For finitely many $SL(2,R)$ matrices satisfying the standard proximality and strong irreducibility assumptions, one can define a natural pressure function. Its thermodynamic properties (e.g. equilibrium states and analyticity) are well understood for positive t. It is also known by work of Díaz, Gelfert, and Rams that there may be a region $(-\infty, t_0]$, $-\infty < t_0 < 0$, where the pressure is constant. In work in progress with Mohammadpour, Bansard-Tresse, and Quas, we prove the existence and uniqueness of equilibrium states, as well as analyticity of the pressure function, in the remaining region $(t_0, 0]$. We further give an example where differentiability of the pressure can fail at t_0. I will also discuss the applications of these results to large deviations and multifractal analysis.