**Supplemental Material for: Thermal architecture of the Salmon River suture zone, Idaho, USA: Implications for the structural evolution of a ductile accretionary complex during arc-continent collision**

**Text S1:** Analytical methods and supporting data for Raman spectroscopy of carbonaceous material (RSCM) thermometry

We followed the same procedures for collecting Raman spectra, peak fitting, and peak temperature (Tpeak) calculation as described in Blackford et al. (2022), and the text below partly reproduces their wording.

Measurements of grains of carbonaceous material (CM) were performed *in situ* on polished thin sections of each sample at the Eyring Materials Center at Arizona State University, using a Raman spectrometer custom-built by Emmanuel Soignard. Parameters, settings, and procedures used for the Raman spectrometer were identical to those of Blackford et al. (2022). The instrument used a 532 nm laser operated at a power of 3 mW. The laser was focused on grains of CM that are included within transparent grains of quartz or calcite, in accordance with the procedures of Beyssec et al. (2003). Analyses were conducted on individual ~1 µm-diameter portions of CM spots for 120 seconds over a spectral range of ~100-2,000 cm-1. As many as 18 individual CM grains were analyzed from each sample in order to evaluate internal variability.

A peak fitting program written by Emmanuel Soignard for Matlab was used to determine the center positions, widths (FWHM = full width at half maximum), amplitudes, shapes (the ratio of Gaussian to Lorentzian peak shape), and areas of up to five first-order Raman peaks (G, D1, D2, D3, and D4) between 1,000-1,800 cm-1 for each analyzed CM grain (Tables S1 and S2). Any background slope was removed using a linear equation between 1,000-1,800 cm-1. Peaks were identified visually and fit iteratively, with program-guided checks to ensure that peak locations are at a reasonable position. After fitting was completed, the program calculated parameters R1 (the height ratio of D1/G) and R2 (the area ratio of D1/(G+D1+D2)), which are defined by equations 1 and 2 of Rahl et al. (2005), respectively. Equation 3 of Rahl et al. (2005), which is calibrated to the R1 and R2 parameters (Tpeak = 737.3 + 320.9\*R1 – 1067\*R2 – 80.638\*R12), was used to calculate Tpeak for CM grains that fell above 400 °C. Equation 1 of Kouketsu et al. (2014), which is calibrated to the D1 FWHM (Tpeak = -2.15\*(D1 FWHM) + 478), was used to calculate Tpeak for CM grains that fell between 200 and 400 °C.

Supporting data for individual analyses of CM grains are shown in Table S1 for the samples in which we utilized the Rahl et al. (2005) temperature calibration (n = 28), and in Table S2 for the samples in which we utilized the Kouketsu et al. (2014) temperature calibration (n = 4). The data are summarized in Table 3 in the main text, which shows the mean and standard deviation for R1, R2, D1 FWHM, and Tpeak for all CM grains analyzed from each sample. Equation 3 of Rahl et al. (2005) introduces an external uncertainty in Tpeak of ± 50 °C, and equation 1 of Kouketsu et al. (2014) introduces an external uncertainty of ± 30 °C. Therefore, to present a more representative uncertainty for Tpeak, we utilized the methods of Cooper et al. (2013), in which a propagated standard error was calculated for each sample by adding internal and external uncertainties quadratically and dividing by the square root of the number of grain analyses. The propagated error for Tpeak is reported at the 2 standard error level for each sample on Table 3 and in the main text (typical error ranges for our samples are on the order of ± 30-45 °C).

**Table S1 (see accompanying Excel table):** Supporting data for RSCM temperature determinations for samples in which we utilized equation 3 of Rahl et al. (2005) to calculate Tpeak. Raman peak parameters (center position, width (FWHM = full width at half maximum), amplitude, and area), the R1 and R2 parameters of Rahl et al. (2005), and Tpeak are shown for individual CM grain analyses and are ordered from low to high Tpeak for each sample.

**Table S2 (see accompanying Excel table):** Supporting data for RSCM temperature determinations for samples in which we utilized equation 1 of Kouketsu et al. (2014) to calculate Tpeak. Raman peak parameters (center position, width (FWHM = full width at half maximum), amplitude, and area), the R1 and R2 parameters of Rahl et al. (2005), and Tpeak (note: the Tpeak calculated from Rahl et al. (2005) equation 3 and Kouketsu et al. (2014) equation 1 are both shown for comparison) are shown for individual CM grain analyses and are ordered from low to high Tpeak for each sample.

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