For the Species HCO, I compared the difference between it's Nasa 7 and Nasa 9 thermo coefficients. Since the Nasa 9 coefficients only differ from the 7 coefficients by containing two extra independent terms in it, we can convert the NASA 7 form into NASA 9 by just setting these to 0. The different equations for the C_p, H, and S are given as:

In Nasa 9(a_7 is always 0):

$$\begin{aligned}
\frac{C_P}{R} &= \quad a_0 T^{-2} + a_1 T^{-1} + a_2 + a_3 T + a_4 T^2 + a_5 T^3 + a_6 T^4 \\
\frac{H}{RT} &= -a_0 t^{-2} + a_1 \frac{lnT}{T} + a_2 + a_3 \frac{T}{2} + a_4 \frac{T^2}{3} + a_5 \frac{T^3}{4} + a_6 \frac{T^4}{5} + \frac{a_8}{T} \\
\frac{S}{R} &= -a_0 \frac{T^{-2}}{2} - a_1 T^{-1} + a_2 lnT + a_3 T + a_4 \frac{T^2}{2} + a_5 \frac{T^3}{3} + a_6 \frac{T^4}{4} + a_9
\end{aligned}$$

For Nasa 7 in the Nasa 9 format, the coefficients $a_0, a_1 = 0$. By using these equations I was able to computeC_p, H, and S for each of the coefficients in their respective Temperature intervals and compare them. These Figures are located below:

