

SUPPLEMENTARY MATERIALS

Cortical bone distribution of the proximal phalanges in great apes and implications for reconstructing manual behaviours

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Supplementary Information 1: Siding phalanges

For the majority of our sample (65%), we include associated PP2-PP5 from a single hand (right or left, depending on which was most complete) of one individual. However, in instances when this was not possible due to preservation or methodological issues, proximal phalanges from the other hand in the same individual or individuals with an incomplete set of proximal phalanges were also included in the sample. For incomplete sets of phalanges, we assigned phalanges to a digit for the non-human great apes following Susman (1979) and Patel & Maiolino (2016). For humans, whose PP2 and PP4 are not as morphologically distinct as those of non-human great apes, we used minor variations in basal morphology to identify them: PP2 has an enlarged radial tubercle to accommodate the first dorsal interossei muscle, while the PP4 base is more symmetrical with a palmarly projecting radial tubercle (Susman, 1979; Case & Heilman, 2006).

Supplementary tables and figures: Below are supplementary tables and figures that expand on the results presented in the manuscript.

Supplementary Table 1: Detailed specimen information.

Taxon	Specimen	Sex	Side	Subsistence	Collection
<i>Homo sapiens</i>	NHMW-Nubian_J2	M	R	Pre-industrial	Natural History Museum, Vienna
<i>Homo sapiens</i>	NHMW-Nubian_K63	M	L	Pre-industrial	Natural History Museum, Vienna
<i>Homo sapiens</i>	NHMW-Nubian_K5.2	M	R	Pre-industrial	Natural History Museum, Vienna
<i>Homo sapiens</i>	NHMW-Nubian_J7	F	R	Pre-industrial	Natural History Museum, Vienna
<i>Homo sapiens</i>	Qafzeh_9	M	R	Pre-industrial	The Sackler School of Medicine at Tel Aviv University
<i>Homo sapiens</i>	Qafzeh_8	UK	R/L	Pre-industrial	The Sackler School of Medicine at Tel Aviv University
<i>Homo sapiens</i>	OHALO_II_H2	M	R/L	Pre-industrial	The Sackler School of Medicine at Tel Aviv University
<i>Homo sapiens</i>	UNIFL_4865	M	R	Post-industrial	University of Florence
<i>Homo sapiens</i>	UNIFL_4887	F	R	Post-industrial	University of Florence
<i>Homo sapiens</i>	UNIFL_3124	UK	UK	Pre-industrial	University of Florence
<i>Homo sapiens</i>	UNIFL_3125	UK	UK	Pre-industrial	University of Florence
<i>Homo sapiens</i>	UNIFL_3127	M	L	Pre-industrial	University of Florence
<i>Homo sapiens</i>	GAUG-Inden_91	M	R	Post-industrial	Georg-August-University Goettingen, Anthropology Collection
<i>Homo sapiens</i>	GAUG-Inden_113	M	L	Post-industrial	Georg-August-University Goettingen, Anthropology Collection
<i>Homo sapiens</i>	GAUG-Inden_117	UK	L	Post-industrial	Georg-August-University Goettingen, Anthropology Collection
<i>Homo sapiens</i>	GAUG-Inden_119	M	R	Post-industrial	Georg-August-University Goettingen, Anthropology Collection
<i>Homo sapiens</i>	GAUG-Inden_243	M	L	Post-industrial	Georg-August-University Goettingen, Anthropology Collection
<i>Homo sapiens</i>	Barma_Grande_2	M	R	Pre-industrial	Museo Nazionale Preistorico dei Balzi Rossi
<i>Homo sapiens</i>	ARENE_CANDIDE_2	M	R/L	Pre-industrial	the Museo Archeologico del Finale
<i>Homo sapiens</i>	DCW_AM_3_0_2	UK	R/L	Pre-industrial	The Duckworth Collection, University of Cambridge
<i>Homo sapiens</i>	DCW_OC_1_0_141	UK	R/L	Pre-industrial	The Duckworth Collection, University of Cambridge
<i>Homo sapiens</i>	DCW_OC_1_0_26	UK	L	Pre-industrial	The Duckworth Collection, University of Cambridge
<i>Homo sapiens</i>	FCS8	M	R/L	Post-industrial	Mary Rose Trust
<i>Homo sapiens</i>	81-H1035	M	R	Post-industrial	Mary Rose Trust
<i>Homo sapiens</i>	81-H1040	M	R	Post-industrial	Mary Rose Trust
<i>Homo sapiens</i>	81-H1068-DD	M	R	Post-industrial	Mary Rose Trust
<i>Homo sapiens</i>	FCS16	M	R/L	Post-industrial	Mary Rose Trust
<i>Homo sapiens</i>	FCS17	M	R/L	Post-industrial	Mary Rose Trust
<i>Homo sapiens</i>	81-H172-H	M	R/L	Post-industrial	Mary Rose Trust
<i>Homo sapiens</i>	DV-13	M	L	Pre-industrial	Institute of Archaeology, Czech Republic

<i>Homo sapiens</i>	DV-14	M	R	Pre-industrial	Institute of Archaeology, Czech Republic
<i>Homo sapiens</i>	DV-15	M	R/L	Pre-industrial	Institute of Archaeology, Czech Republic
<i>Homo sapiens</i>	DV-16	M	R/L	Pre-industrial	Institute of Archaeology, Czech Republic
<i>Pan paniscus</i>	MRAC_27698	F	L	Wild	Royal Museum for Central Africa, Tervuren
<i>Pan paniscus</i>	MRAC_29042	F	R	Wild	Royal Museum for Central Africa, Tervuren
<i>Pan paniscus</i>	MRAC_29045	F	L	Wild	Royal Museum for Central Africa, Tervuren
<i>Pan paniscus</i>	MRAC_29052	M	R	Wild	Royal Museum for Central Africa, Tervuren
<i>Pan paniscus</i>	MRAC_27696	M	L	Wild	Royal Museum for Central Africa, Tervuren
<i>Pan paniscus</i>	MRAC_20881	M	L	Wild	Royal Museum for Central Africa, Tervuren
<i>Pan paniscus</i>	MRAC_29060	F	R	Wild	Royal Museum for Central Africa, Tervuren
<i>Pan troglodytes</i>	MPITC_11778	F	R	Wild	Max Planck Institute for Evolutionary Anthropology, Tai Chimp Collection
<i>Pan troglodytes</i>	MPITC_14996	F	L	Wild	Max Planck Institute for Evolutionary Anthropology, Tai Chimp Collection
<i>Pan troglodytes</i>	NH_CAM1_204	F	L	Wild	Powell-Cotton Museum
<i>Pan troglodytes</i>	NH_CAM2_301	F	R	Wild	Powell-Cotton Museum
<i>Pan troglodytes</i>	NH_MER_279	F	L	Wild	Powell-Cotton Museum
<i>Pan troglodytes</i>	NH_MER35_86	F	L	Wild	Powell-Cotton Museum
<i>Pan troglodytes</i>	NH_MER35_105	F	R	Wild	Powell-Cotton Museum
<i>Pan troglodytes</i>	MPITC_11903	M	L	Wild	Max Planck Institute for Evolutionary Anthropology, Tai Chimp Collection
<i>Pan troglodytes</i>	MPITC_11789	M	L	Wild	Max Planck Institute for Evolutionary Anthropology, Tai Chimp Collection
<i>Pan troglodytes</i>	MPITC_11781	M	L	Wild	Max Planck Institute for Evolutionary Anthropology, Tai Chimp Collection
<i>Pan troglodytes</i>	ZSM_AP-122	M	R	Wild	Bavarian State Collection of Zoology
<i>Pan troglodytes</i>	PC_ZVII_24	M	R	Wild	Powell-Cotton Museum
<i>Pan troglodytes</i>	NH_MER33_712	M	R	Wild	Powell-Cotton Museum
<i>Pan troglodytes</i>	NH_MER33_724	M	L	Wild	Powell-Cotton Museum
<i>Pan troglodytes</i>	NH_MER32_401	M	L	Wild	Powell-Cotton Museum
<i>Pan troglodytes</i>	NH_MER33_440	M	R	Wild	Powell-Cotton Museum
<i>Pan troglodytes</i>	NH_MER36_254	M	L	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	ZMB_11642	UK	R	Wild	Natural History Museum, Berlin
<i>Gorilla gorilla</i>	ZMB_83545	M	R	Wild	Natural History Museum, Berlin
<i>Gorilla gorilla</i>	PC_MER_95	F	R	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	PC_MER_135	M	L	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	PC_MER_264	M	L	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	PC_MER_300	F	R	Wild	Powell-Cotton Museum

<i>Gorilla gorilla</i>	PC_MER_372	M	R	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	PC_MER_962	M	R	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	PC_MER1_29	F	R	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	PC_MER_138	F	L	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	PC_MER_174	F	R	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	PC_MER_696	F	R	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	PC_MER_856	F	L	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	PC_ZII_64	M	R	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	PC_ZVI_32	M	R	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	NH_MER33_755	F	R	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	NH_MER33_461	M	R	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	NH_CAM1_106	M	R	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	NH_CAM1_105	M	R	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	NH_MER35_150	F	R	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	NH_CAM1_98	F	L	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	NH_MER35_136	F	L	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	NH_MER35_139	F	L	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	NH_FC_130	M	L	Wild	Powell-Cotton Museum
<i>Gorilla gorilla</i>	NH_FC_123	M	L	Wild	Powell-Cotton Museum
<i>Pongo abelii</i>	SMF_6785	M	R	Wild	Senckenberg Natural History Museum, Frankfurt
<i>Pongo abelii</i>	SMF_6779	F	L	Wild	Senckenberg Natural History Museum, Frankfurt
<i>Pongo pygmaeus</i>	ZSM_1907_0633b	F	R	Wild	Bavarian State Collection of Zoology
<i>Pongo pygmaeus</i>	ZSM_1907_0629b	M	R	Wild	Bavarian State Collection of Zoology
<i>Pongo pygmaeus</i>	ZSM_1907_0660	F	R	Wild	Bavarian State Collection of Zoology
<i>Pongo pygmaeus</i>	ZSM_AP-120	M	L	Wild	Bavarian State Collection of Zoology
<i>Pongo pygmaeus</i>	ZSM_1907_0483	F	R	Wild	Bavarian State Collection of Zoology
<i>Pongo pygmaeus</i>	ZSM_1909_0801	M	R	Wild	Bavarian State Collection of Zoology
<i>Pongo pygmaeus</i>	ZMB_87092	F	R	Wild	Natural History Museum, Berlin

Note: M = male; F = female; R = right; L = left; UK = unknown sex/side; R/L = to have all four digits represented, some phalanges were from the right side of the body and some from the left.

Supplementary Table 2: Mean values of standardised cross-sectional properties across species at 35%, 50%, and 65% of the phalanx

		<i>H. sapiens</i>	<i>Pan</i>	<i>Gorilla</i>	<i>Pongo</i>
35% cross-section					
PP2	CA (mm ²)	0.677	0.780	1.285	0.592
	Z _{pol} (mm ³)	1.815	1.559	4.214	1.462
	J (mm ⁴)	10.380	7.459	37.262	6.864
PP3	CA (mm ²)	0.679	0.876	1.366	0.612
	Z _{pol} (mm ³)	1.975	2.257	4.950	1.669
	J (mm ⁴)	11.606	13.102	48.787	8.446
PP4	CA (mm ²)	0.639	0.819	1.227	0.629
	Z _{pol} (mm ³)	1.672	1.857	4.003	1.742
	J (mm ⁴)	9.549	9.564	36.234	9.119
PP5	CSA (mm ²)	0.566	0.695	1.105	0.541
	Z _{pol} (mm ³)	1.314	1.265	2.986	1.152
	J (mm ⁴)	6.613	4.751	22.827	4.888
50% cross-section					
PP2	CA (mm ²)	0.767	0.832	1.412	0.636
	Z _{pol} (mm ³)	1.678	1.456	4.317	1.302
	J (mm ⁴)	9.092	7.894	37.632	6.901
PP3	CA (mm ²)	0.779	0.978	1.507	0.663
	Z _{pol} (mm ³)	1.838	2.196	5.018	1.496
	J (mm ⁴)	10.479	14.420	49.767	8.330
PP4	CA (mm ²)	0.750	0.893	1.315	0.672
	Z _{pol} (mm ³)	1.637	1.740	4.020	1.529
	J (mm ⁴)	9.076	10.237	36.357	8.800
PP5	CA (mm ²)	0.664	0.711	1.246	0.567
	Z _{pol} (mm ³)	1.207	1.067	3.178	1.000
	J (mm ⁴)	5.683	4.509	24.766	4.805
65% cross-section					
PP2	CA (mm ²)	0.817	0.860	1.417	0.677
	Z _{pol} (mm ³)	1.626	1.514	3.724	1.424
	J (mm ⁴)	8.625	8.158	31.730	8.846
PP3	CA (mm ²)	0.854	1.031	1.563	0.732
	Z _{pol} (mm ³)	1.826	2.277	4.635	1.732
	J (mm ⁴)	10.507	15.152	45.513	11.540
PP4	CA (mm ²)	0.823	0.940	1.389	0.736
	Z _{pol} (mm ³)	1.675	1.847	3.733	1.740
	J (mm ⁴)	9.373	10.891	32.763	11.794
PP5	CA (mm ²)	0.688	0.719	1.263	0.602
	Z _{pol} (mm ³)	1.121	1.096	2.821	1.106
	J (mm ⁴)	4.882	4.355	20.961	6.031

Abbreviations: CA = cortical area; Z_{pol} = polar section modulus; J = polar second moment of area.

Supplementary Table 3: Significance values for post hoc comparisons of cross-sectional properties across species at 35%, 50%, and 65% of the phalanx.

			<u>35%</u>			<u>50%</u>			<u>65%</u>		
			<i>Pan</i>	<i>Gorilla</i>	<i>Pongo</i>	<i>Pan</i>	<i>Gorilla</i>	<i>Pongo</i>	<i>Pan</i>	<i>Gorilla</i>	<i>Pongo</i>
PP2	CA	<i>H.sapiens</i>	NS	<0.001	NS	NS	<0.001	NS	NS	<0.001	NS
		<i>Pan</i>		<0.001	NS		<0.001	NS		<0.001	NS
		<i>Gorilla</i>			<0.001			<0.001			<0.001
	Z _{pol}	<i>H.sapiens</i>	NS	<0.001	NS	NS	<0.001	NS	NS	<0.001	NS
		<i>Pan</i>		<0.001	NS		<0.001	NS		<0.001	NS
		<i>Gorilla</i>			<0.001			<0.001			<0.001
	J	<i>H.sapiens</i>	NS	<0.001	NS	NS	<0.001	NS	NS	<0.001	NS
		<i>Pan</i>		<0.001	NS		<0.001	NS		<0.001	NS
		<i>Gorilla</i>			<0.001			<0.001			<0.001
PP3	CA	<i>H.sapiens</i>	0.004	<0.001	NS	0.029	<0.001	NS	NS	<0.001	NS
		<i>Pan</i>		0.001	0.007		0.003	0.006		<0.001	0.032
		<i>Gorilla</i>			<0.001			<0.001			<0.001
	Z _{pol}	<i>H.sapiens</i>	NS	<0.001	NS	NS	<0.001	NS	NS	<0.001	NS
		<i>Pan</i>		<0.001	NS		<0.001	NS		<0.001	NS
		<i>Gorilla</i>			<0.001			<0.001			<0.001
	J	<i>H.sapiens</i>	NS	<0.001	NS	NS	<0.001	NS	NS	<0.001	NS
		<i>Pan</i>		<0.001	NS		<0.001	NS		<0.001	NS
		<i>Gorilla</i>			<0.001			<0.001			<0.001
PP4	CA	<i>H.sapiens</i>	0.003	<0.001	NS	NS	<0.001	NS	NS	<0.001	NS
		<i>Pan</i>		0.004	0.048		<0.001	NS		<0.001	NS
		<i>Gorilla</i>			<0.001			<0.001			<0.001
	Z _{pol}	<i>H.sapiens</i>	NS	<0.001	NS	NS	<0.001	NS	NS	<0.001	NS
		<i>Pan</i>		<0.001	NS		<0.001	NS		<0.001	NS
		<i>Gorilla</i>			<0.001			<0.001			<0.001
	J	<i>H.sapiens</i>	NS	<0.001	NS	NS	<0.001	NS	NS	<0.001	NS
		<i>Pan</i>		<0.001	NS		<0.001	NS		<0.001	NS
		<i>Gorilla</i>			<0.001			<0.001			<0.001
PP5	CA	<i>H.sapiens</i>	NS	<0.001	NS	NS	<0.001	NS	NS	<0.001	NS
		<i>Pan</i>		<0.001	NS		<0.001	NS		<0.001	NS
		<i>Gorilla</i>			<0.001			<0.001			<0.001
	Z _{pol}	<i>H.sapiens</i>	NS	<0.001	NS	NS	<0.001	NS	NS	<0.001	NS
		<i>Pan</i>		<0.001	NS		<0.001	NS		<0.001	NS
		<i>Gorilla</i>			<0.001			<0.001			<0.001
	J	<i>H.sapiens</i>	NS	<0.001	NS	NS	<0.001	NS	NS	<0.001	NS
		<i>Pan</i>		<0.001	NS		<0.001	NS		<0.001	NS
		<i>Gorilla</i>			<0.001			<0.001			<0.001

Abbreviations: CA = cortical area; Z_{pol} = polar section modulus; J = polar second moment of area; NS = not significant (p>0.05).

Supplementary Table 4: Significance values for post hoc comparisons of cross-sectional properties within species, across the digits at 35%, 50% and 65% of the phalanx.

			<u>35%</u>			<u>50%</u>			<u>65%</u>		
			PP3	PP4	PP5	PP3	PP4	PP5	PP3	PP4	PP5
<i>H. sapiens</i>	CA	PP2	NS	NS	0.017	NS	NS	NS	NS	NS	NS
		PP3		NS	0.008		NS	NS		NS	0.012
		PP4			NS			NS			0.076
	Z _{pol}	PP2	NS	NS	0.007	NS	NS	0.014	NS	NS	0.003
		PP3		NS	<0.001		NS	<0.001		NS	<0.001
		PP4			NS			0.027			<0.001
	J	PP2	NS	NS	0.006	NS	NS	0.011	NS	NS	0.004
		PP3		NS	<0.001		NS	<0.001		NS	<0.001
		PP4			NS			0.006			0.002
<i>Pan</i>	CA	PP2	0.047	NS	NS	0.006	NS	0.048	0.005	NS	0.049
		PP3		NS	<0.001		NS	<0.001		NS	<0.001
		PP4			0.010			<0.001			<0.001
	Z _{pol}	PP2	<0.001	NS	NS	<0.001	NS	NS	<0.001	NS	0.049
		PP3		0.004	<0.001		NS	<0.001		NS	<0.001
		PP4			<0.001			<0.001			<0.001
	J	PP2	<0.001	NS	NS	<0.001	NS	NS	<0.001	NS	0.011
		PP3		NS	<0.001		NS	<0.001		NS	<0.001
		PP4			<0.001			<0.001			<0.001
<i>Gorilla</i>	CA	PP2	NS	NS	NS	NS	NS	NS	NS	NS	NS
		PP3		NS	0.005		NS	0.027		NS	0.012
		PP4			NS			NS			NS
	Z _{pol}	PP2	NS	NS	NS	NS	NS	NS	NS	NS	NS
		PP3		NS	<0.001		NS	<0.001		NS	<0.001
		PP4			NS			NS			NS
	J	PP2	NS	NS	NS	NS	NS	NS	NS	NS	NS
		PP3		NS	<0.001		NS	<0.001		NS	<0.001
		PP4			NS			NS			NS

Abbreviations: CA = cortical area; Z_{pol} = polar section modulus; J = polar second moment of area; NS = not significant (p>0.05).

Note: The proximal phalanges *Pongo* are not represented because they did not show significant differences.

Supplementary Table 5: Correlation statistics testing the relationship between phalangeal curvature and cortical thickness of the phalangeal shaft for the total sample and within species. All four digits were pooled.

	R ²	p
Total sample	0.030	0.001
<i>H. sapiens</i>	0.028	NS
<i>Pan</i>	0.106	0.001
<i>Gorilla</i>	0.005	NS
<i>Pongo</i>	0.003	NS

Abbreviations: NS = not significant (p>0.05).

Supplementary Figure 1: Cortical thickness distribution maps of each individual used in the study. Specimen IDs of individuals are under each map.

Supplementary Figure 2: 3D PCAs for cortical bone distribution of proximal phalanges of PP2, PP3, PP4, and PP5 of *H.sapiens*, *Pan* sp., *Gorilla*, and *Pongo* sp.

Supplementary Figure 3: Boxplots representing the mean cortical thickness across the shaft for (A) PP2, (B) PP3, (C) PP4, and (D) PP5 of *H. sapiens*, *Pan* sp., *Gorilla*, and *Pongo* sp. *** = $p < 0.001$. The African apes are significantly thicker than *H. sapiens* and *Pongo*.

Supplementary Figure 4: Boxplots representing the mean cortical thickness across the shaft for (A) *H. sapiens*, (B) *Pan*, (C) *Gorilla*, and (D) *Pongo* of digits 2-5. * = $p < 0.05$. *Pan* PP3 is significantly thicker than *Pan* PP5.

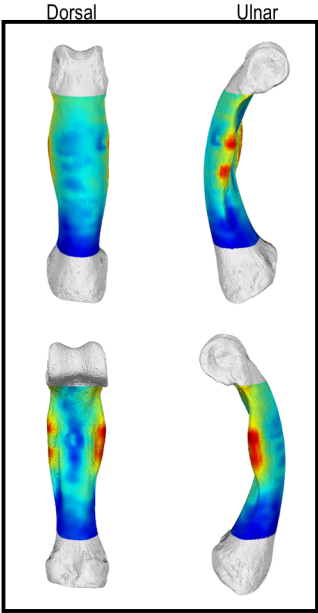
Supplementary Figure 5: Average CA plotted from the proximal end to the distal end of the phalangeal shaft of *H. sapiens*, *Pan*, *Gorilla*, and *Pongo*. (A) PP2; (B) PP3; (C) PP4; (D) PP5.

Supplementary Figure 6: Average Z_{pol} plotted from the proximal end to the distal end of the phalangeal shaft of *H. sapiens*, *Pan*, *Gorilla*, and *Pongo*. (A) PP2; (B) PP3; (C) PP4; (D) PP5.

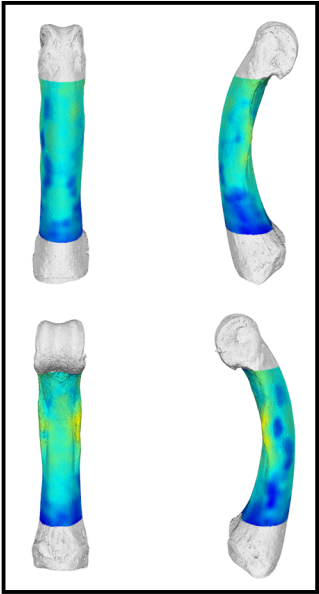
Supplementary Figure 7: Average J plotted from the proximal end to the distal end of the phalangeal shaft of *H. sapiens*, *Pan*, *Gorilla*, and *Pongo*. (A) PP2; (B) PP3; (C) PP4; (D) PP5.

