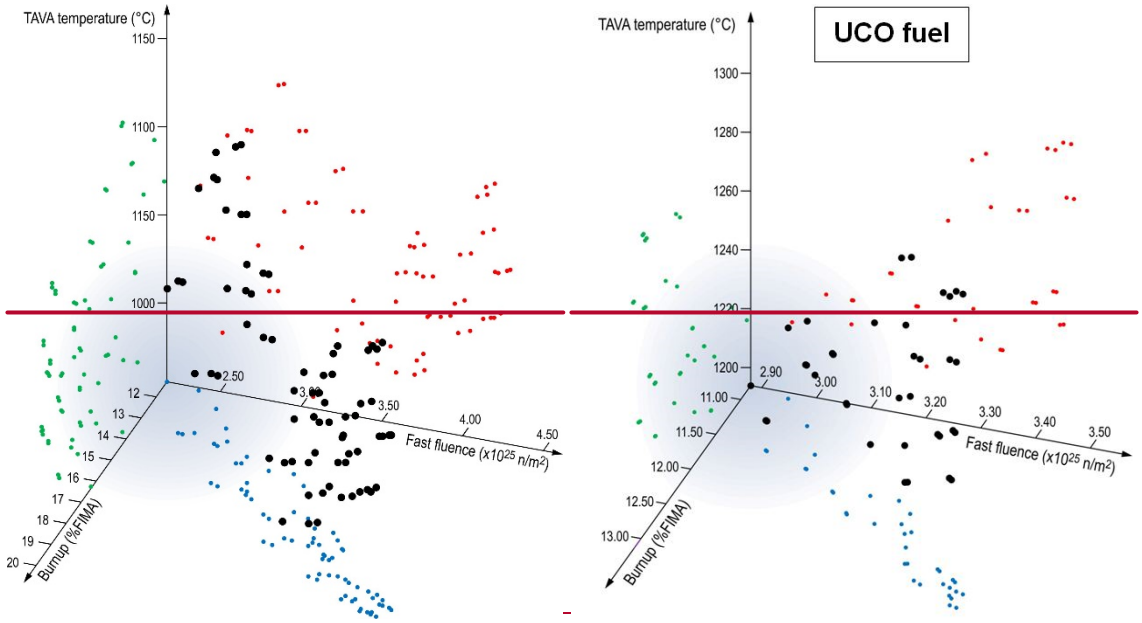
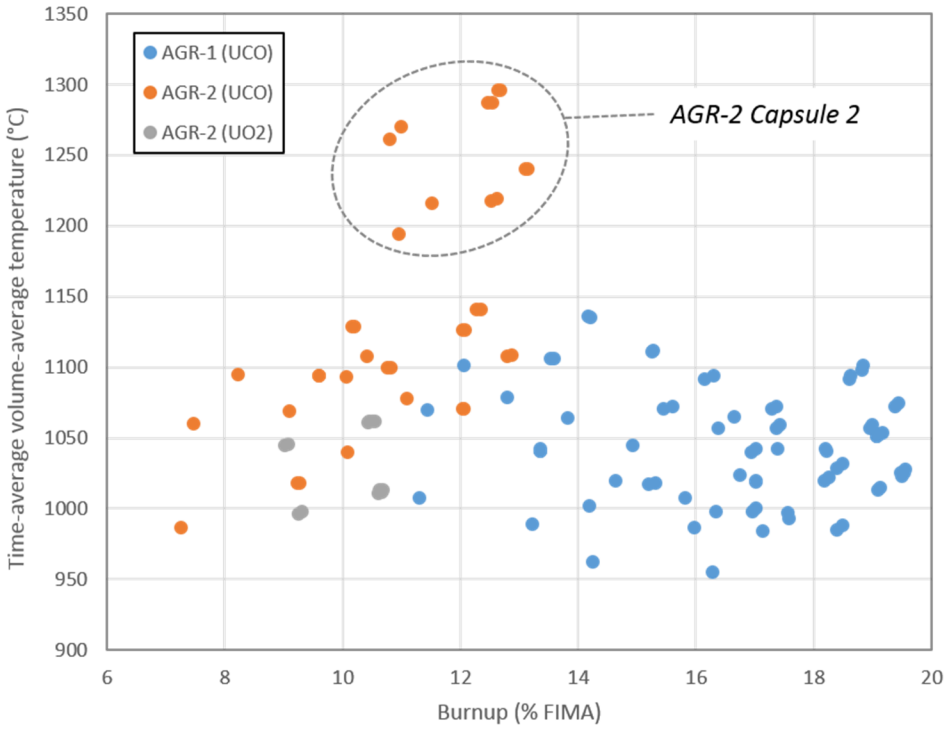
6.6 Broader Comparisons of Key Service Conditions