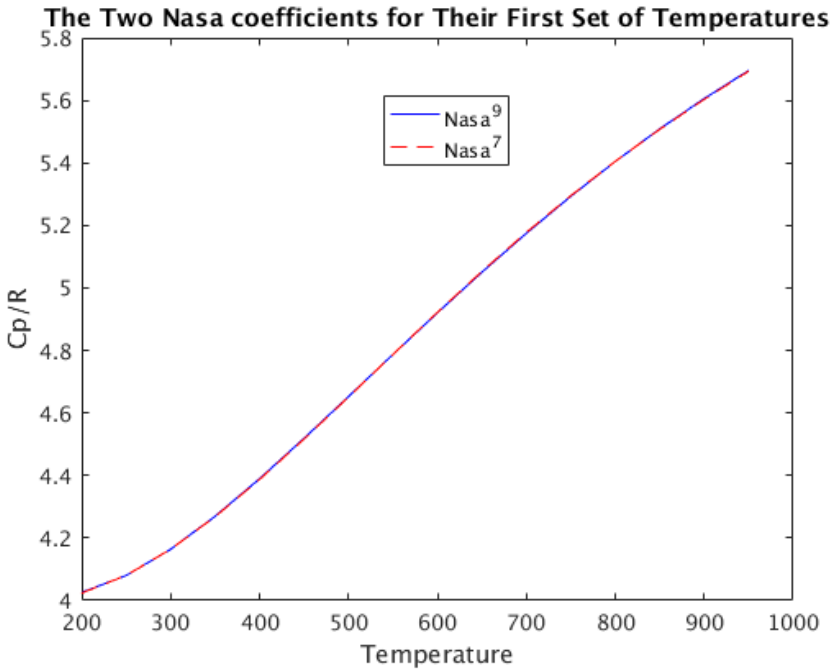

Figure 1: HCO comparison of Nasa 7 vs Nasa 9 data

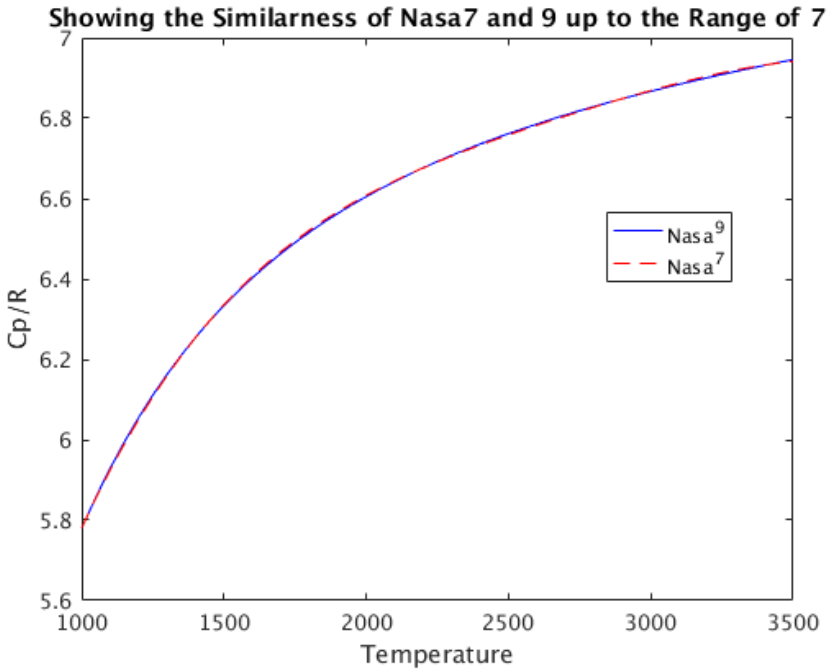

Figure 2: HCO comparison of Nasa 7 vs Nasa 9 data

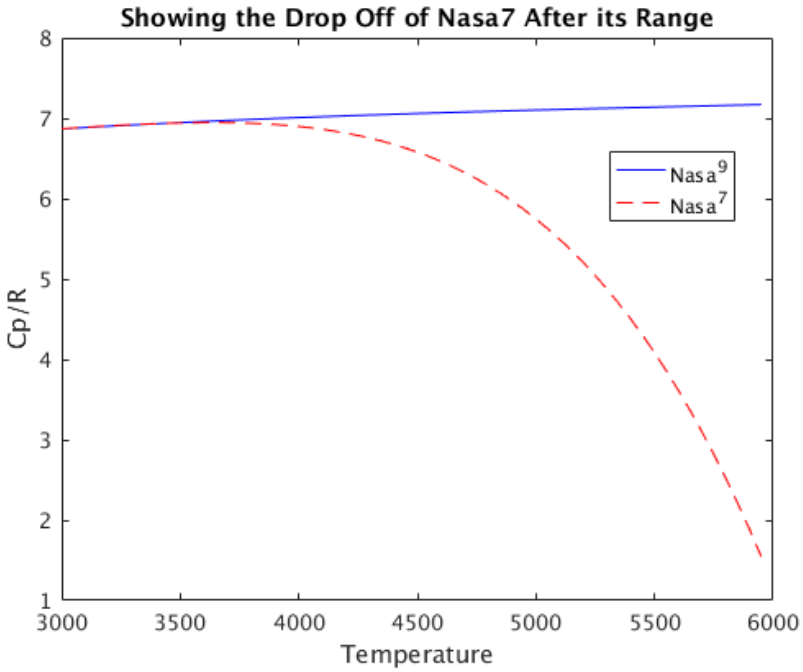

Figure 3: HCO comparison of Nasa 7 vs Nasa 9 data