Supplementary Figure 8: Scatterplot of phalangeal curvature against phalangeal shaft cortical thickness of digits 2-5 in *H. sapiens*, *Pan* sp., *Gorilla*, and *Pongo* sp.

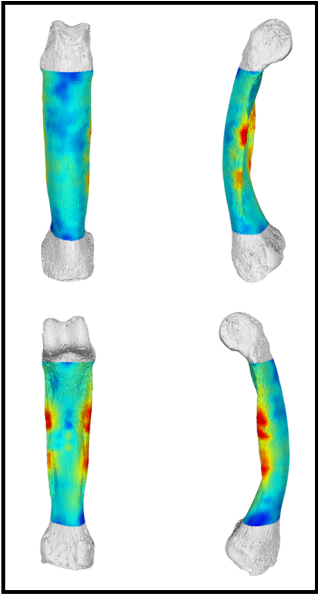
Pongo PP2



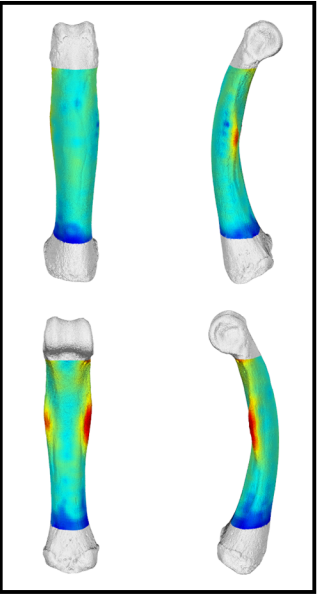
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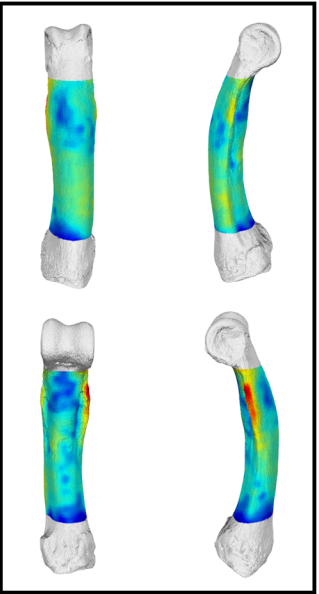
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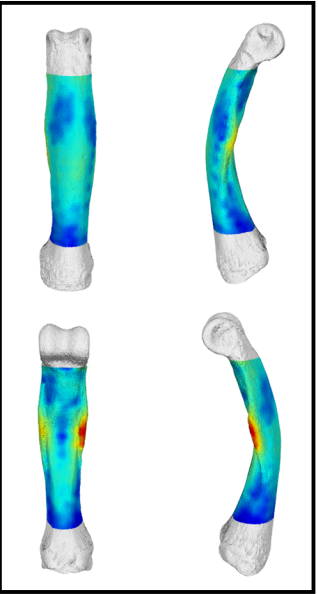
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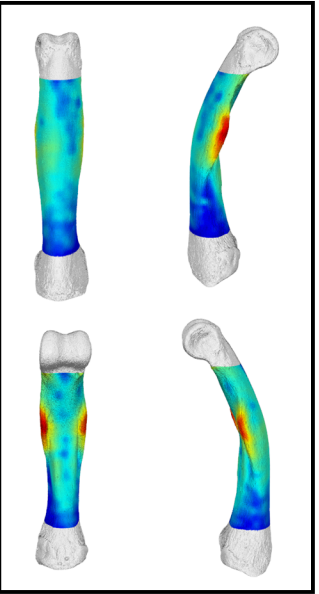
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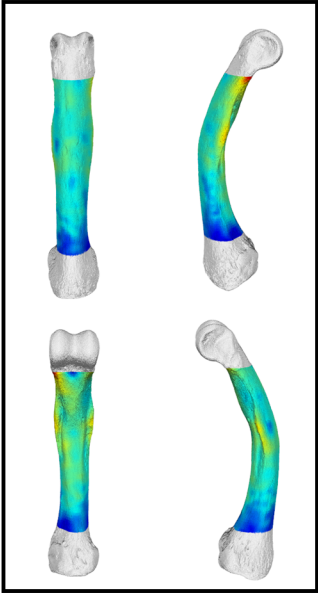
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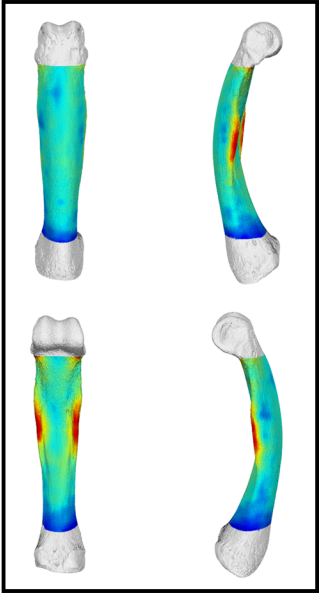
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ZSM_AP_120

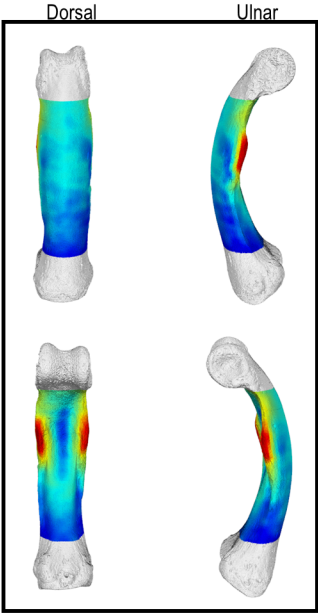


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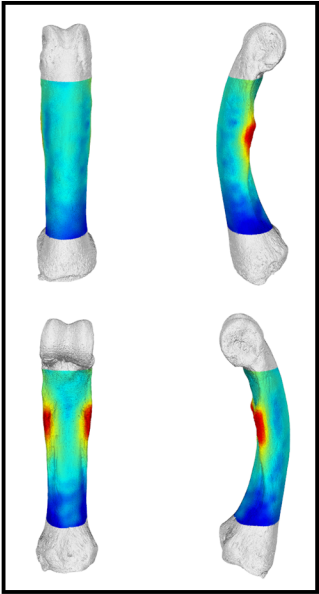


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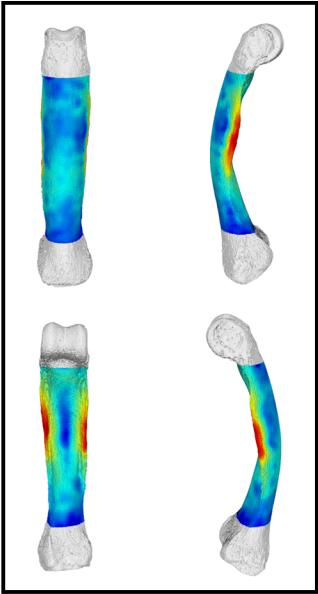
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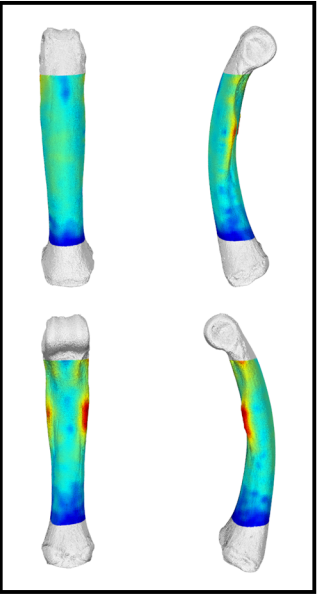
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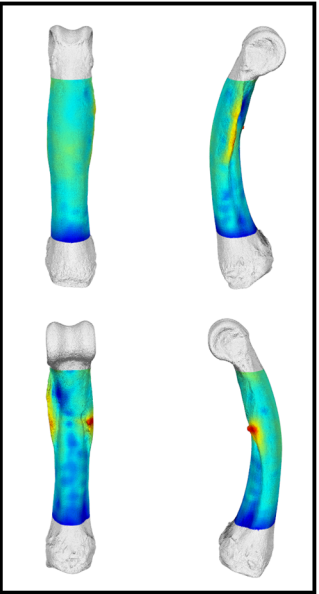
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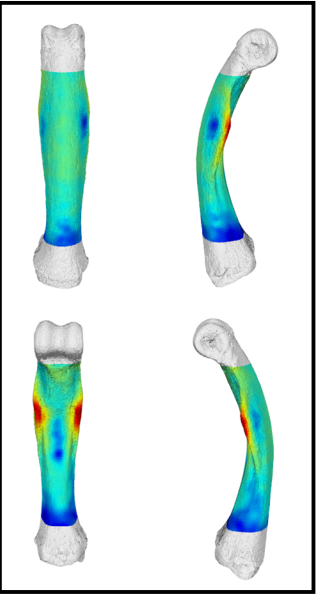
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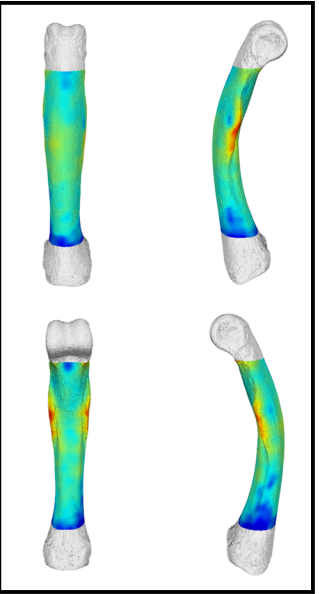
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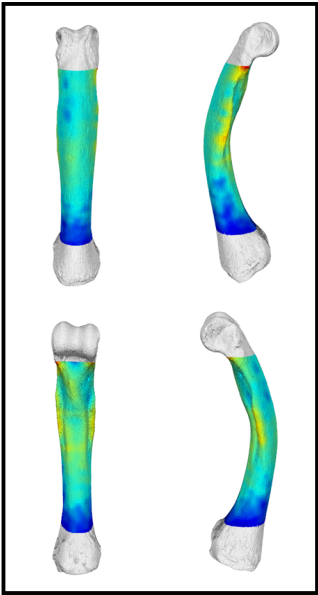
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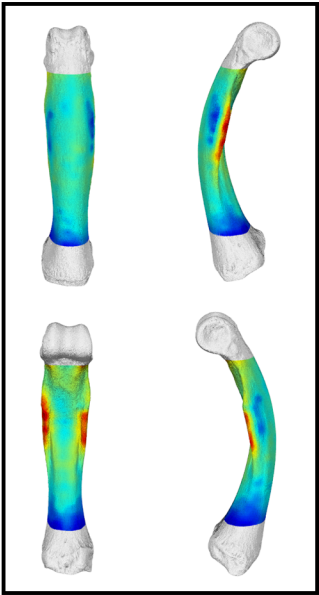
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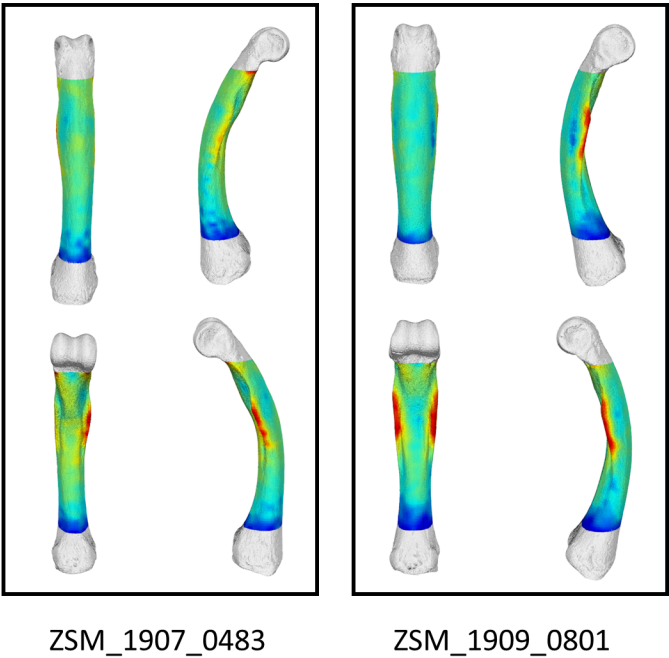
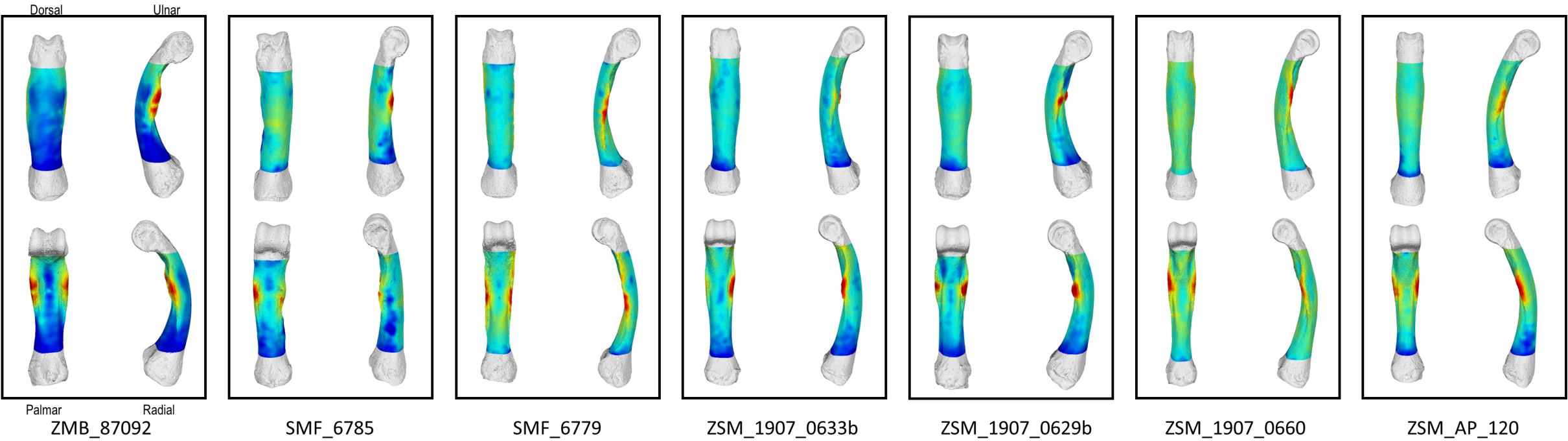


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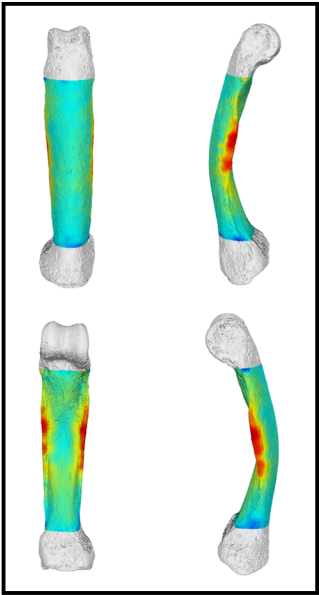
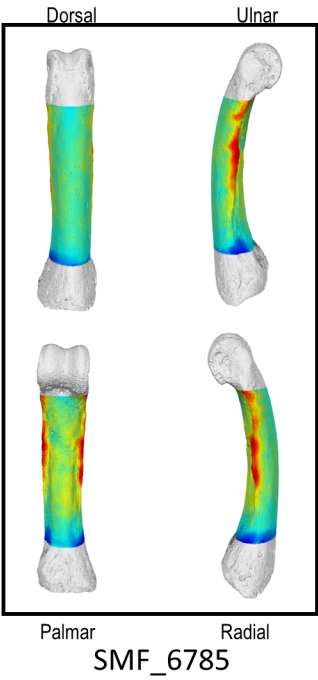


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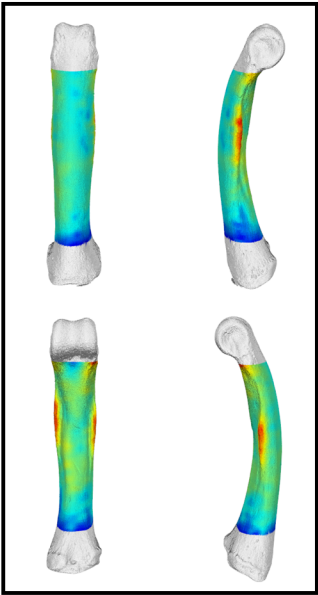
Pongo PP4



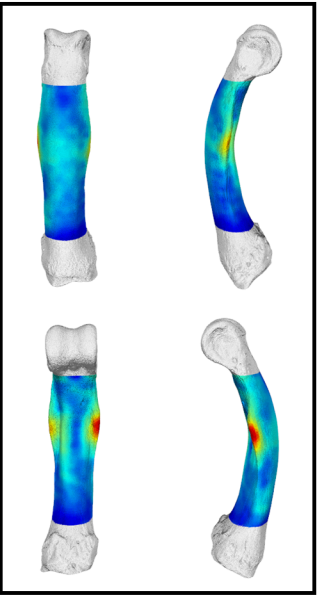
Pongo PP5



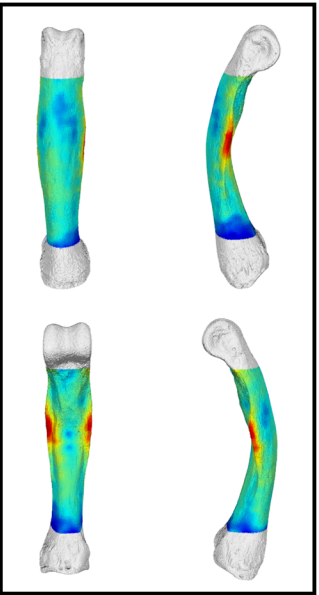
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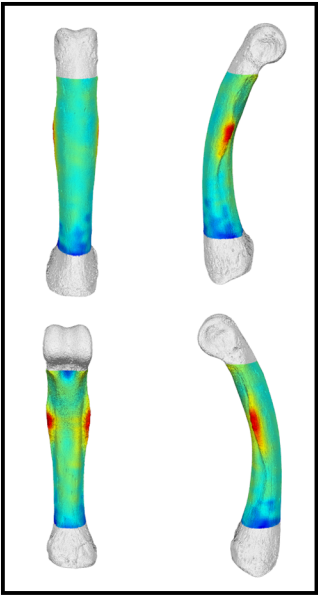
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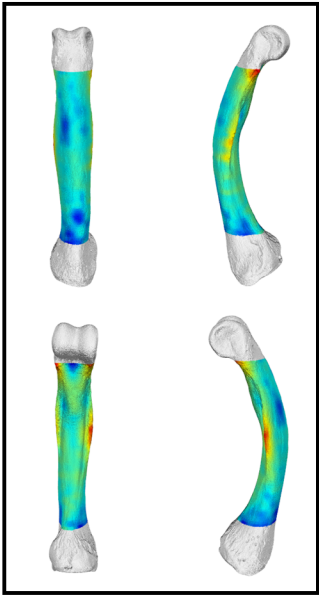
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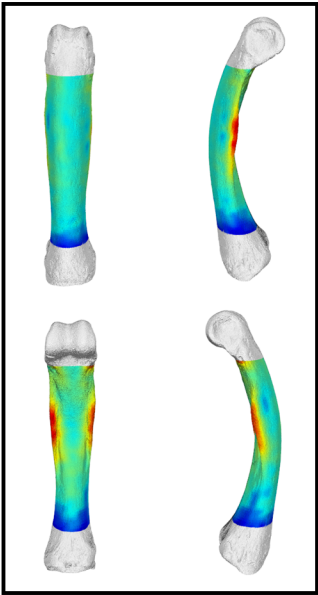
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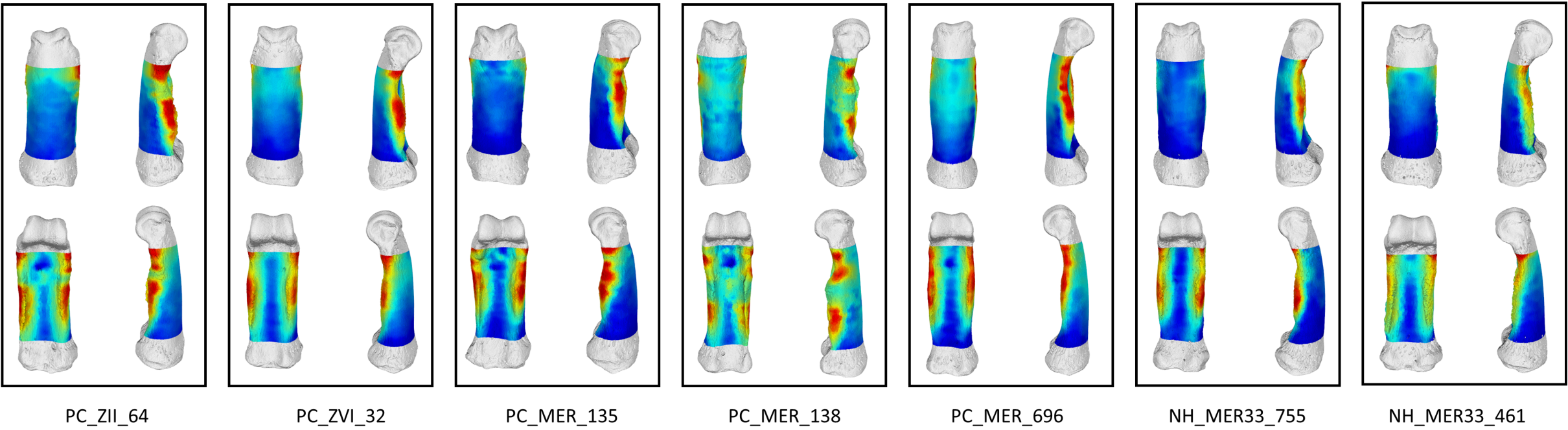
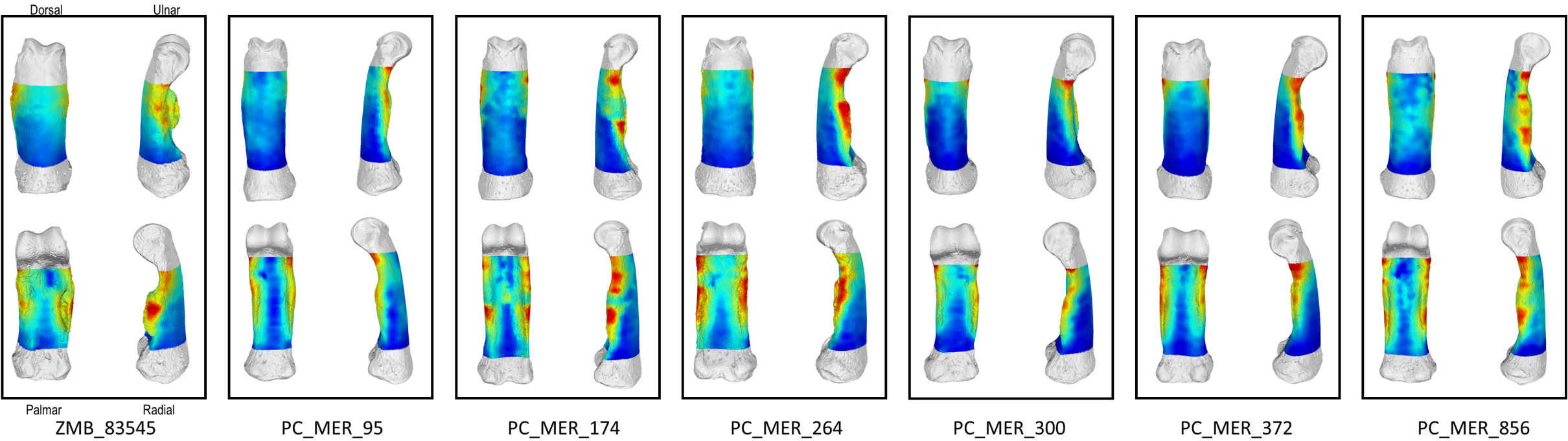


