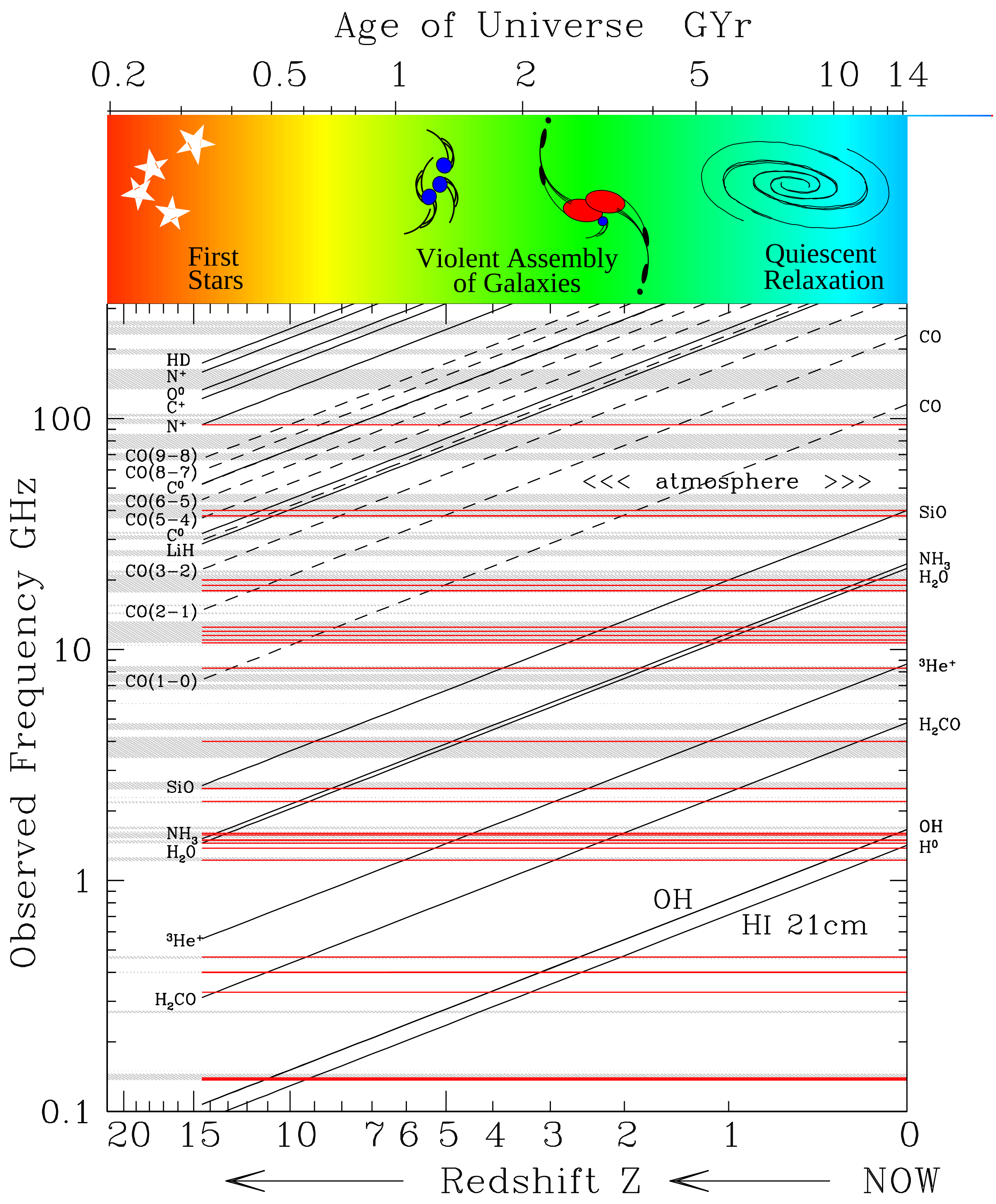

Figure Caption: Observed frequencies for cosmologically important transitions throughout the principal phases of galaxy formation. Frequencies from 100 MHz to 300 GHz are plotted as a function of the Age of the Universe and Redshift Z, with rest frequencies as observed "NOW" for local and nearby objects at the right side of the diagram. Grey bands indicate frequency ranges allocated to satellite downlinks, and red horizontal lines are currently populated. The rotational transitions of the CO molecule are indicated by dashed lines, but two labels are omitted due to crowding with transitions of other molecules.