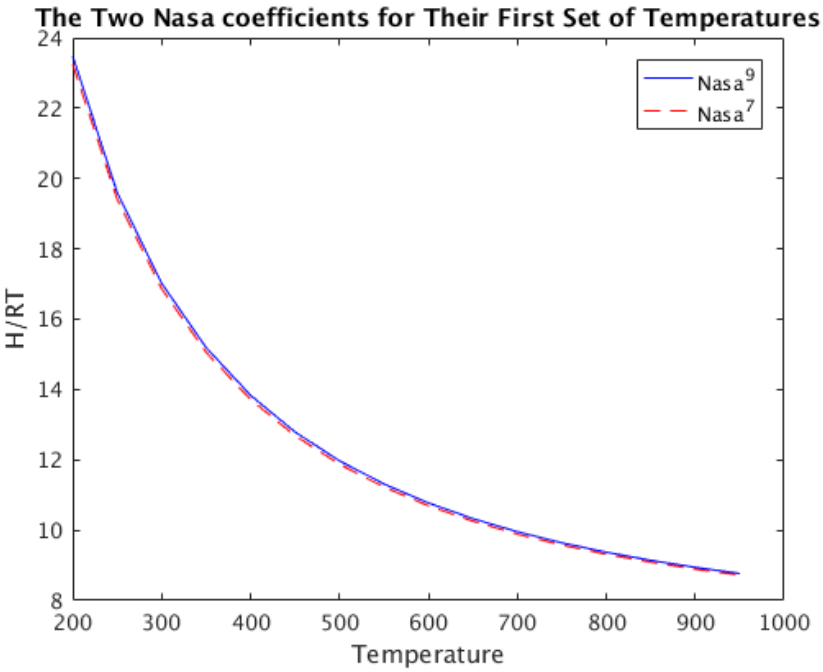

Figure 4: HCO comparison of Nasa 7 vs Nasa 9 data

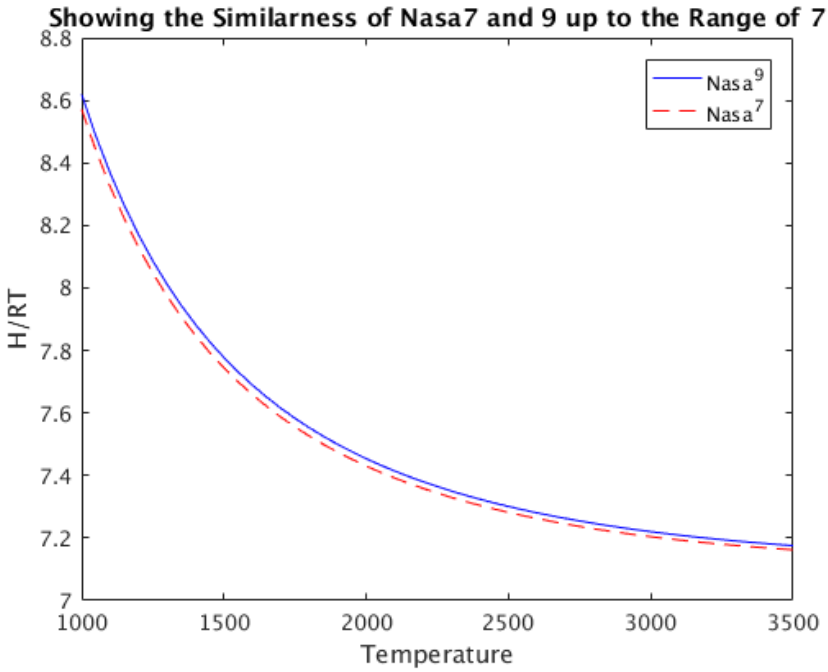

Figure 5: HCO comparison of Nasa 7 vs Nasa 9 data

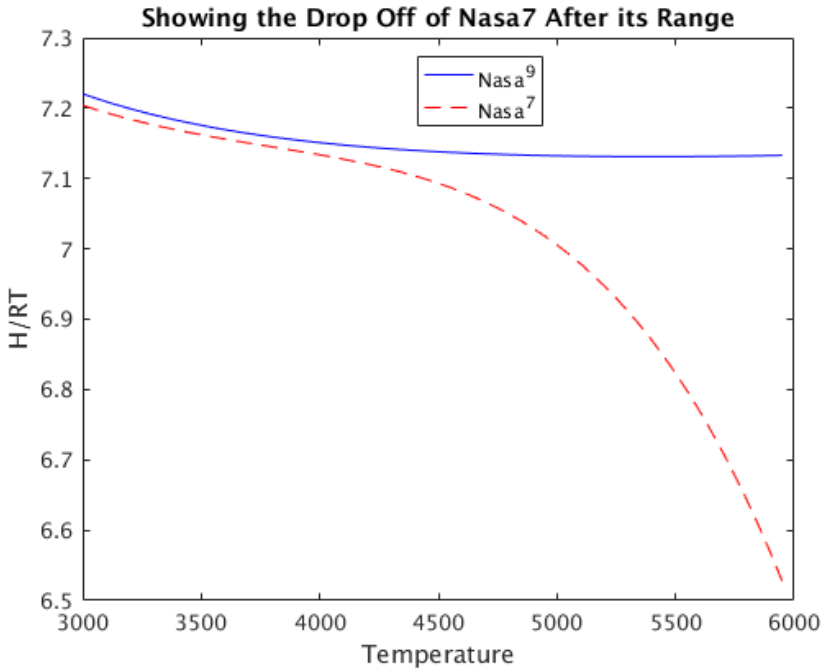

Figure 6: HCO comparison of Nasa 7 vs Nasa 9 data