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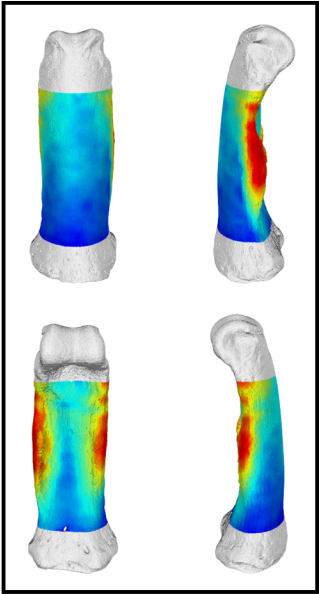
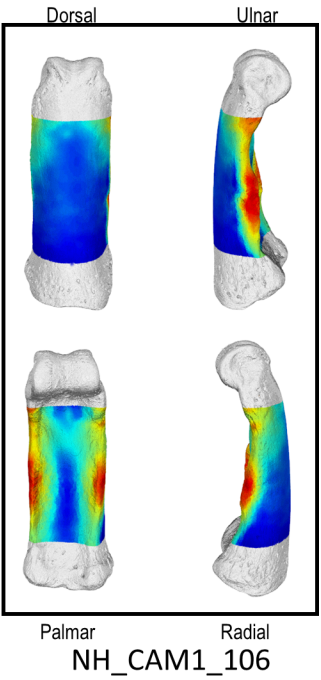


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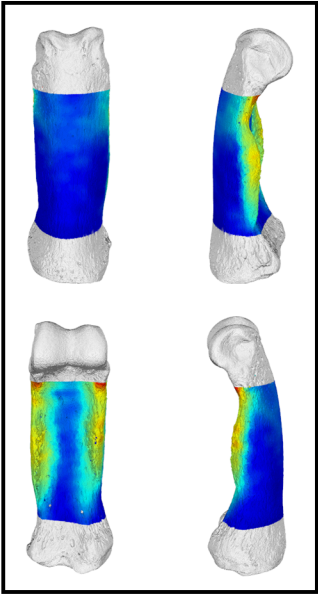
Gorilla PP2



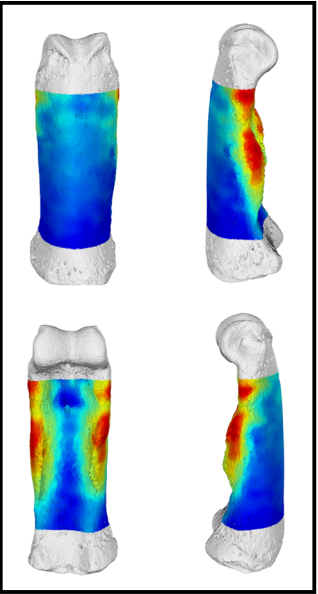
Gorilla PP2



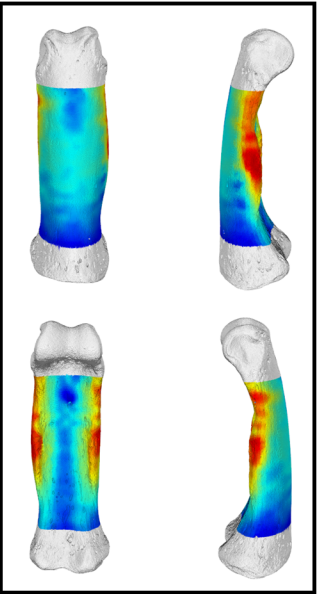
NH_CAM1_105



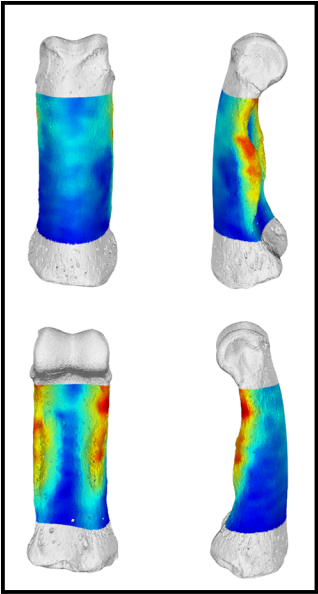
NH_MER35_150



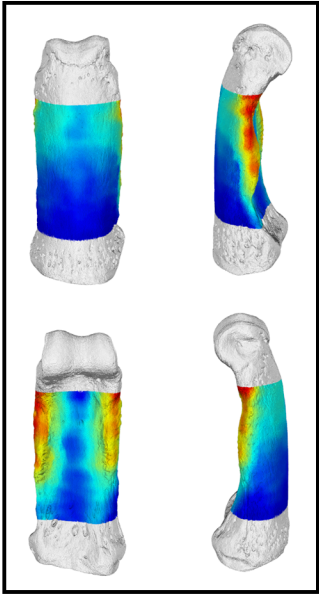
NH_CAM1_98



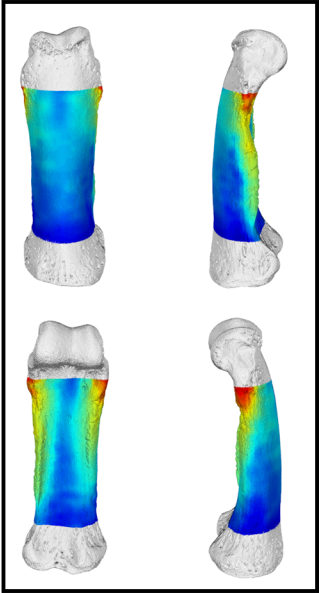
NH_MER35_136



NH_MER35_139

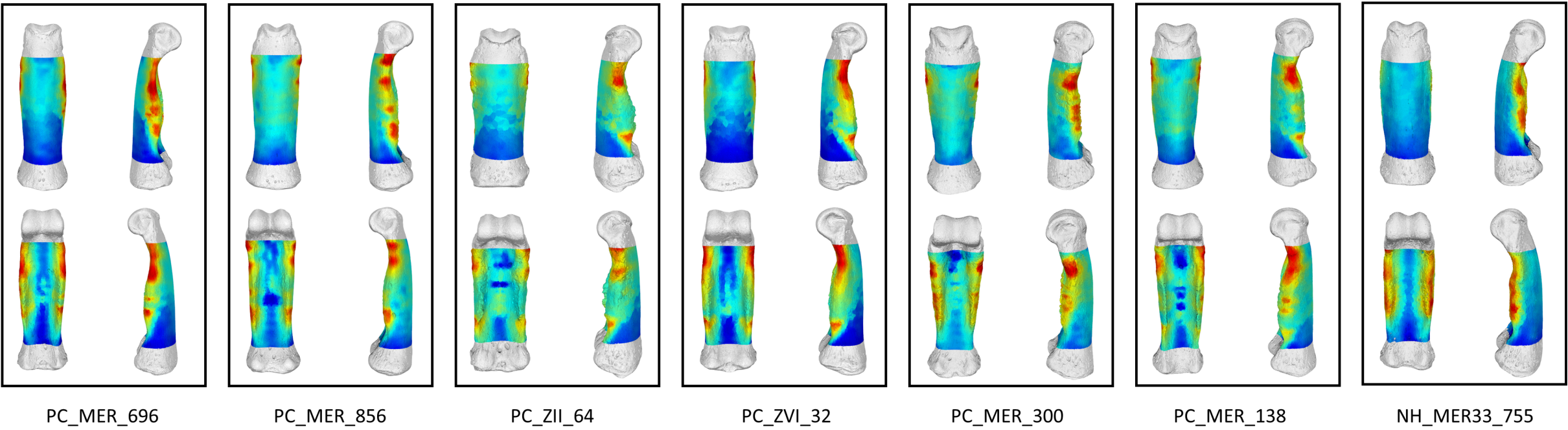
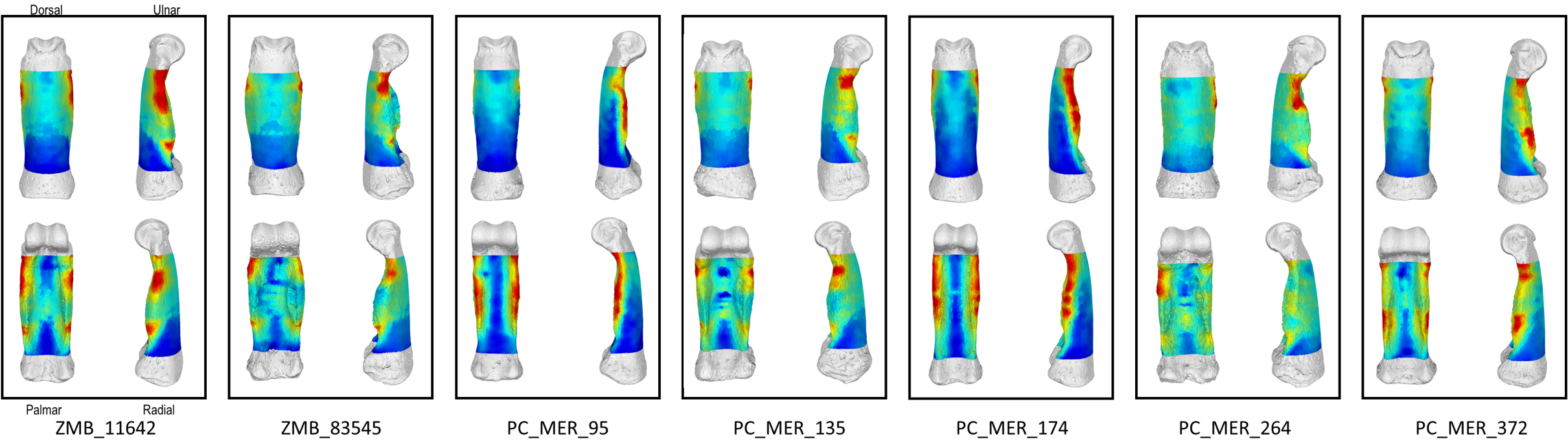


NH_FC_130

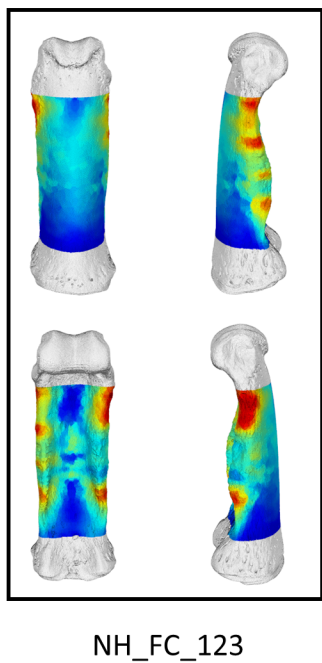
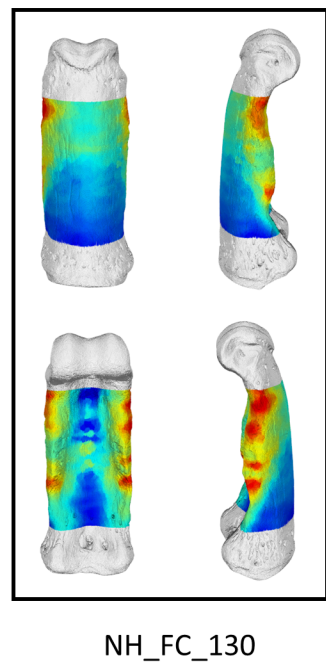
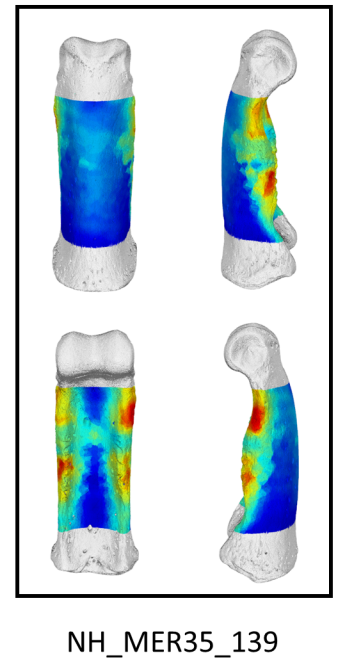
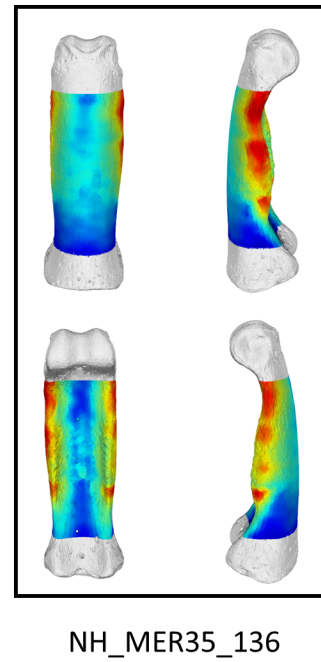
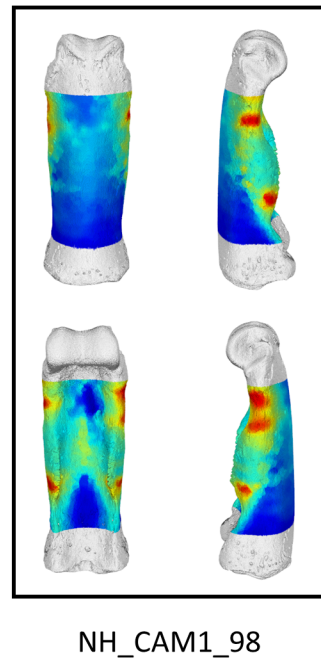
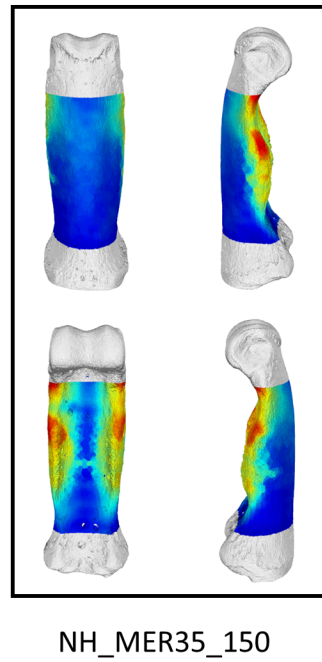
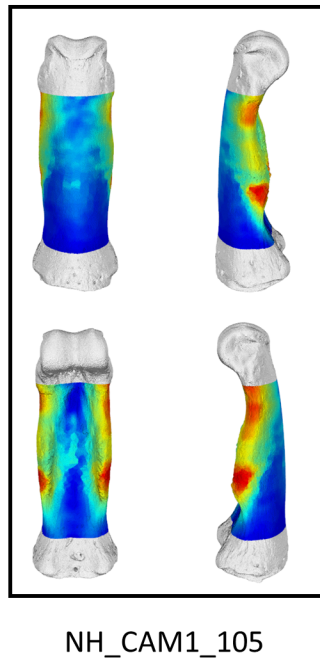
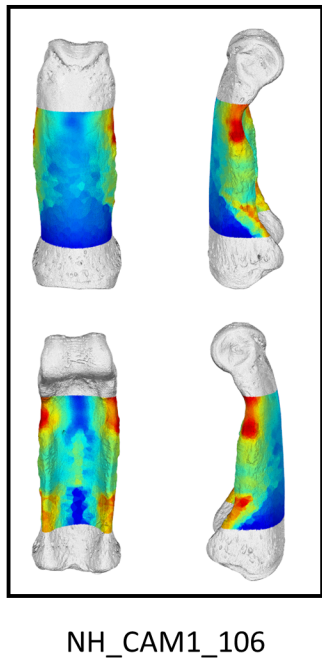
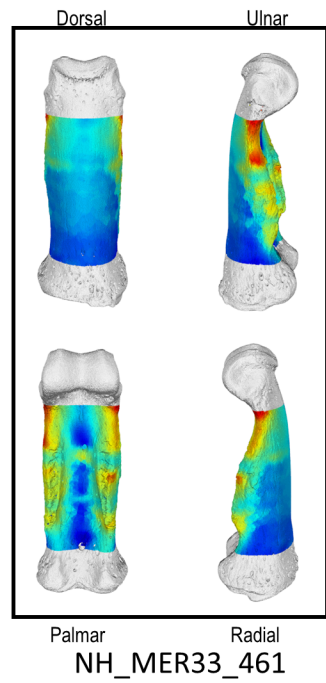


NH_FC_123

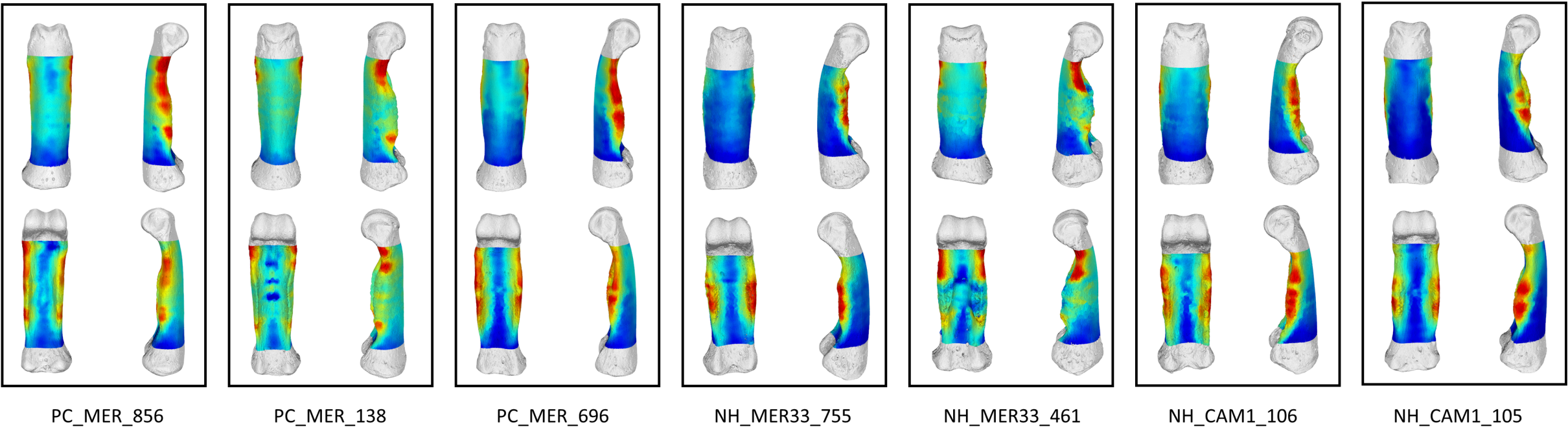
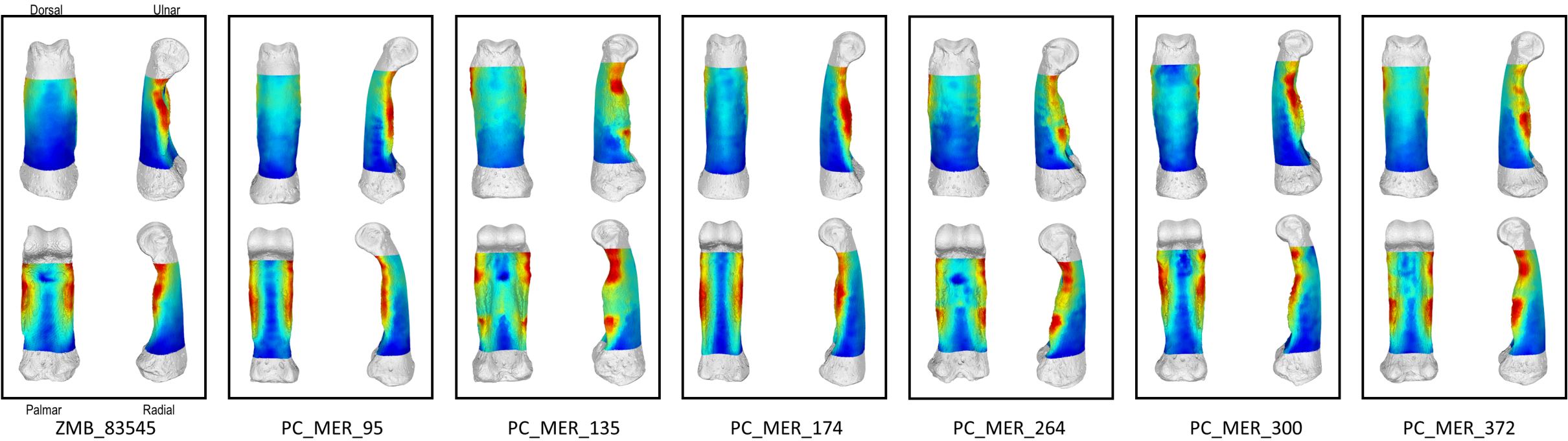
Gorilla PP3



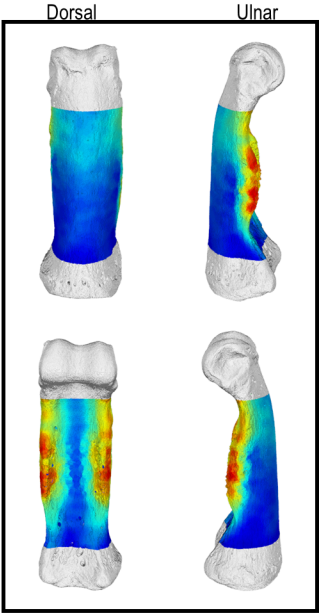
Gorilla PP3



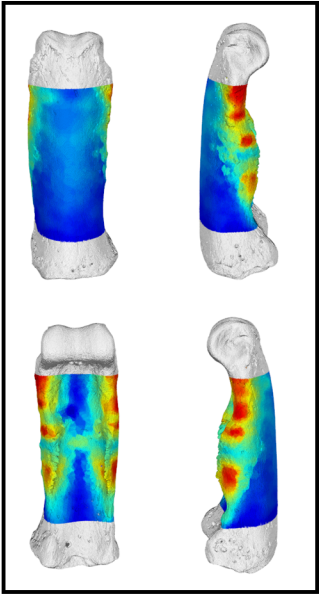
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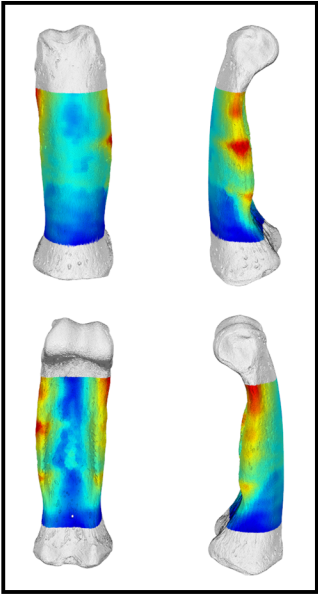
Gorilla PP4



