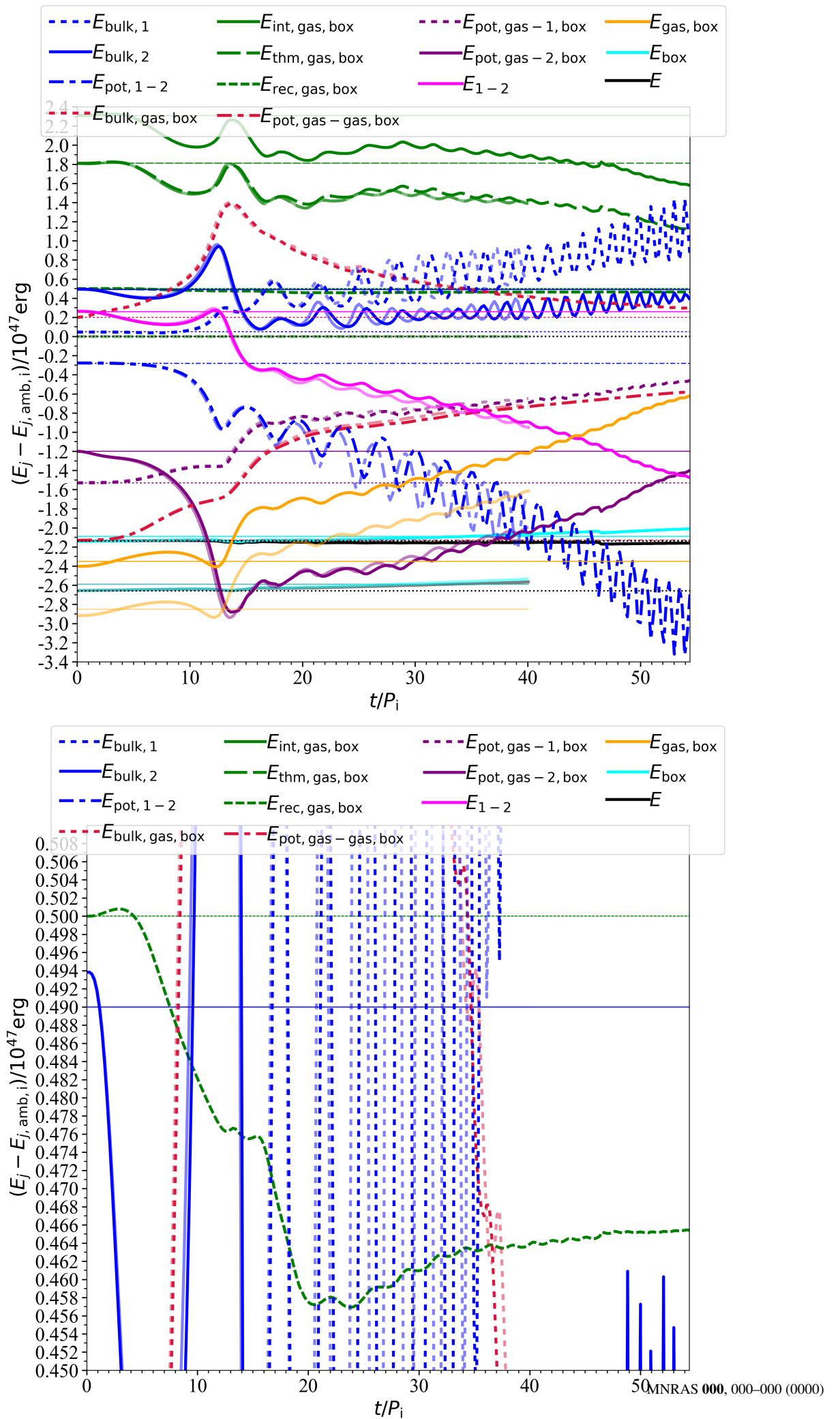


Figure 6. Top: Various energy terms, with initial ambient subtracted. **Bottom:** Zoom-in showing the change in recombination energy. Approximately 4.3×10^{45} erg is released up to $t = 23$ d.