The fuel particles in both AGR-1 and AGR-2 experienced a range of burnups, TAVA temperatures, and fluences during their exposure in ATR. ~~Each particle experienced a unique "trajectory" to its final service conditions in the experiment. Figure 6-24 presents 3-D scatter plots of burnup, fluence, and TAVA temperatures for the 72 compacts in AGR-1 (left pane) and the 36 UCO compacts in AGR-2 (right pane). Also shown on each two-dimensional projection are the burnup-temperature, fluence-temperature, and burnup-fluence combinations experienced by each compact.~~ The particles in AGR-1 and AGR-2 experienced a broad range of temperature-burnup-fluence trajectories under irradiation, which serve as a solid foundation to demonstrate the performance of UCO TRISO-coated particles for use in HTRs. The distribution of individual fuel compact TAVA temperatures and burnup is ~~further~~ highlighted in Figure 6-2~~5~~4 and the distribution of TAVA temperatures and fast fluence is highlighted in Figure 6-25. The data demonstrate the approximately 200°C distribution in temperatures for all of the fuel with the exception of AGR-2 Capsule 2, which had appreciably higher temperatures.



~~**Figure 6-24**~~
~~**3-D scatter plot of the irradiation characteristics of the 72 AGR-1 (left pane) and 36 AGR-2 (right pane) UCO compacts. Figure courtesy of Idaho National Laboratory and used with permission of Battelle Energy Alliance, LLC.**~~



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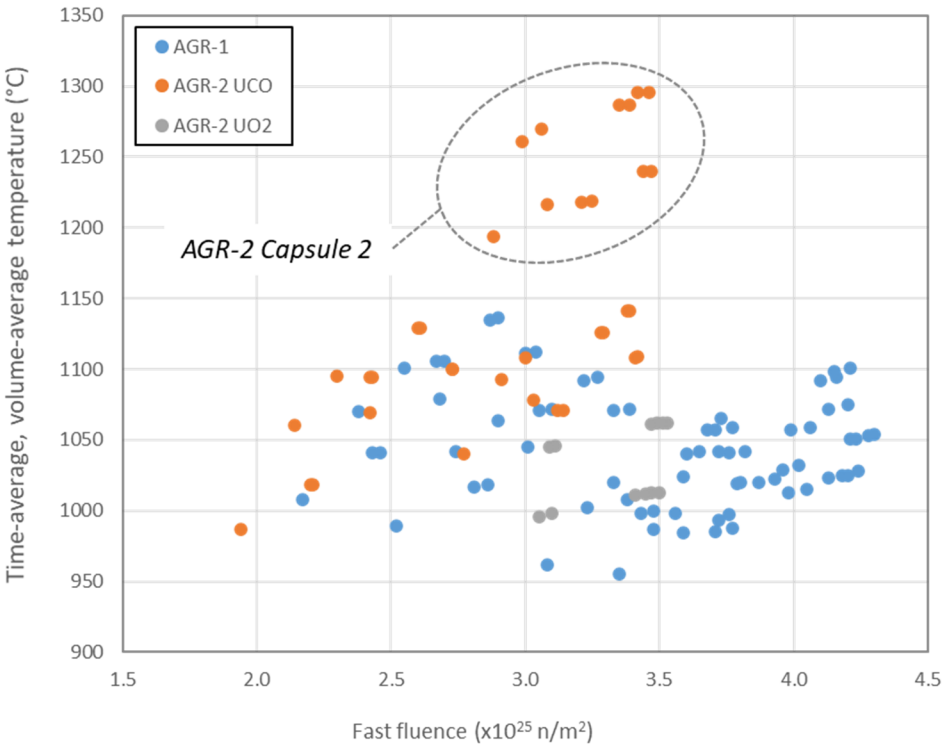
AGR-1 and AGR-2 fuel compact TAVA temperatures as a function of burnup. Figure courtesy of Idaho National Laboratory and used with permission of Battelle Energy Alliance, LLC.



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AGR-1 and AGR-2 fuel compact TAVA temperatures as a function of fast fluence (E > 0.18 MeV). Figure courtesy of Idaho National Laboratory and used with permission of Battelle Energy Alliance, LLC