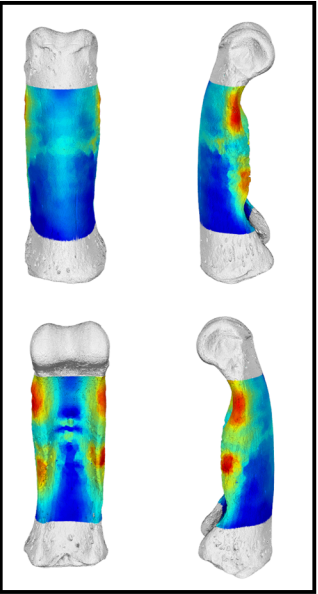
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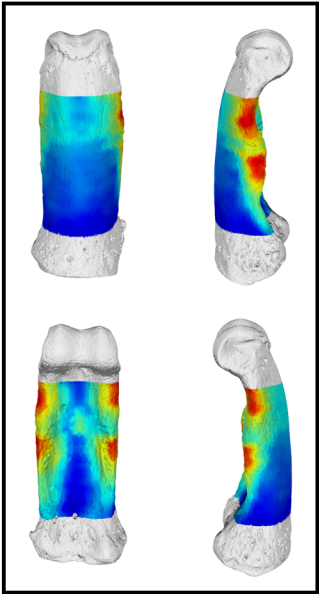
NH_CAM1_98



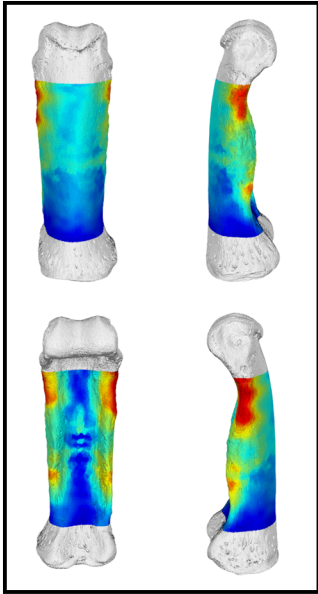
NH_MER35_136



NH_MER35_139

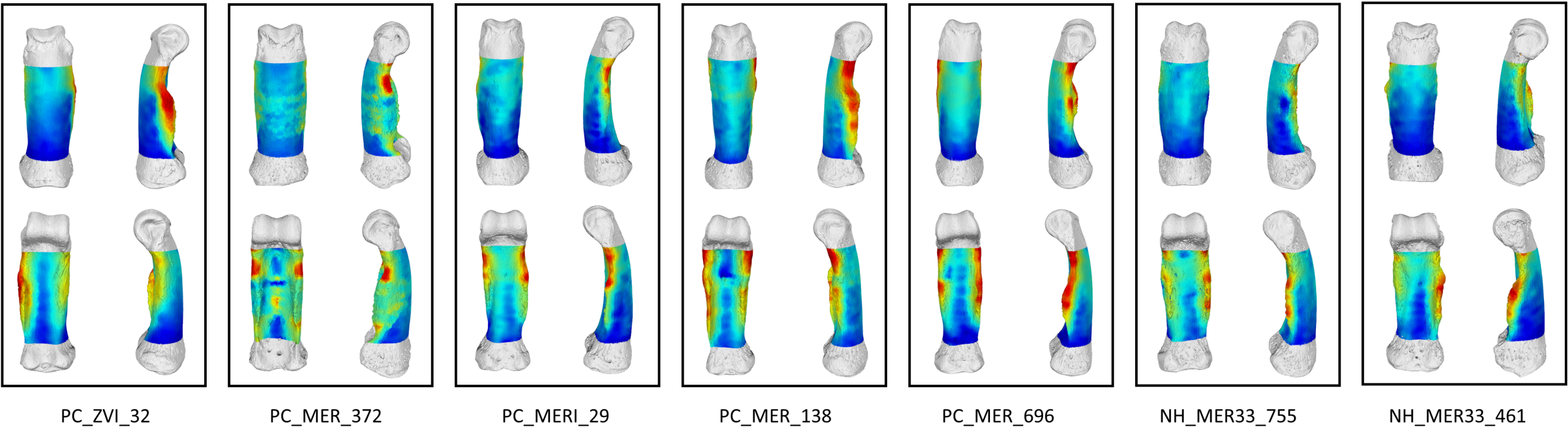
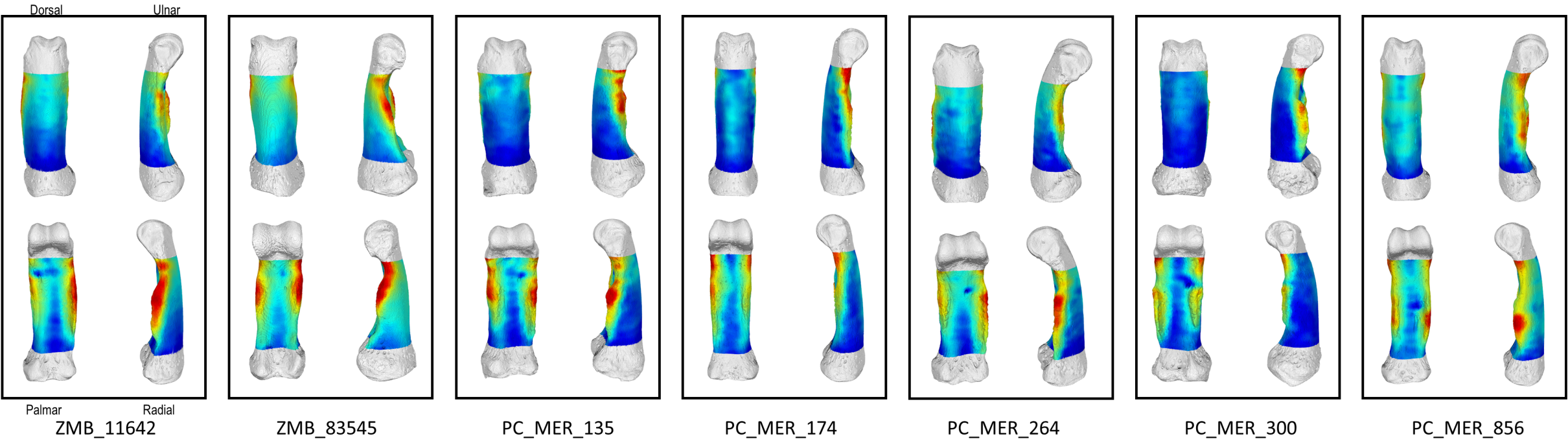


NH_FC_130

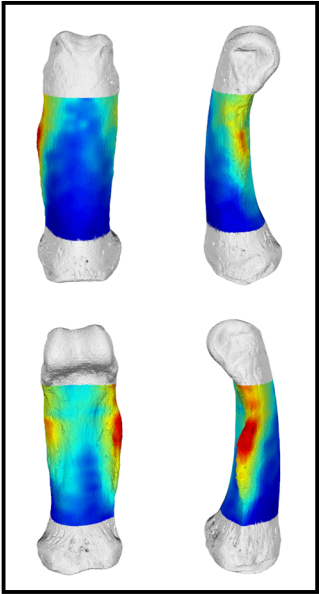
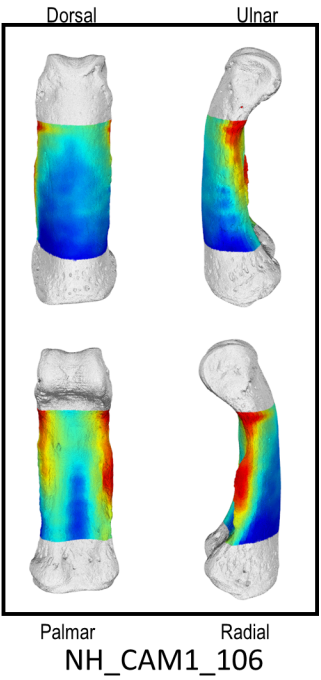


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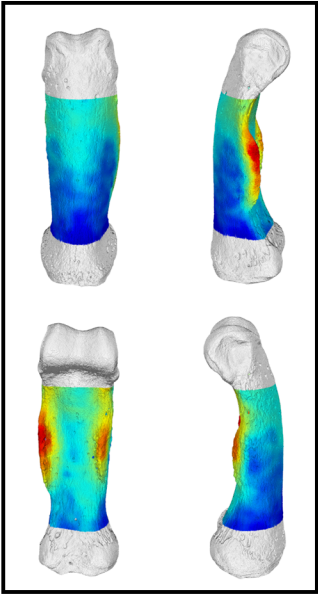
Gorilla PP5



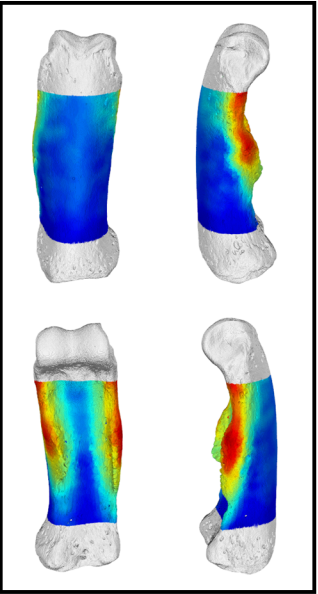
Gorilla PP5



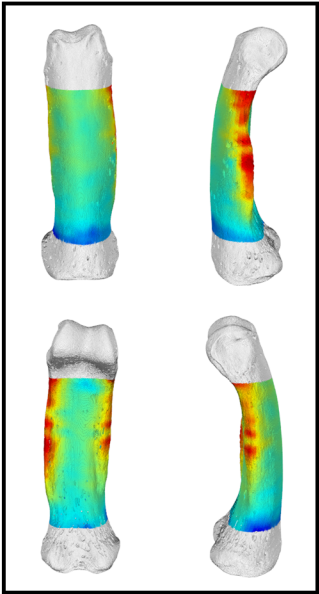
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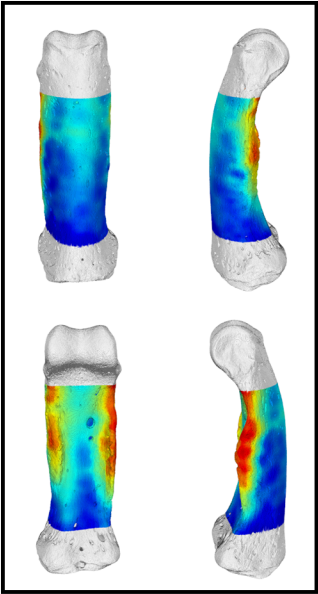
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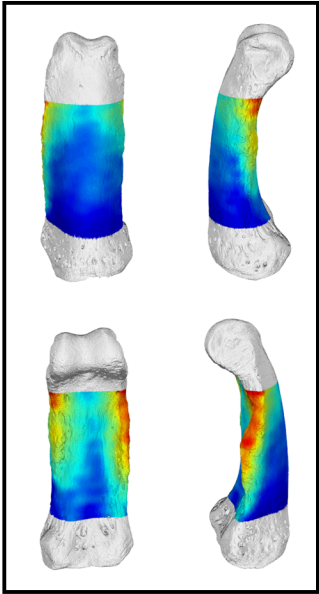
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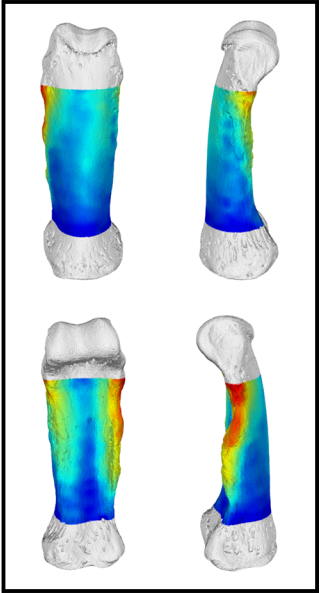
NH_MER35_136



NH_MER35_139

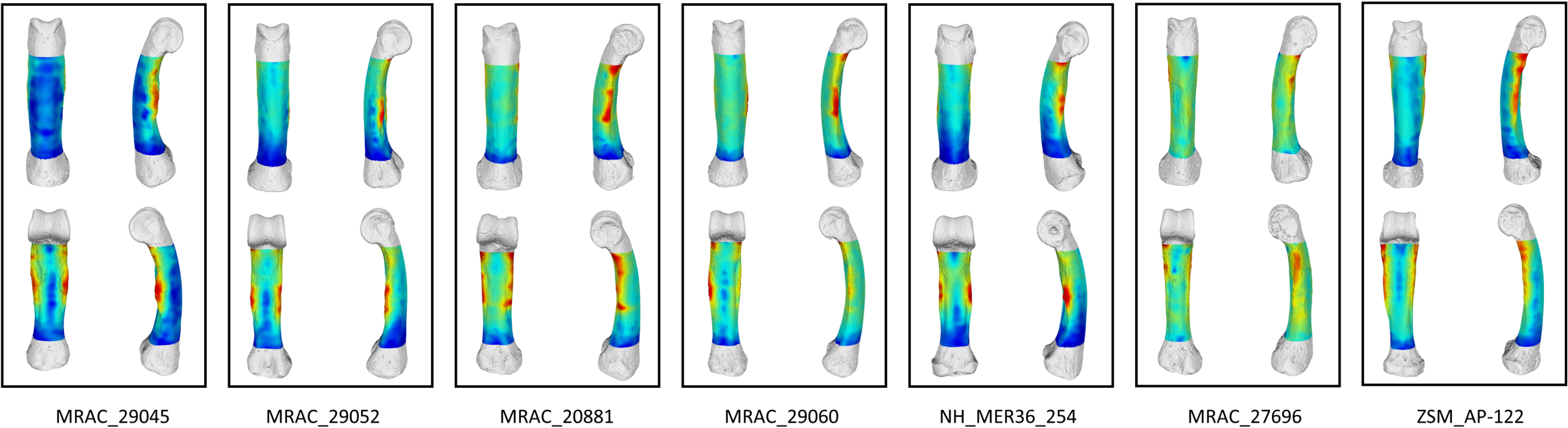
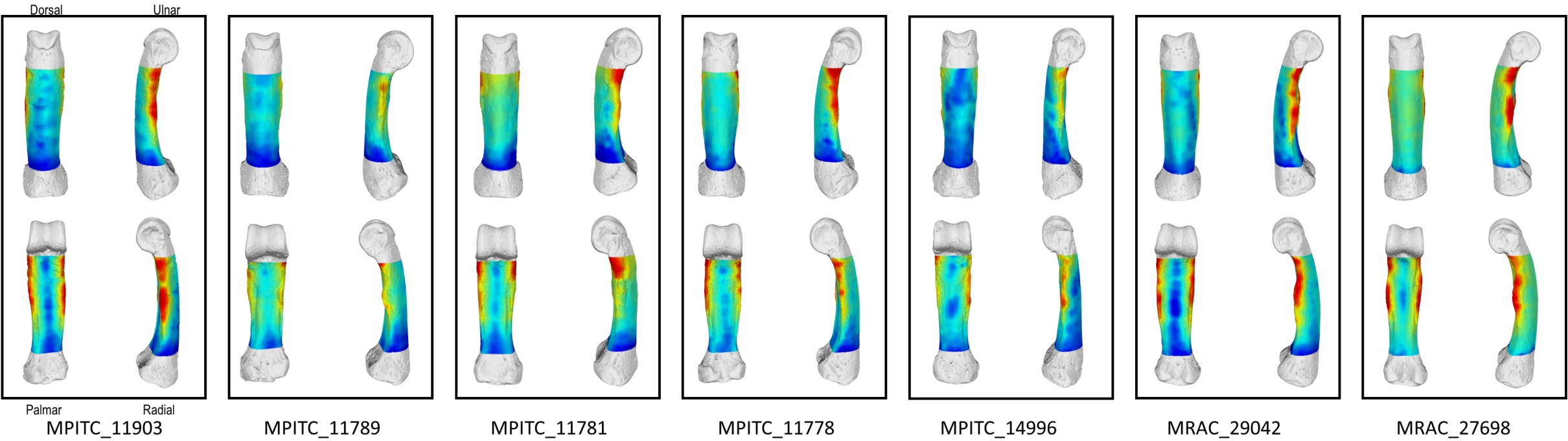


NH_FC_130

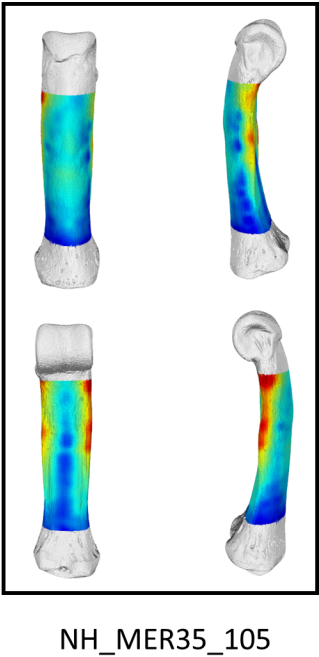
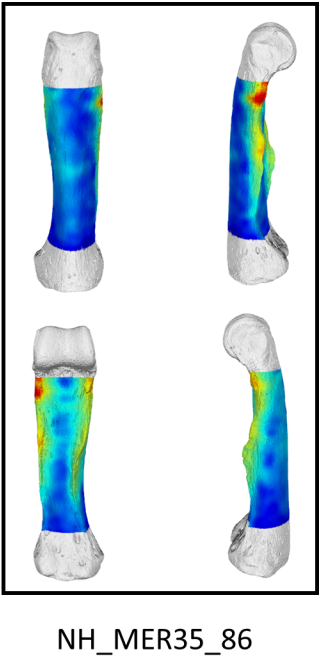
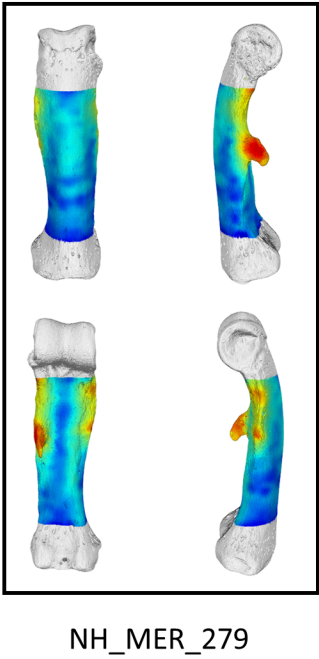
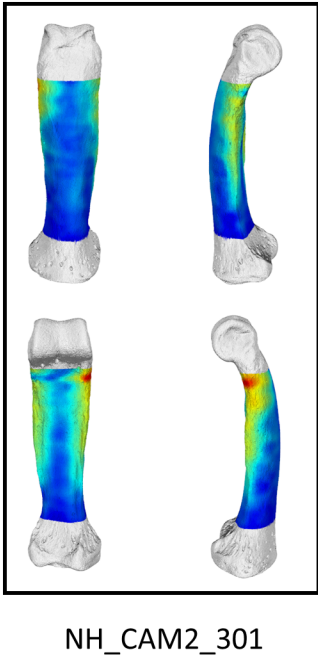
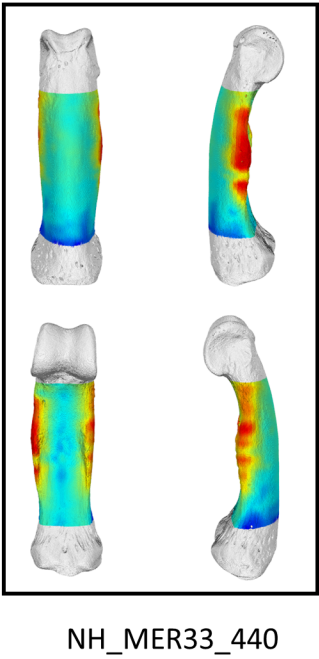
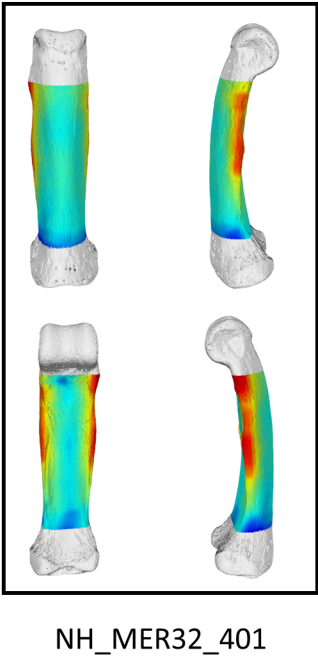
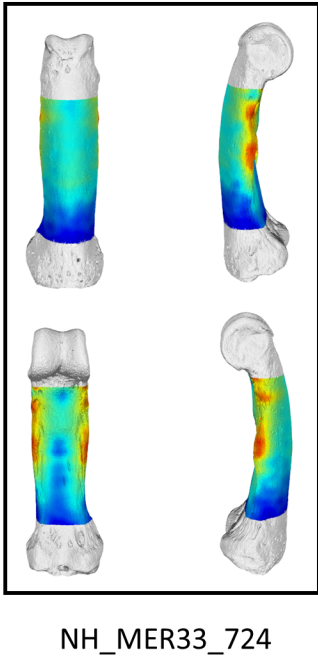
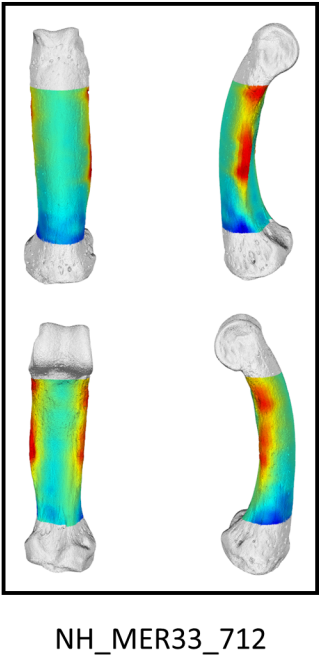
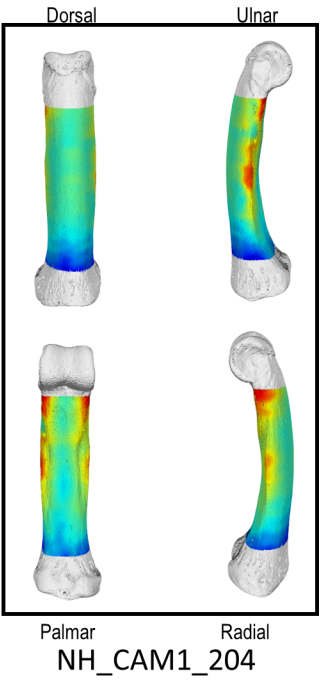