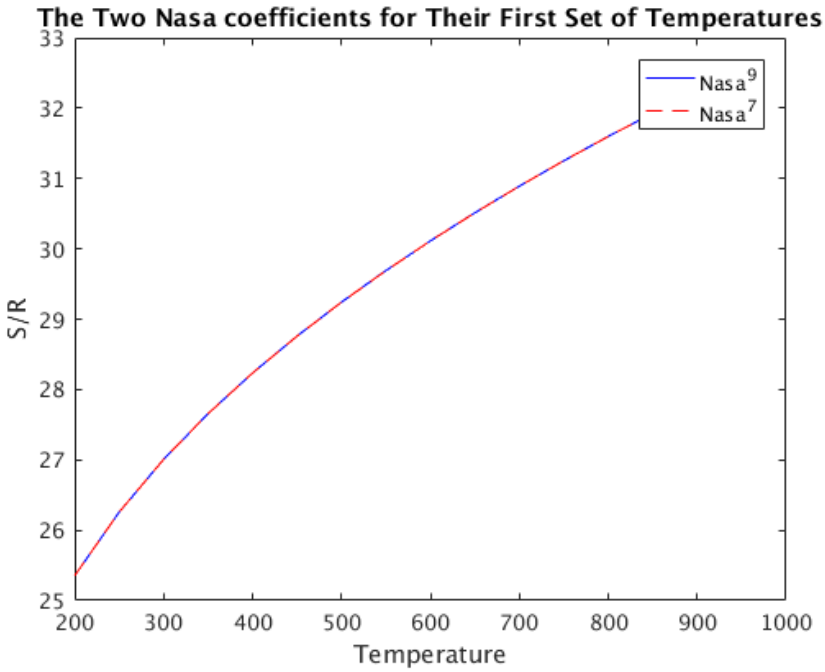

Figure 7: HCO comparison of Nasa 7 vs Nasa 9 data

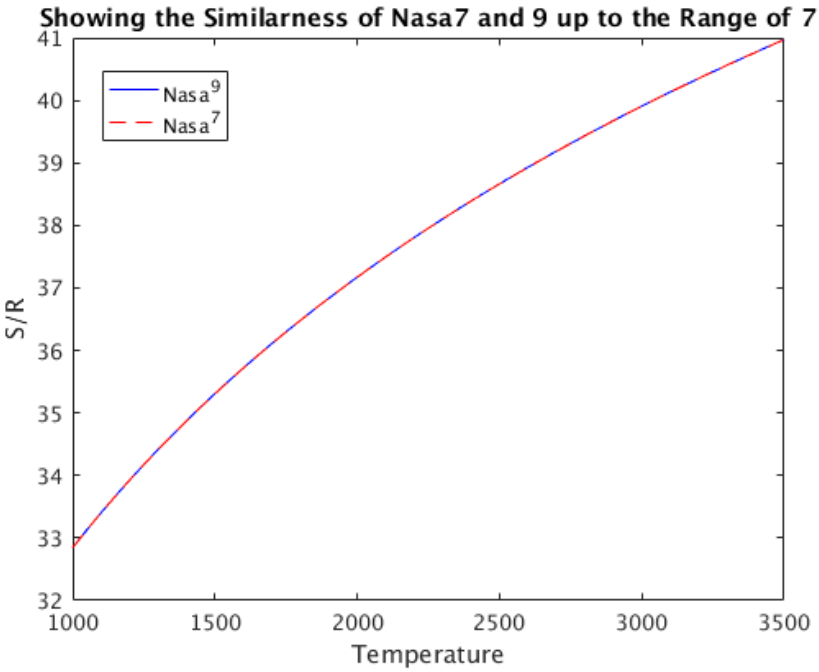

Figure 8: HCO comparison of Nasa 7 vs Nasa 9 data

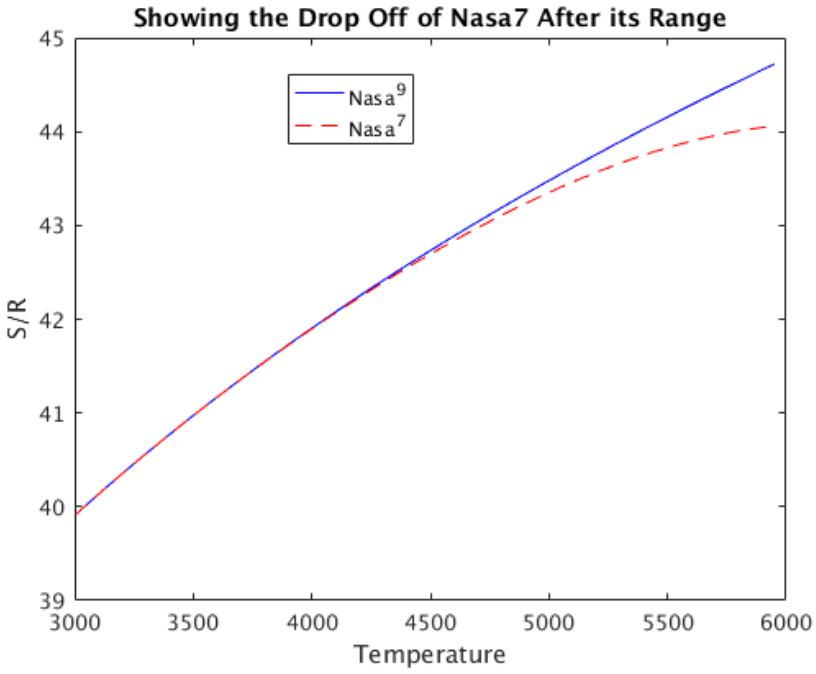

Figure 9: HCO comparison of Nasa 7 vs Nasa 9 data