NH_FC_123

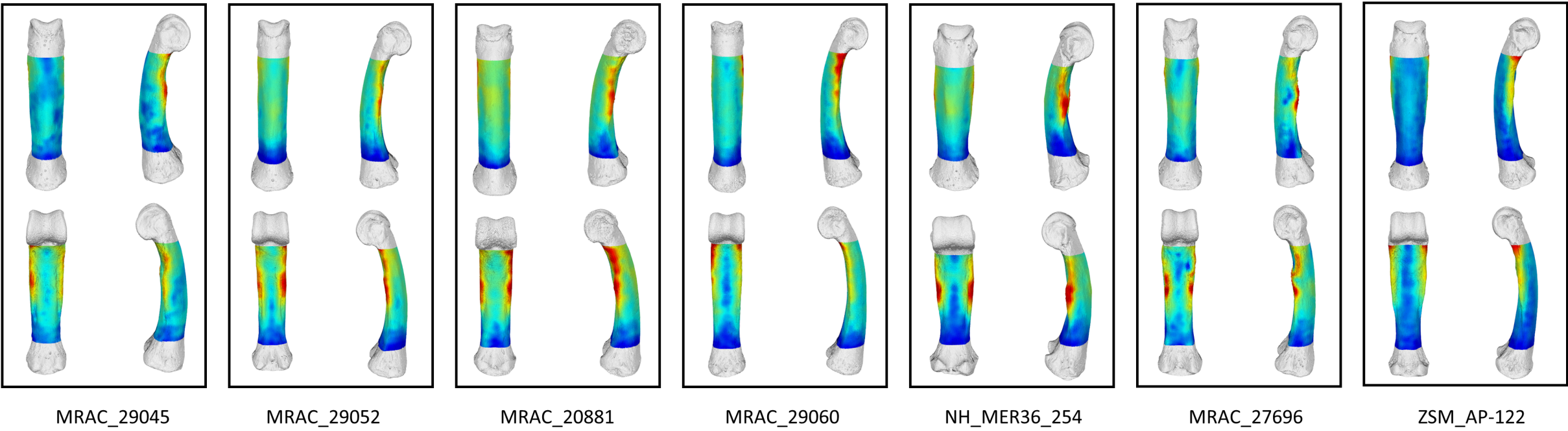
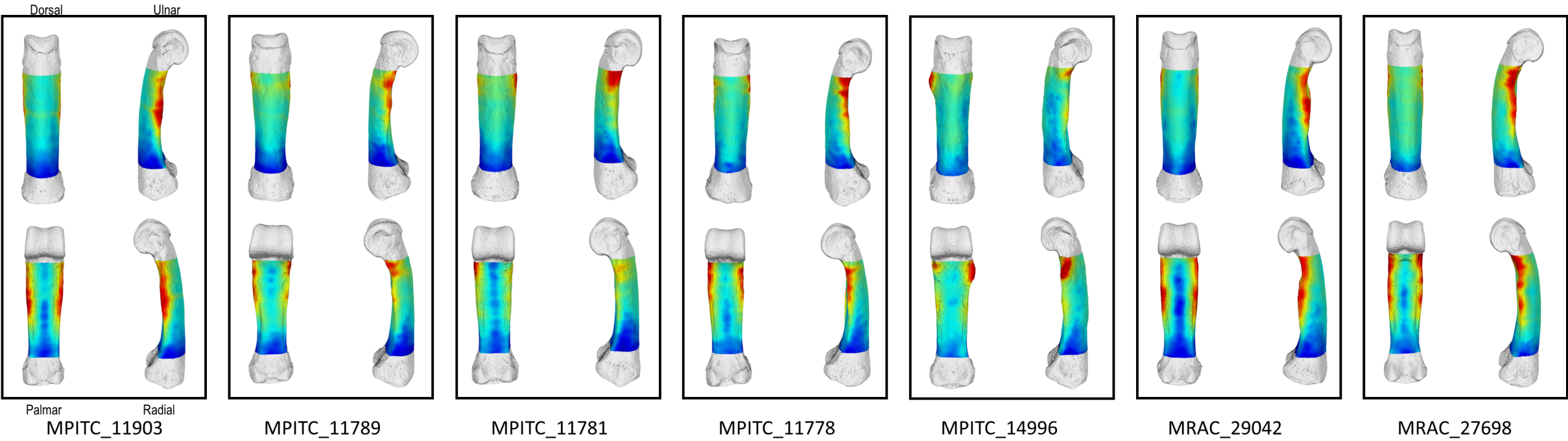
Pan PP2



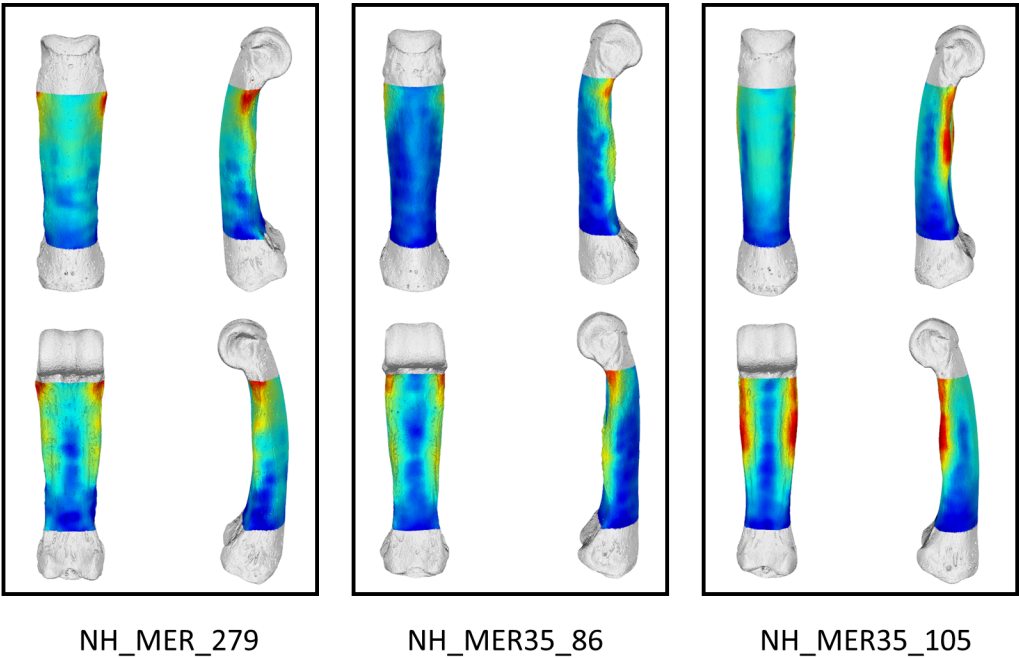
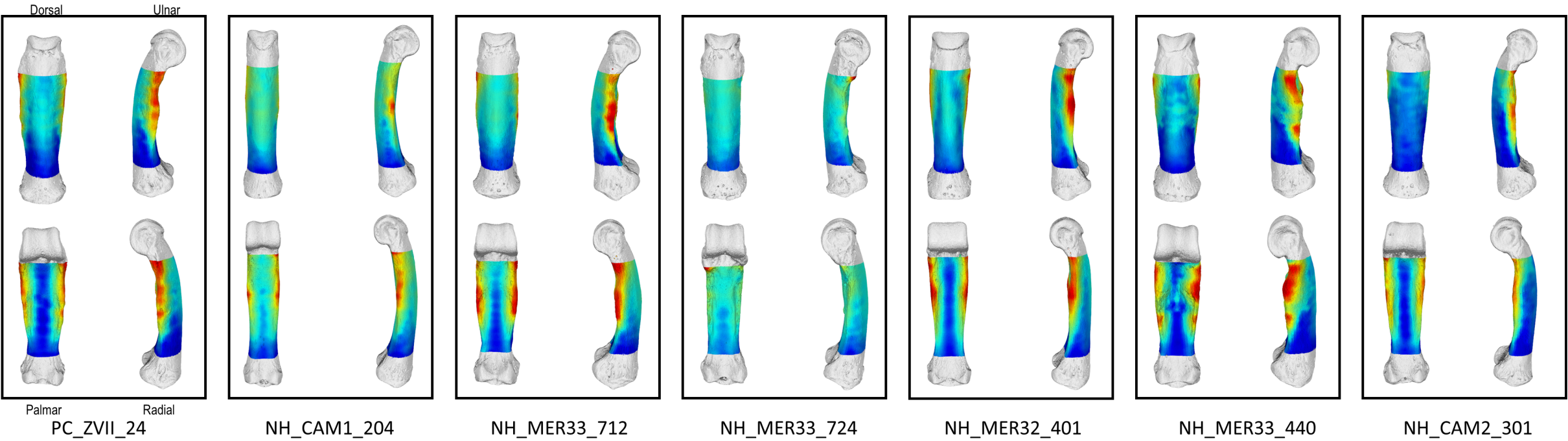
Pan PP2



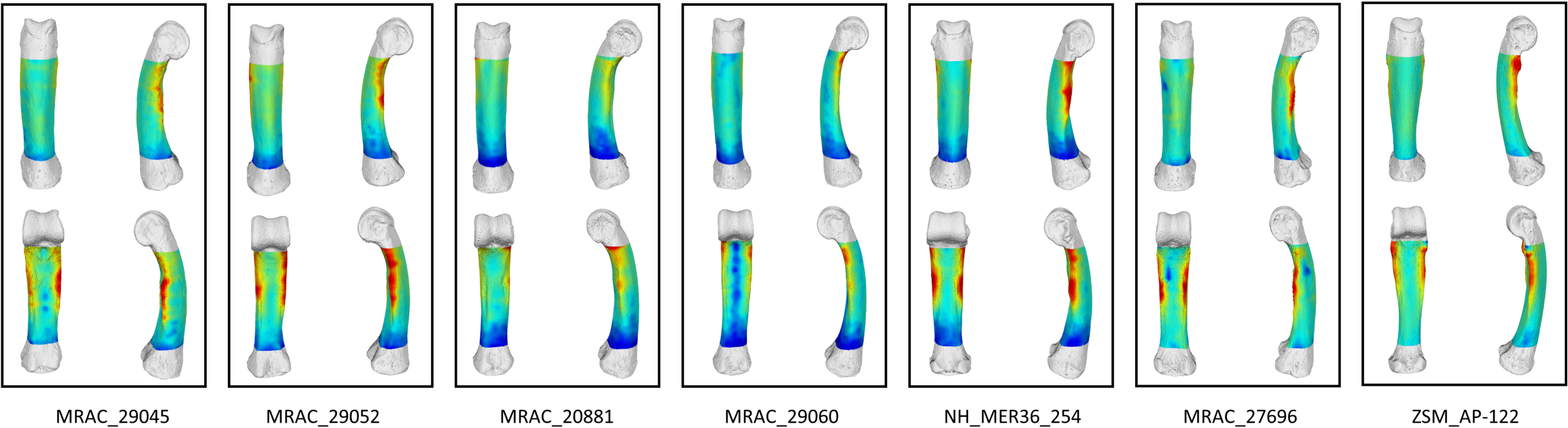
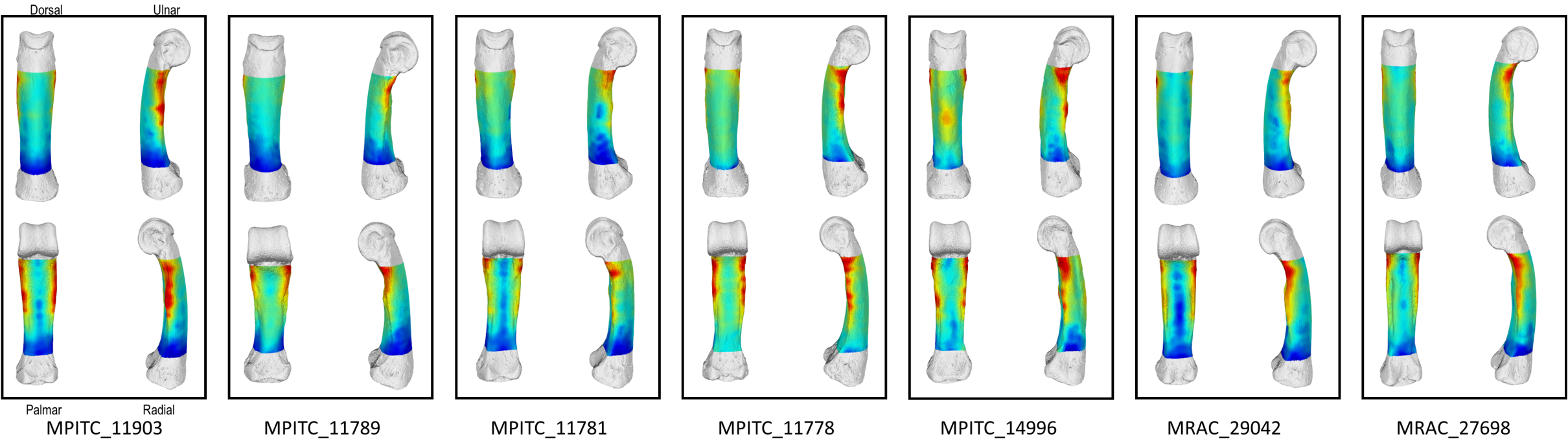
Pan PP3



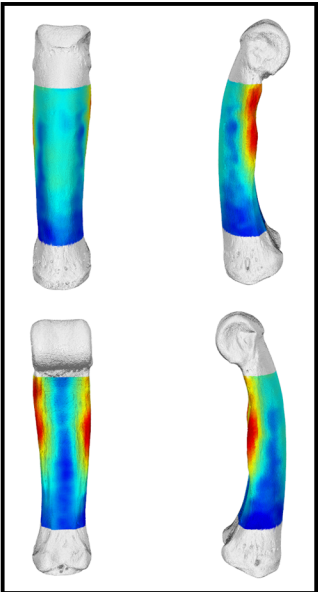
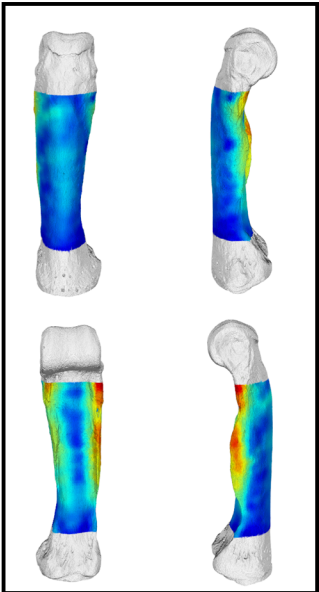
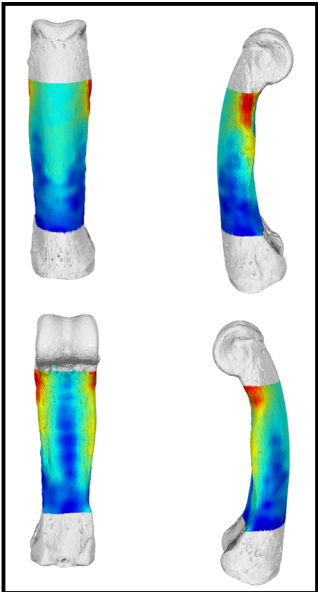
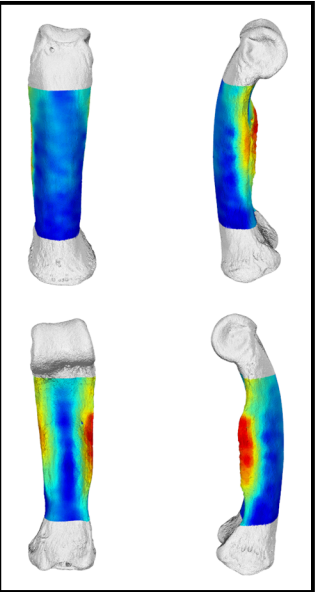
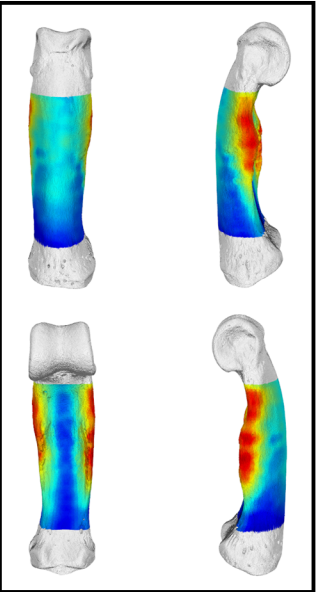
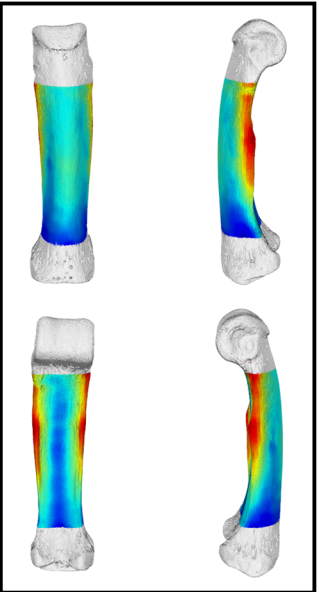
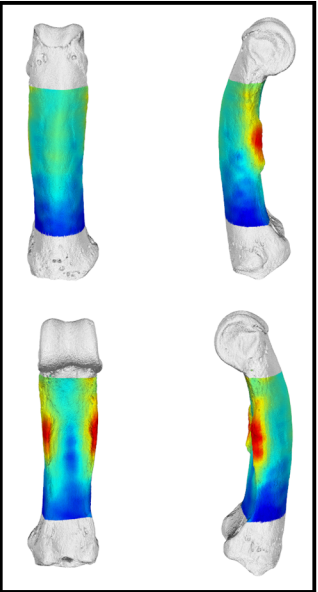
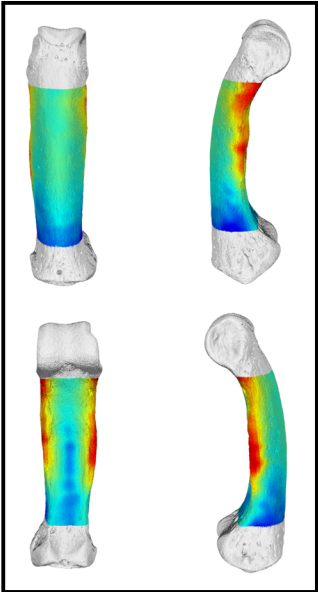
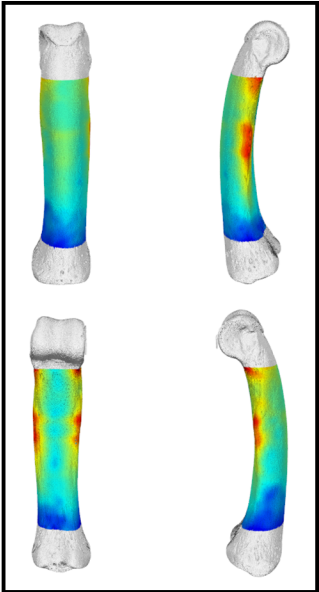
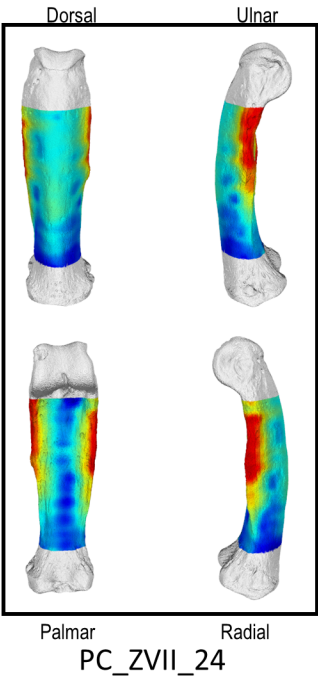
Pan PP3



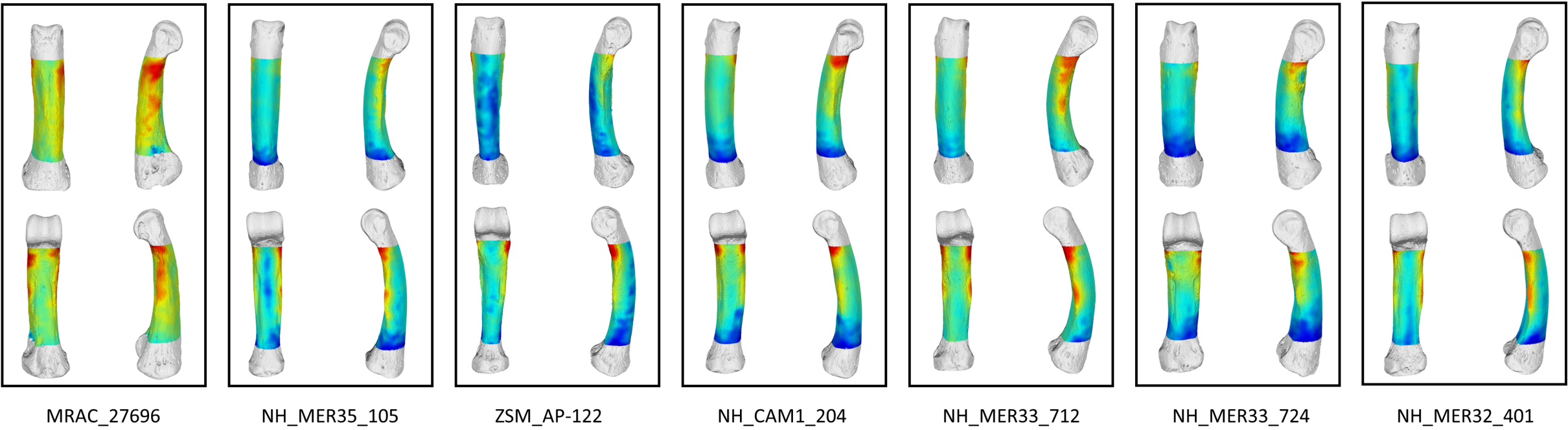
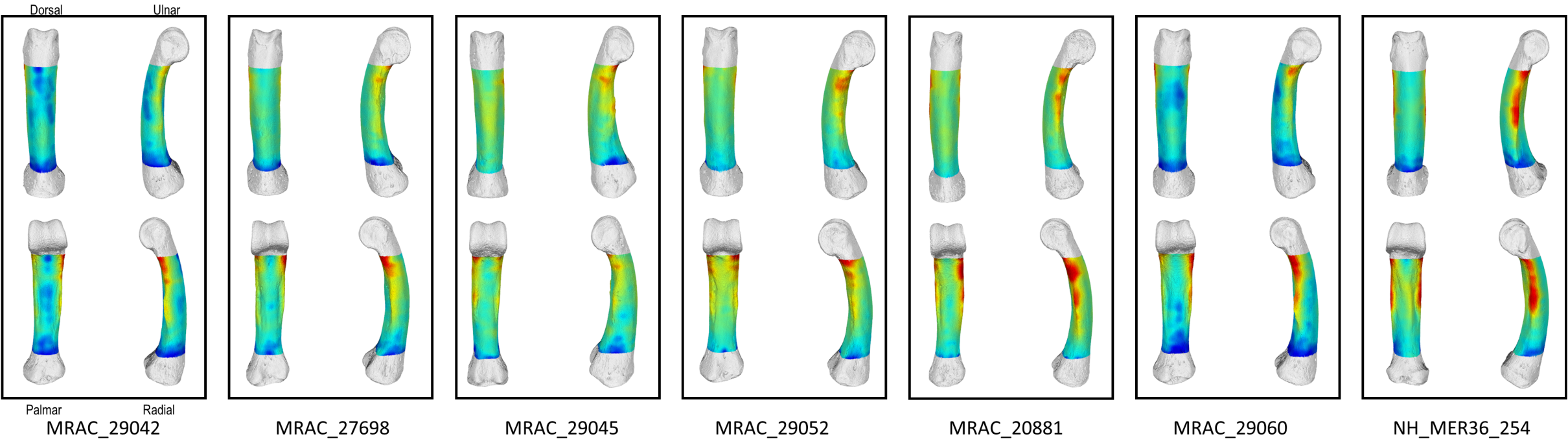
Pan PP4



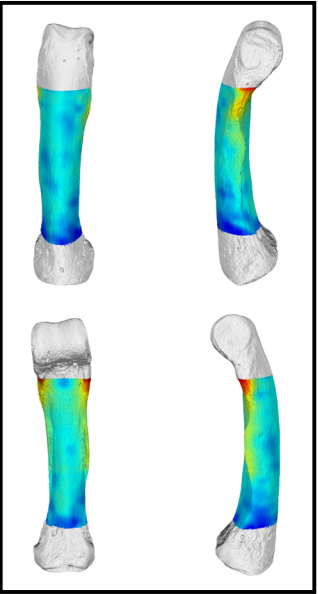
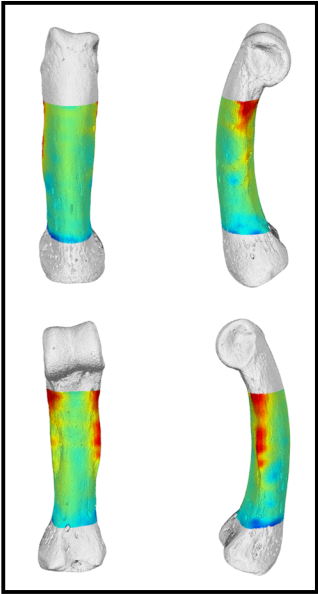
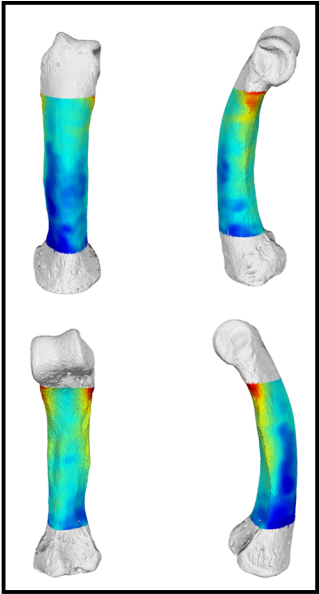
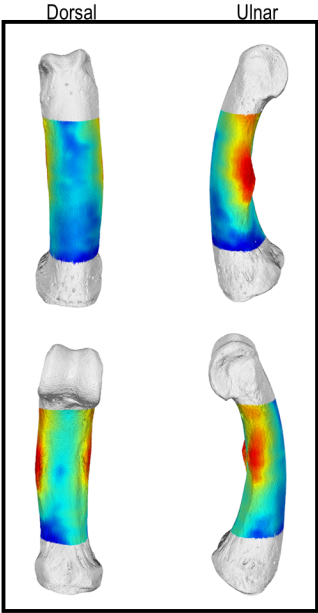
Pan PP4



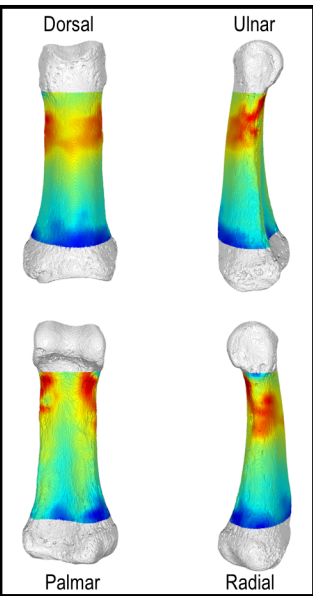
Pan PP5



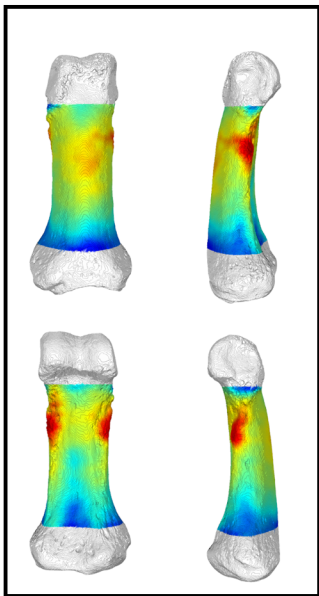
Pan PP5



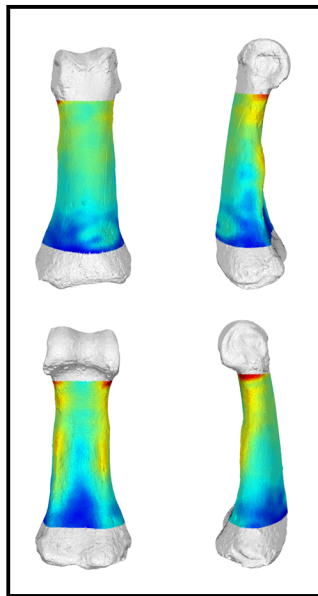
H. sapiens PP2



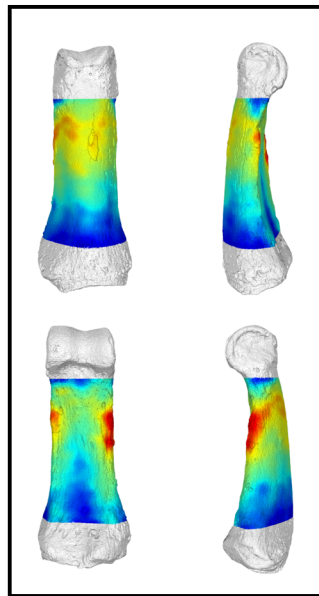
81_H1035



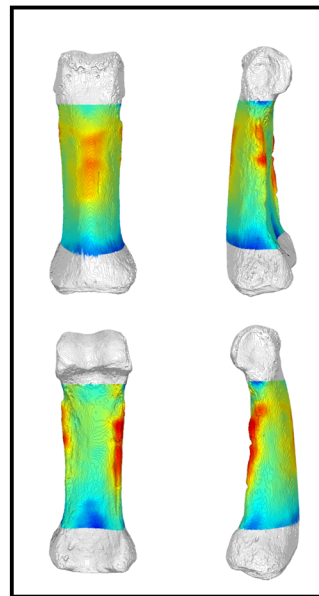
X36_FCS16



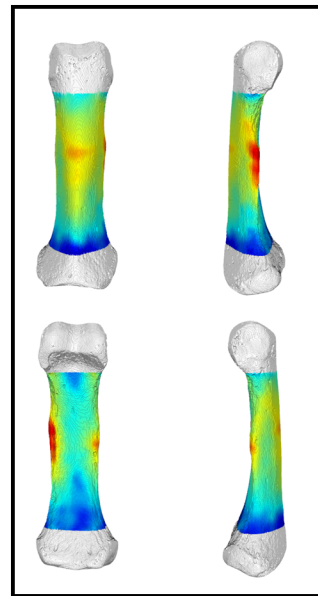
ARENE_CANDIDE_2



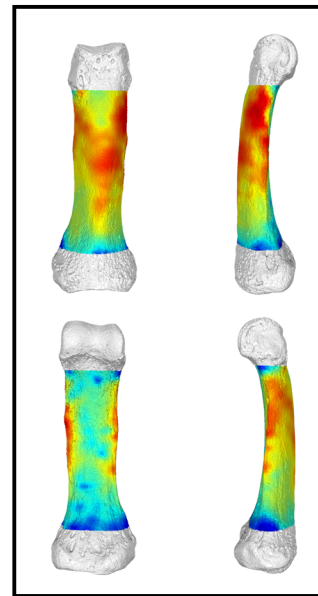
Barma_Grande_2



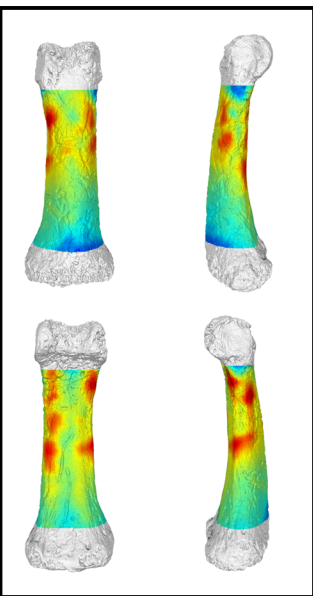
X37_FCS17



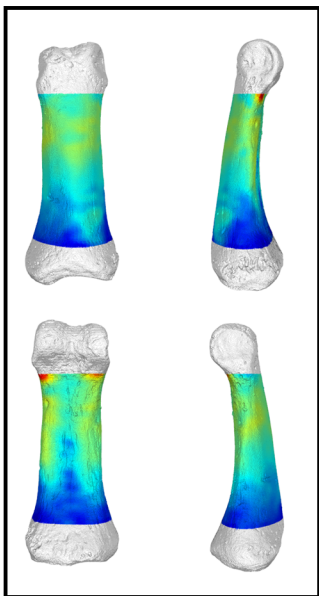
DCW_AM_3_0_2



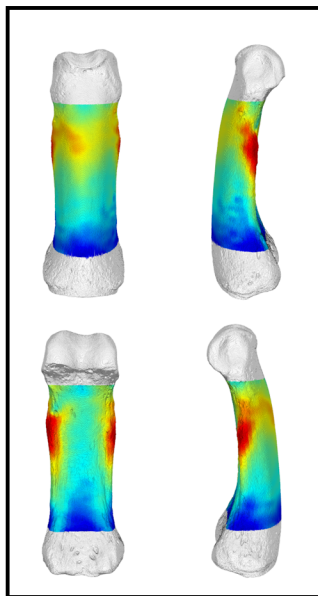
DCW_OC_1_0_141



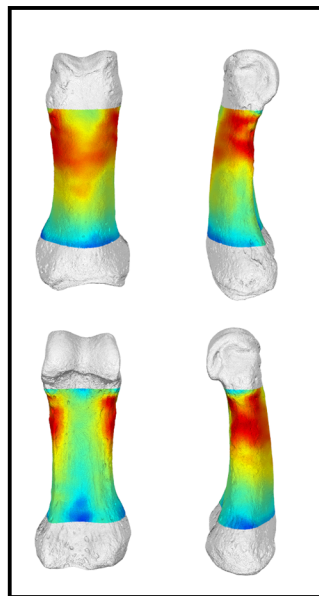
DV13_93



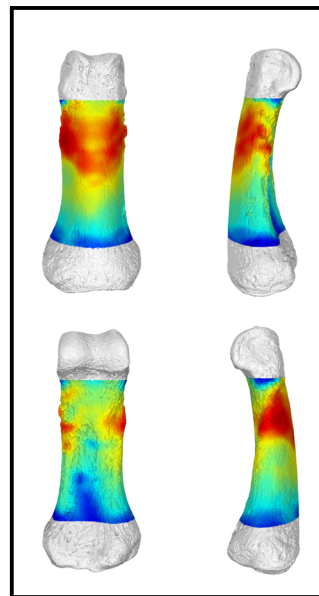
DV15_112



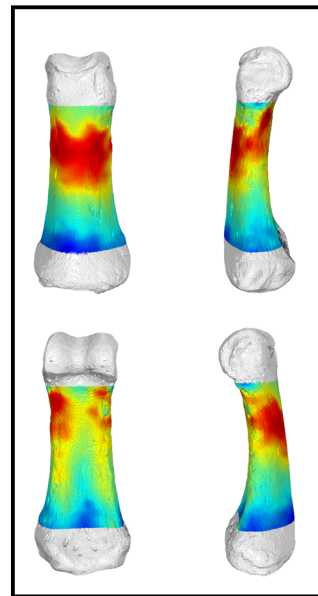
FCS8



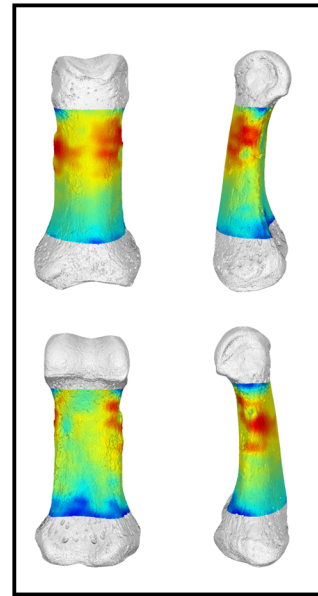
GAUG_Inden-113



GAUG_Inden-119

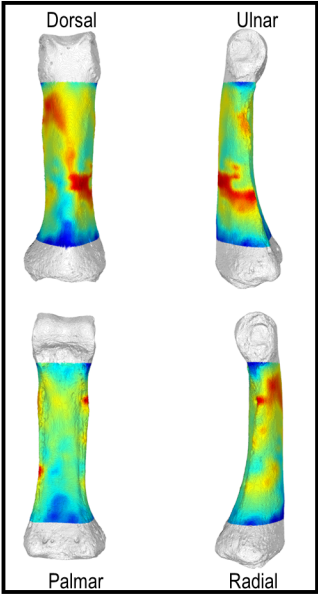


X38_FCS17

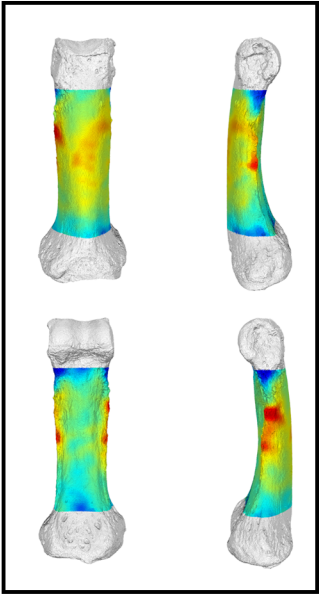


GAUG_Inden-243

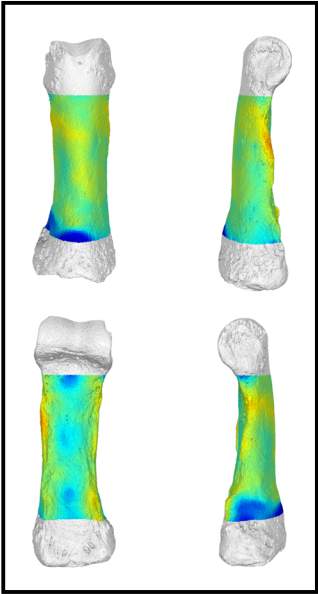
H. sapiens PP2



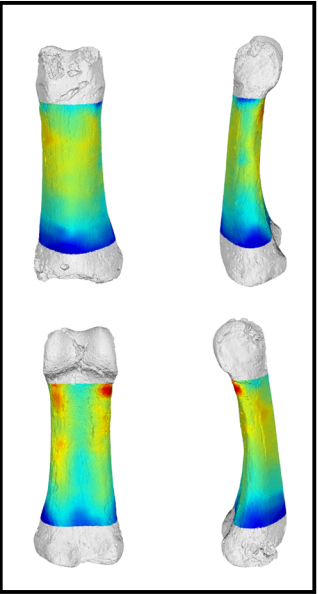
NHMW_Nubian_J7



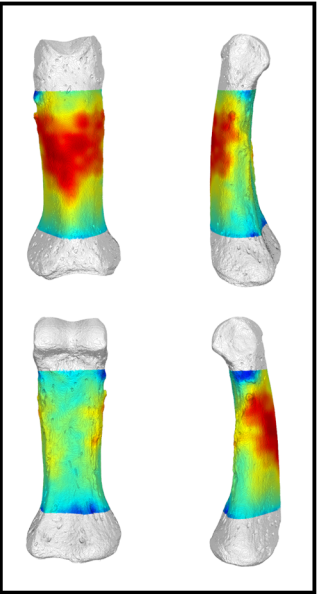
NHMW_Nubian_K63



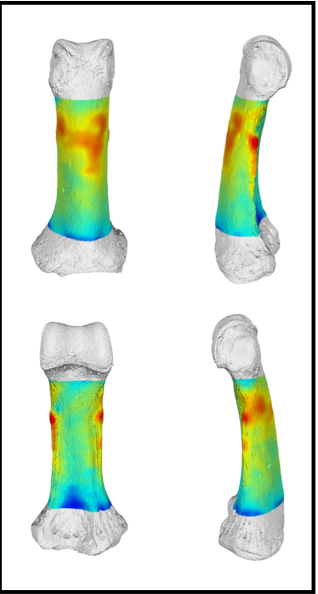
OHALO_II_2



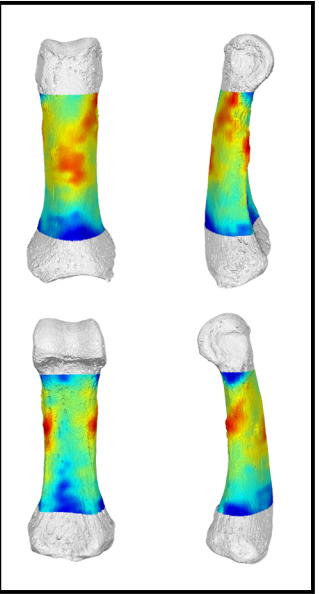
Qafzeh_9



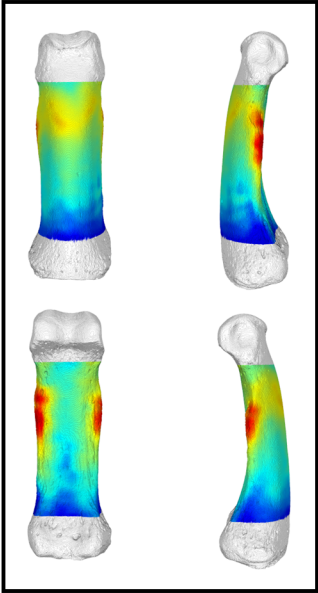
UNIFL_3127



UNIFL_4865

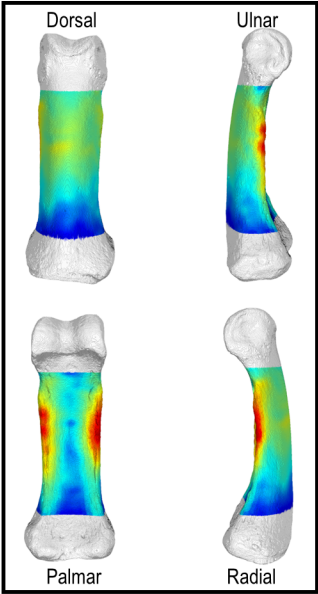


UNIFL_4887

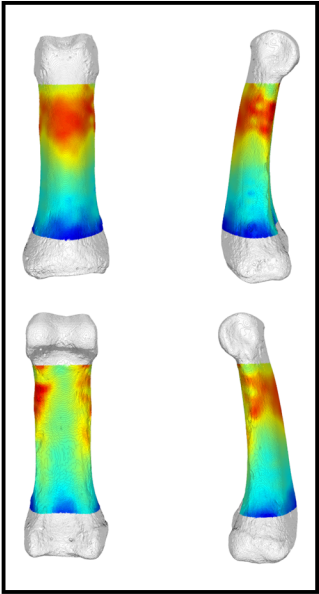


X31_FCS8

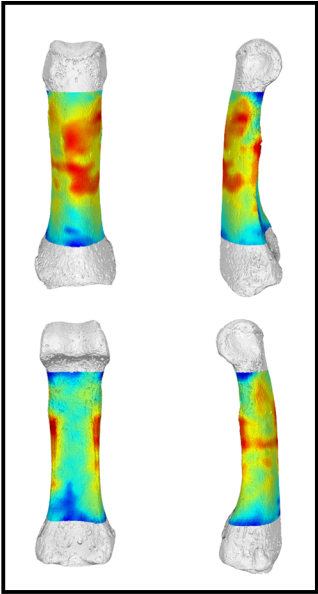
H. sapiens PP3



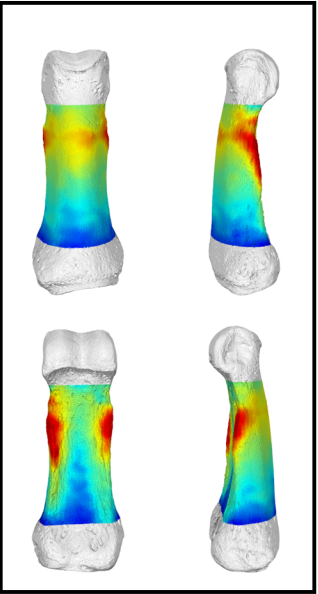
81_H172_H



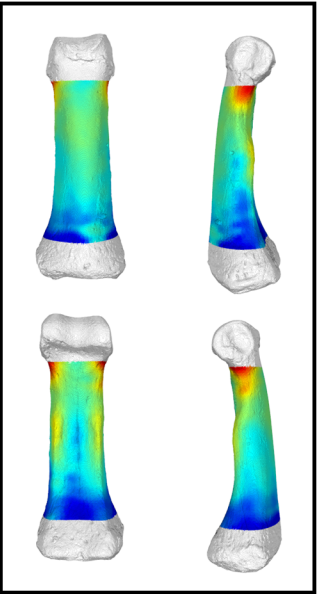
81_H1040



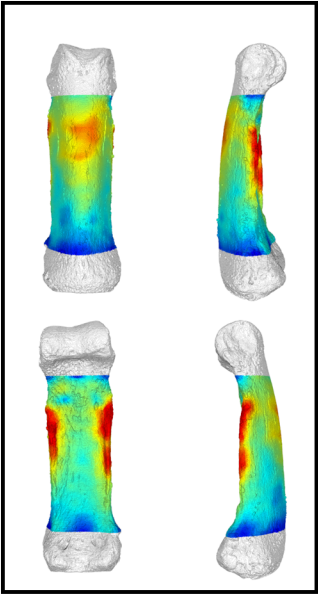
UNIFL_4887



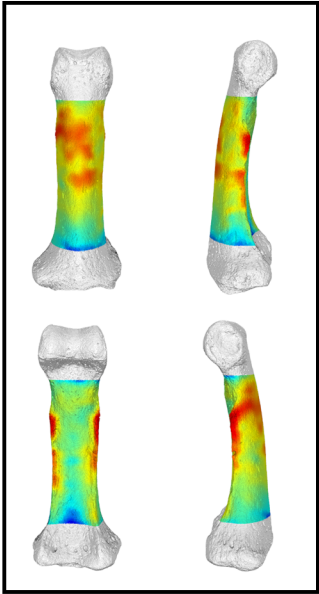
X31_FCS8



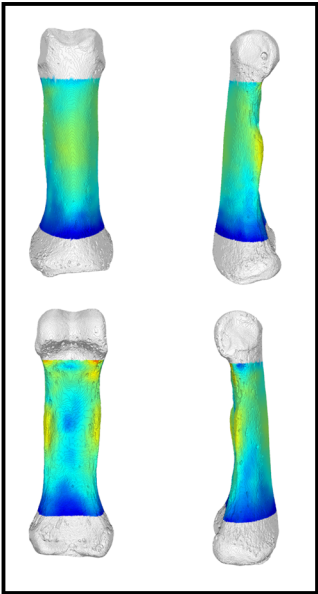
ARENE_CANDIDE_2



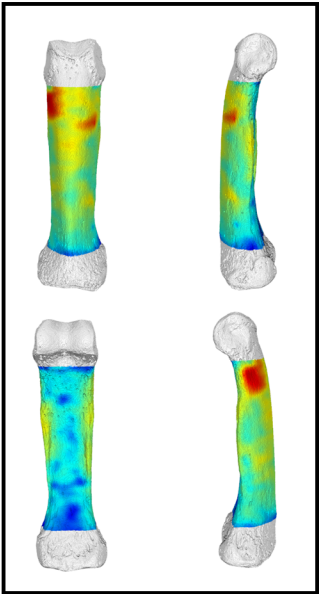
Barma_Grande_2



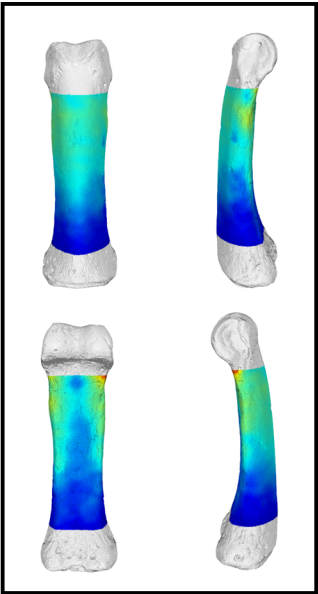
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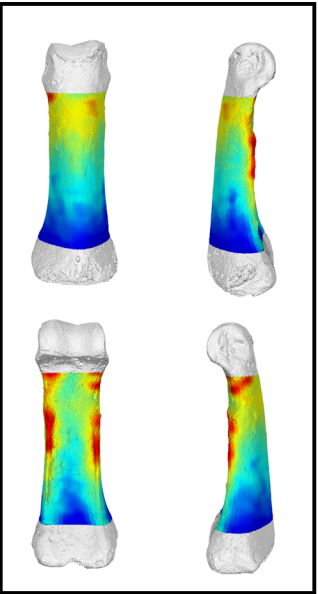
DCW_AM_3_0_2



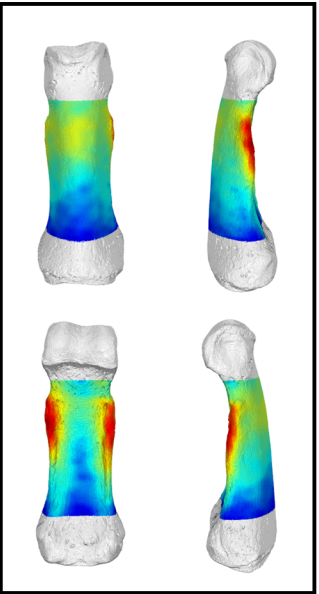
DCW_OC_1_0_141



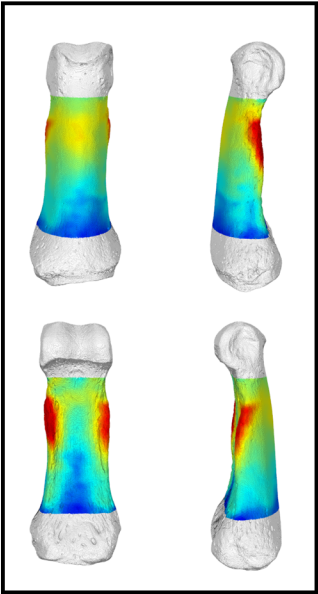
DV15_113



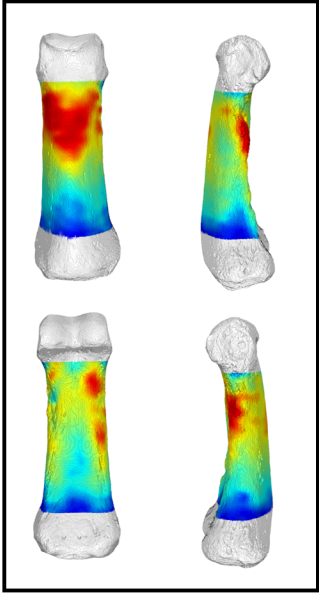
DV16_88



FCS8

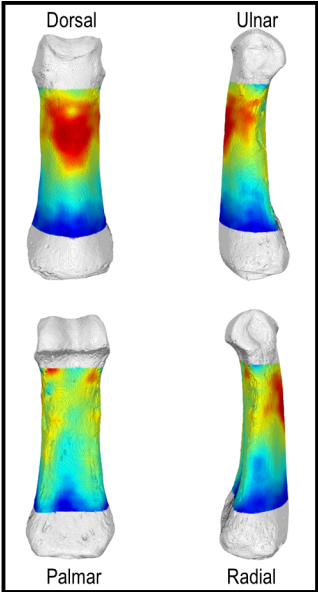


FCS8

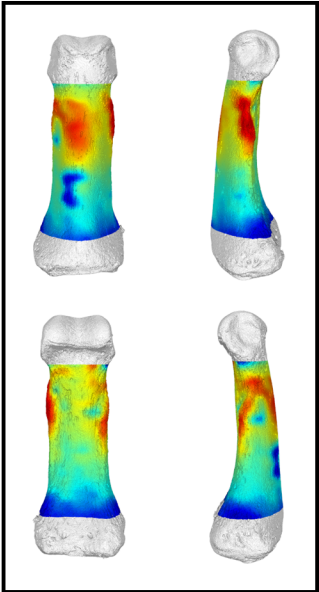


FCS16

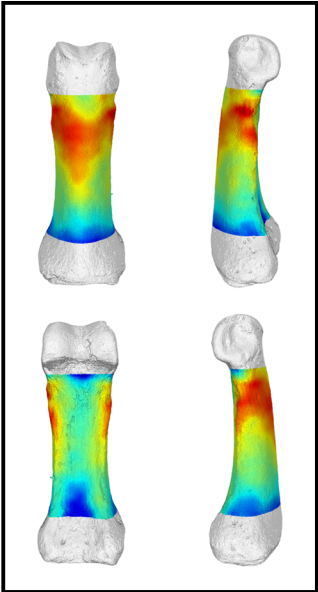
H. sapiens PP3



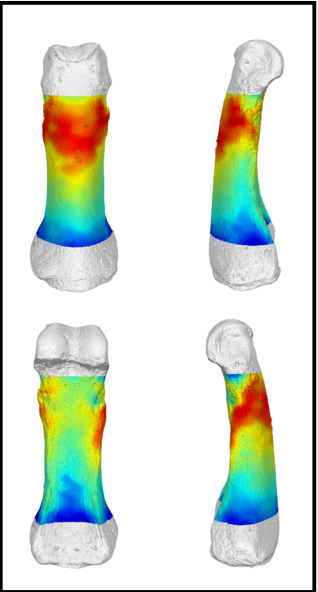
FCS17



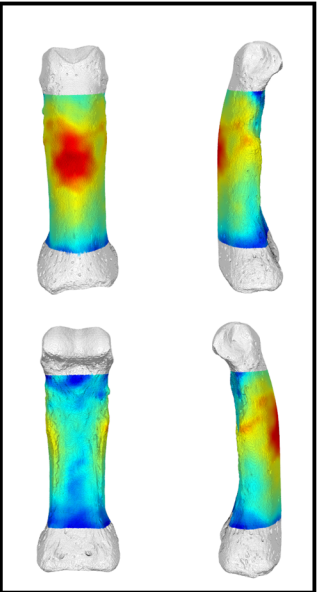
GAUG_Inden-91



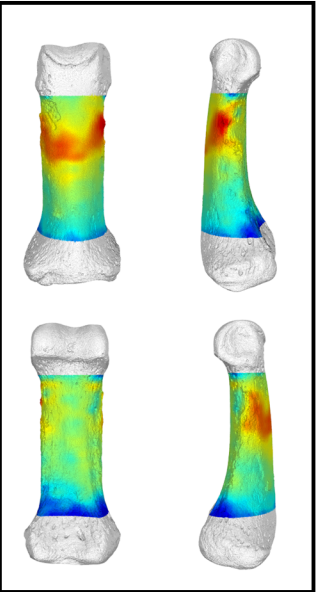
GAUG_Inden-113



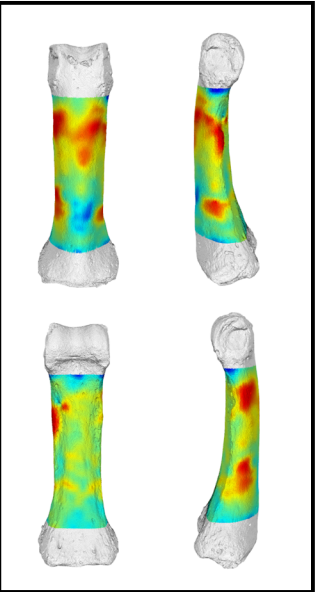
GAUG_Inden-119



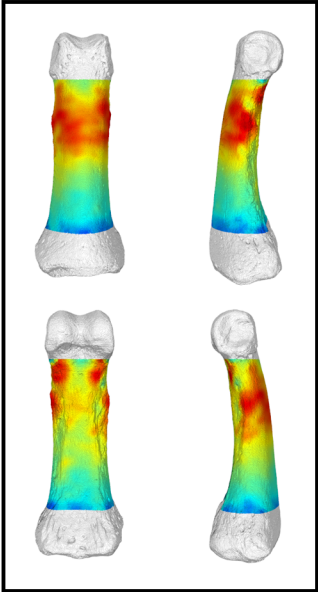
UNIFL_3127



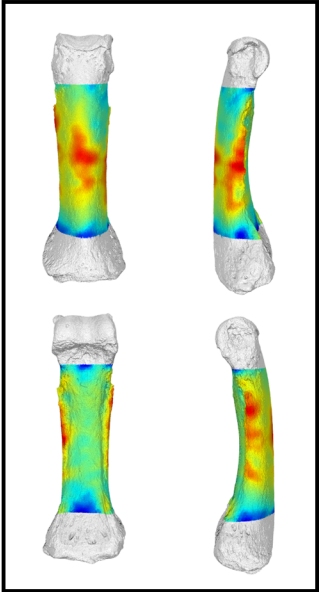
GAUG_Inden-243



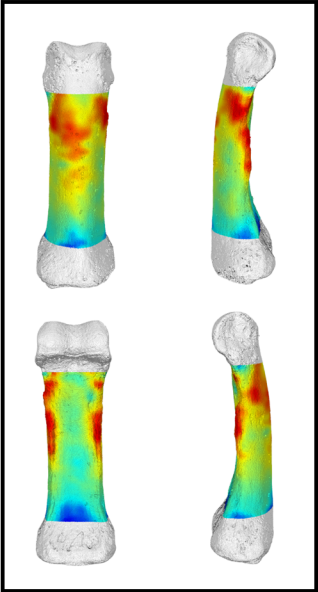
NHMW_Nubian_J7



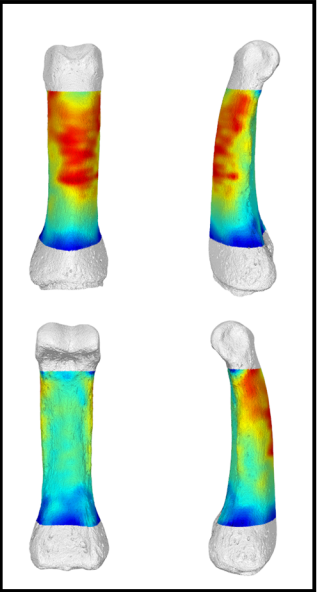
NHMW_Nubian_K5.2



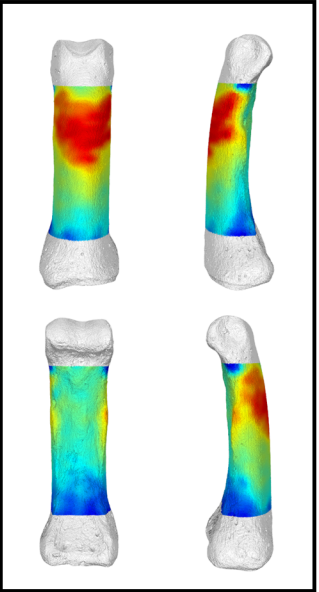
NHMW_Nubian_K63



OHALO_II_H2

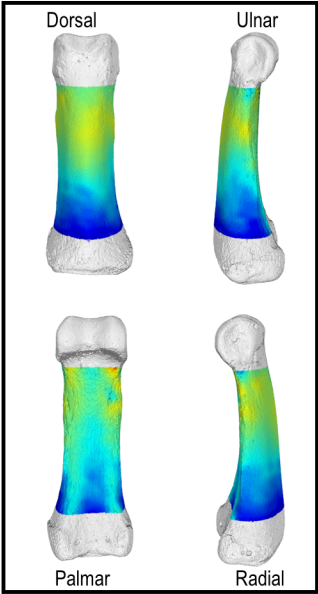


UNIFL_3124

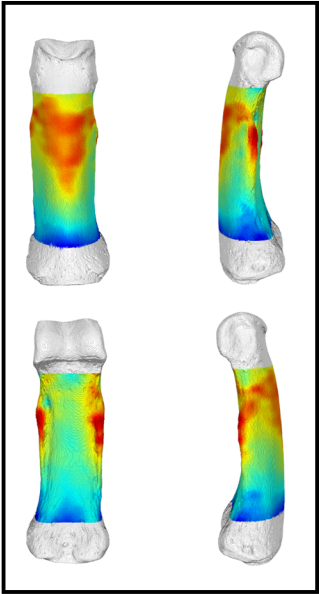


UNIFL_3125

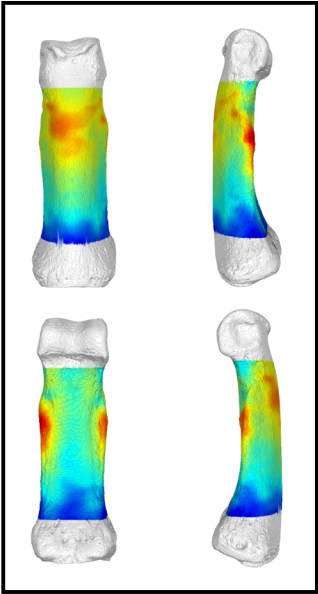
H. sapiens PP4



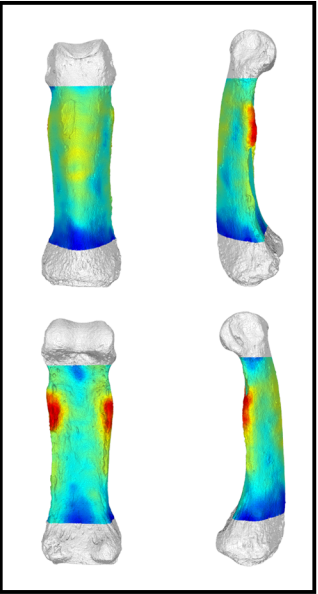
81_H172_H



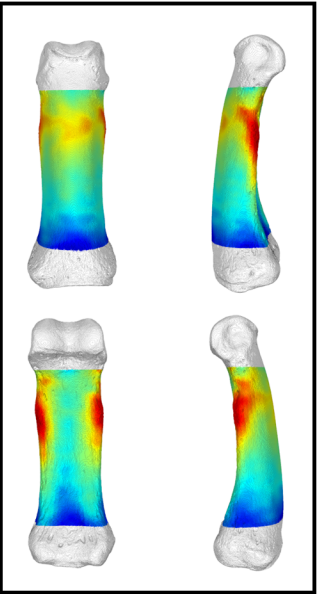
81_H1040



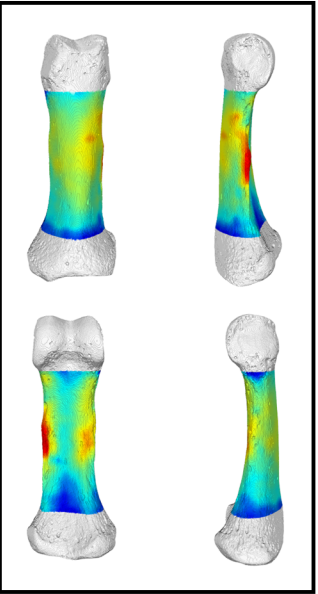
81_H1068_DD



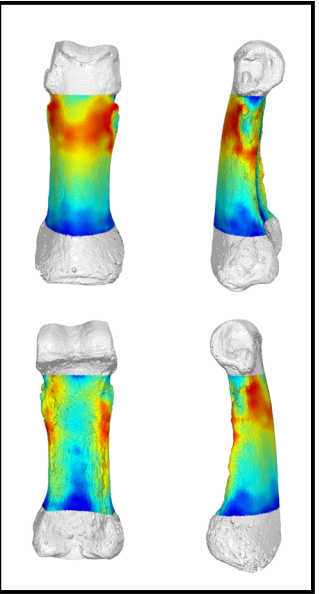
Barma_Grande_2



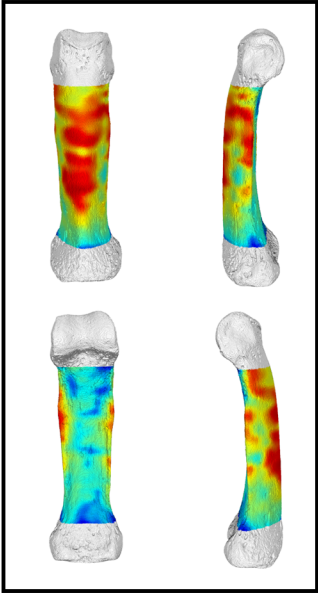
X31_FCS8



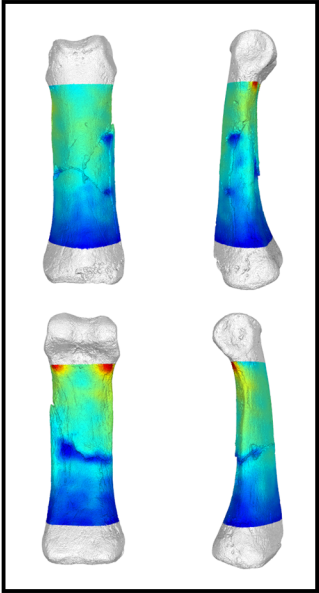
DCW_AM_3_0_2



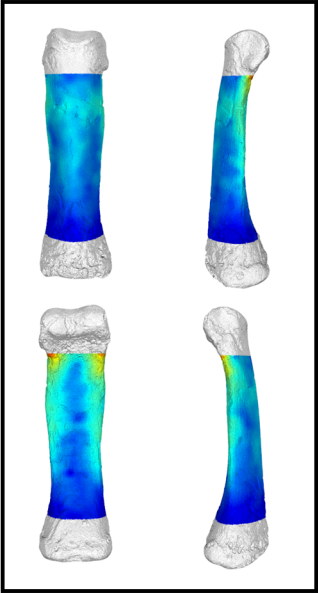
X36_FCS16



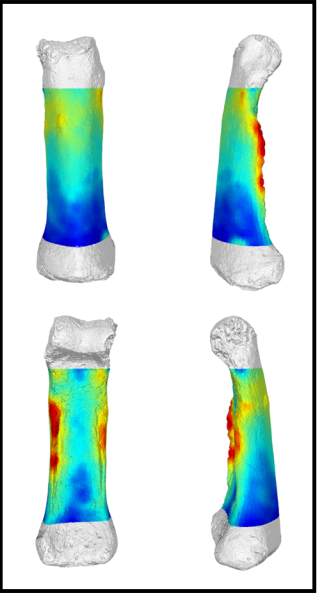
DCW_OC_1_0_141



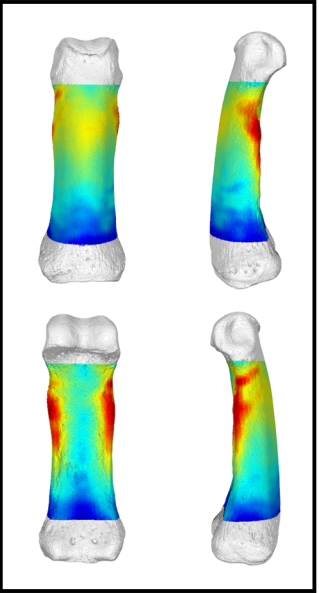
DV13_95



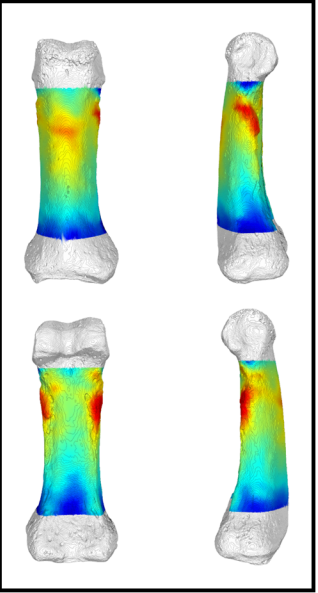
DV14_120



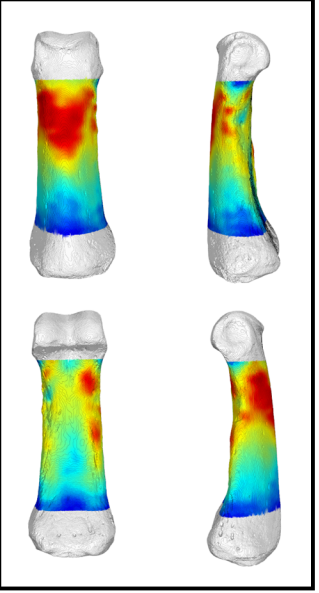
DV16_91



FCS8

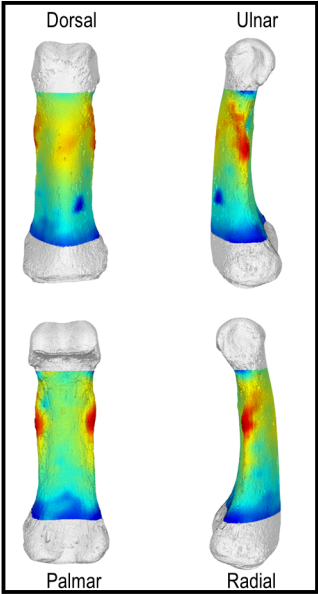


FCS16

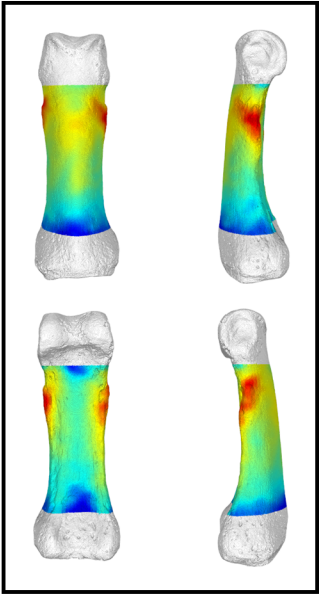


FCS17

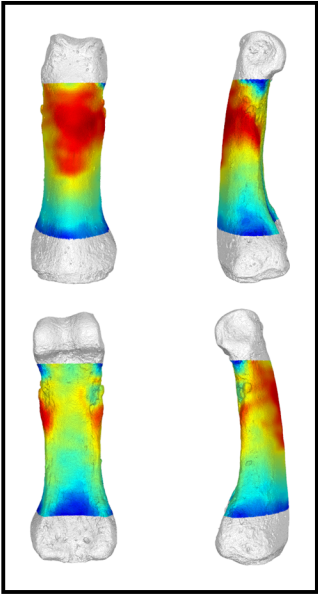
H. sapiens PP4



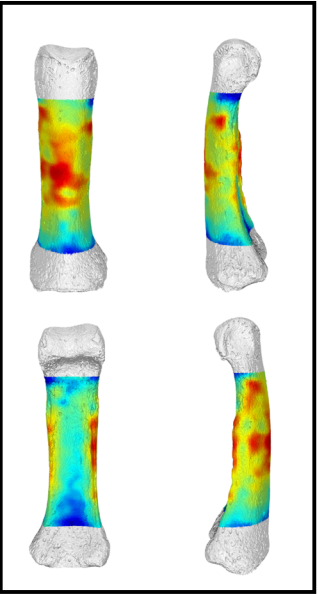
GAUG_Inden-91



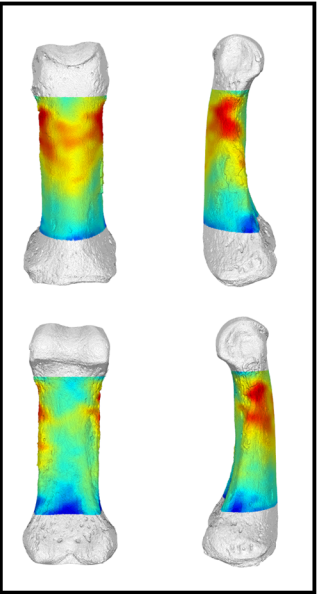
GAUG_Inden-113



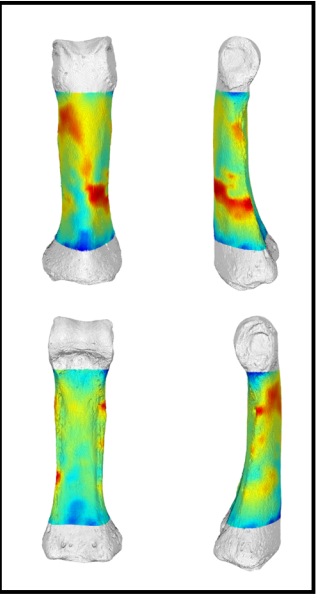
GAUG_Inden-119



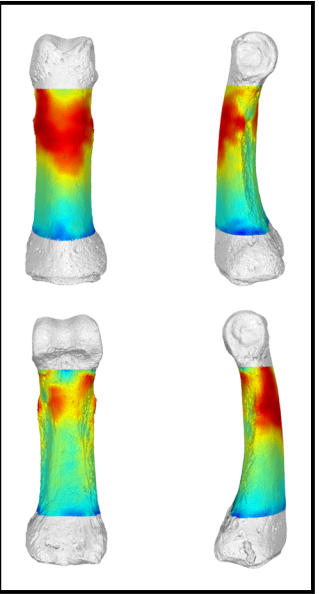
UNIFL_4887



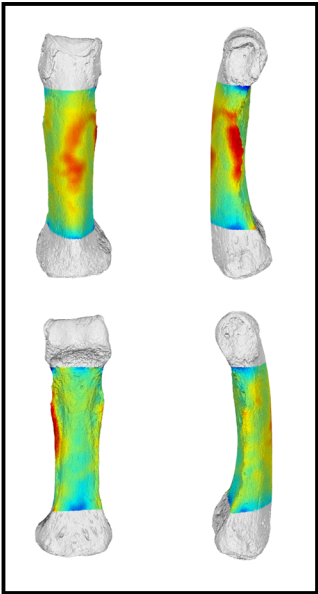
GAUG_Inden-243



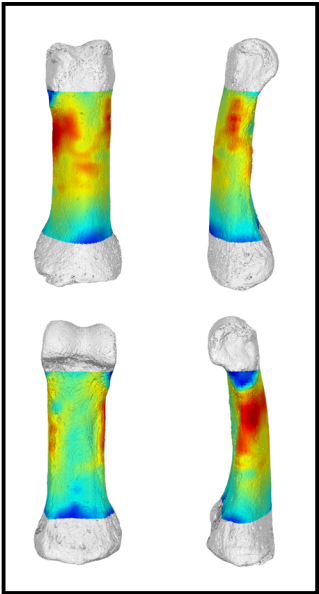
NHMW_Nubian_J7



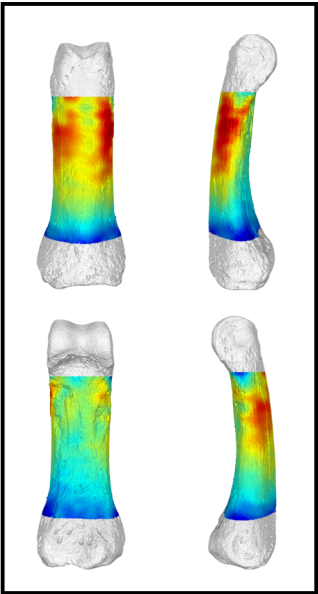
NHMW_Nubian_K5.2



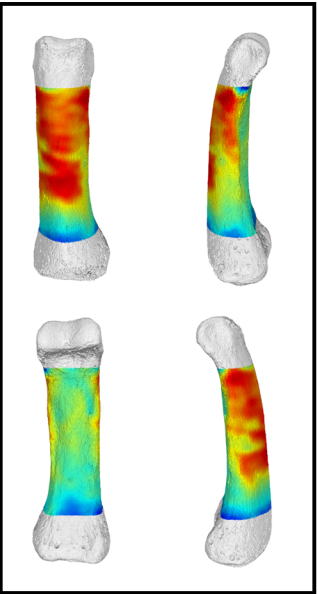
NHMW_Nubian_K63



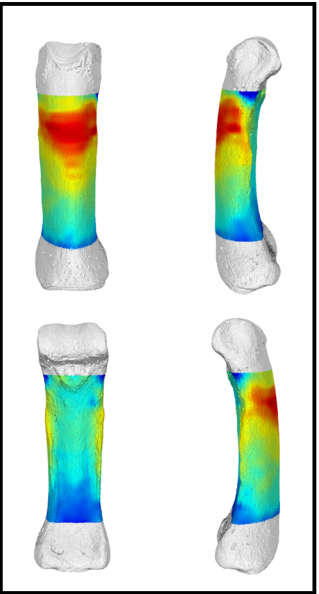
OHALO_II_H2



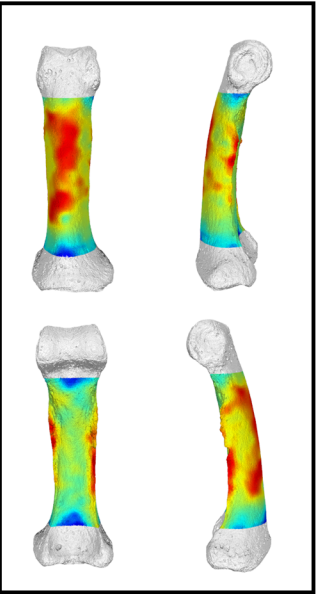
Qafzeh_8



UNIFL_3124

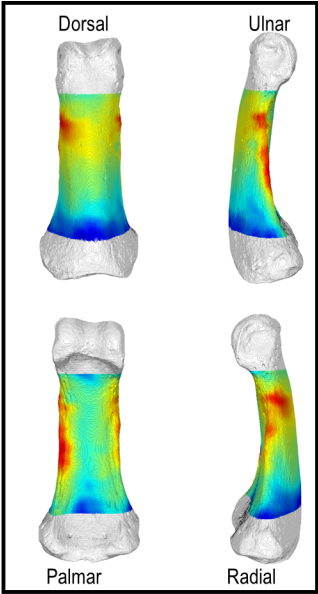


UNIFL_3125

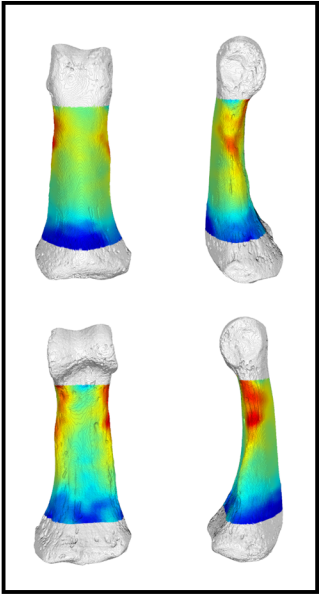


UNIFL_4865

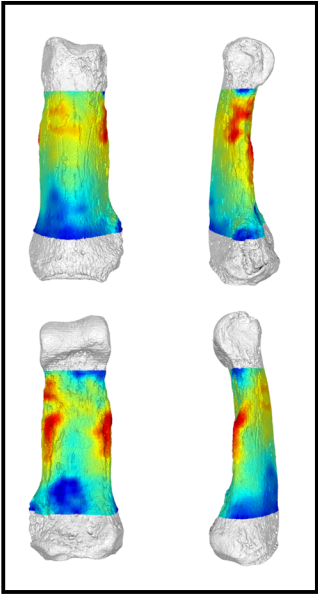
H. sapiens PP5



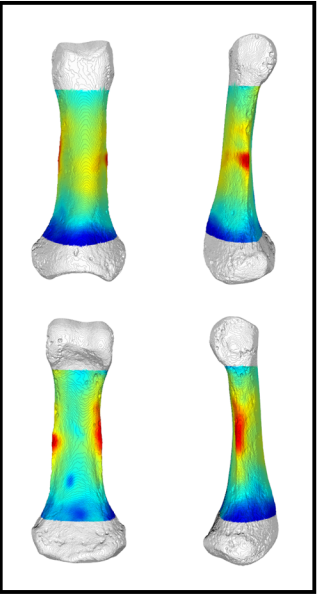
81_H172_H



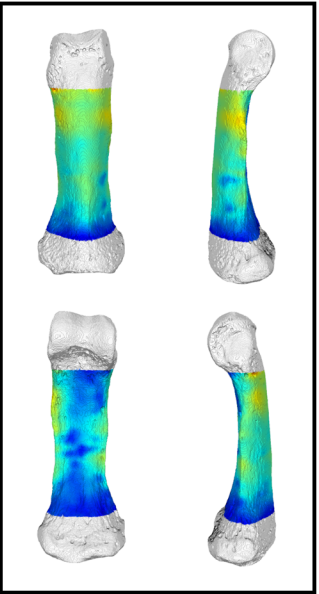
ARENE_CANDIDE_2



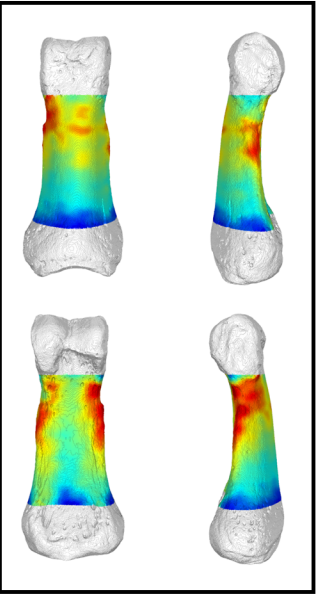
Barma_Grande_2



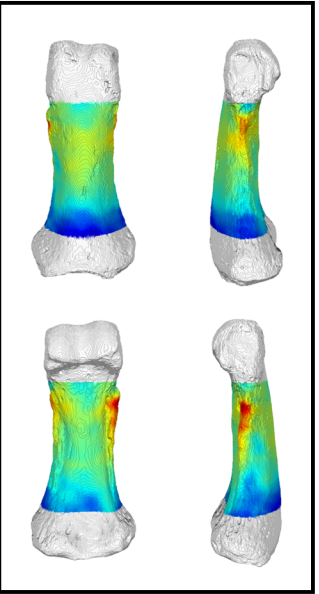
DCW_AM_3_0_2



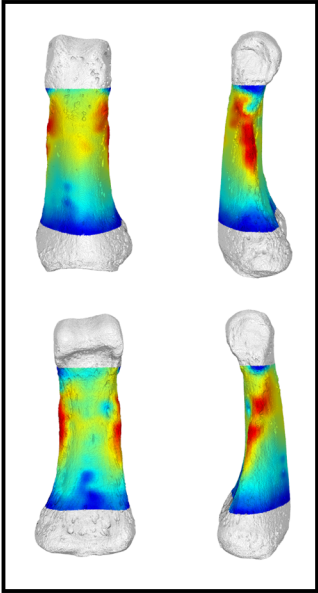
DCW_OC_1_0_141



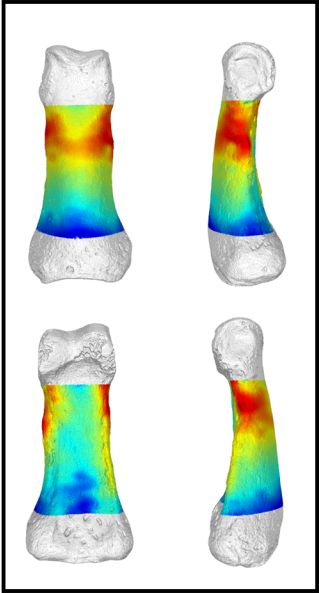
FCS8



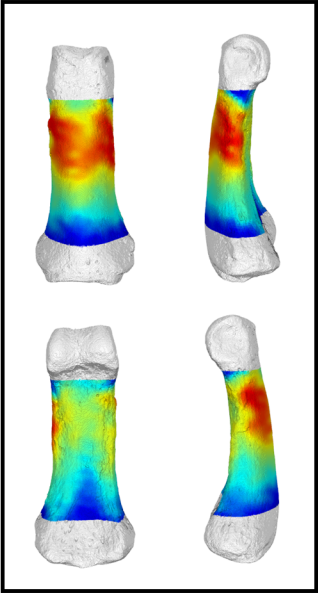
FCS16



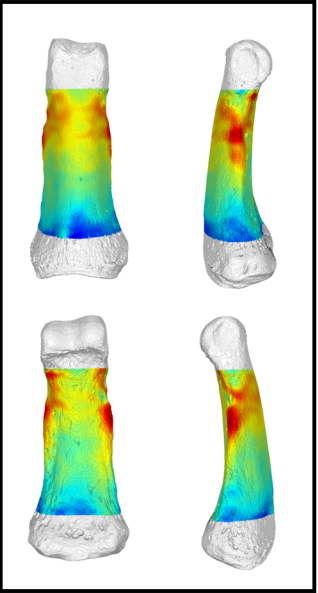
GAUG_Inden-91



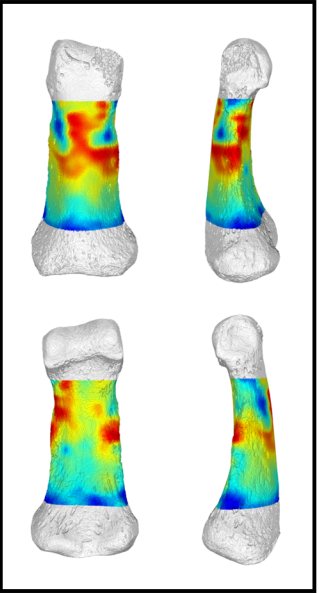
GAUG_Inden-113



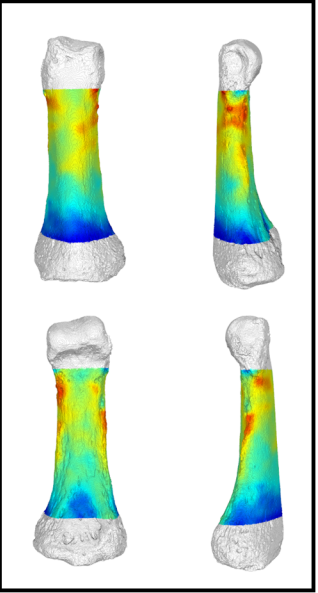
GAUG_Inden-119



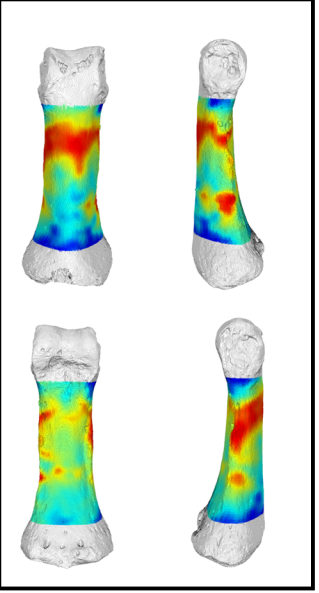
X32_FCS8



GAUG_Inden-243

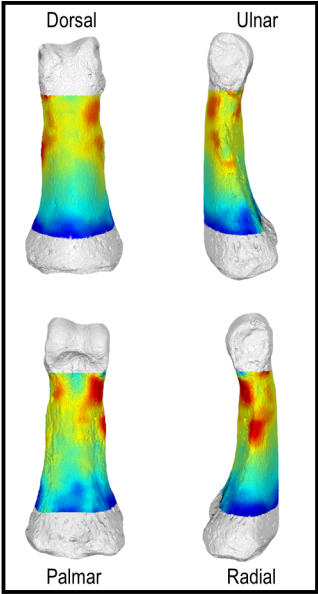


NHMW_Nubian_J2

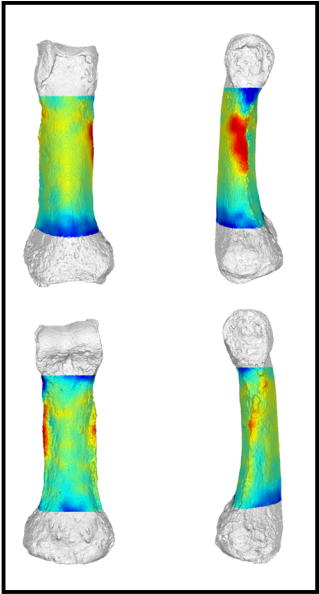


NHMW_Nubian_J7

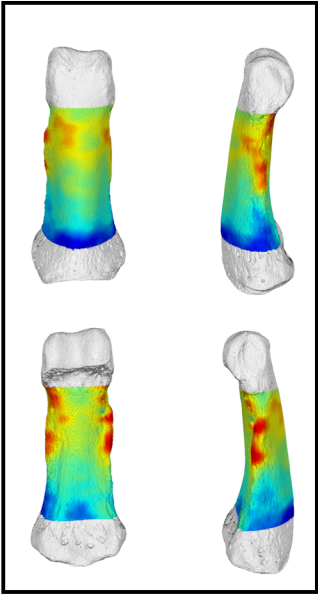
H. sapiens PP5



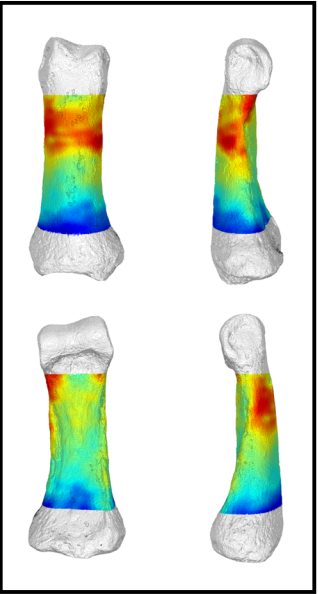
NHMW_Nubian_K5.2



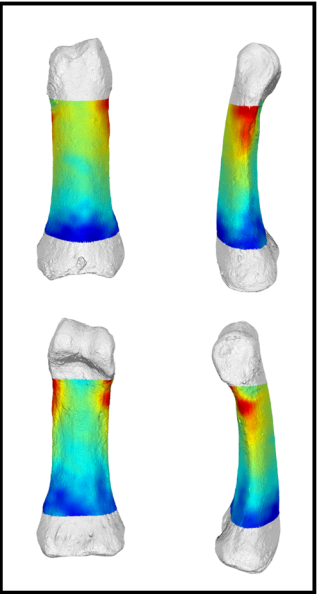
NHMW_Nubian_K63



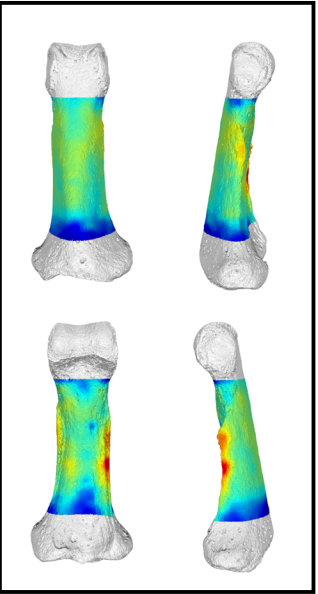
FCS8



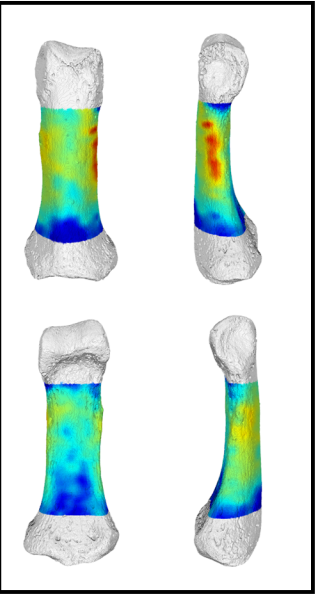
OHALO_II_H2



Qafzeh_8

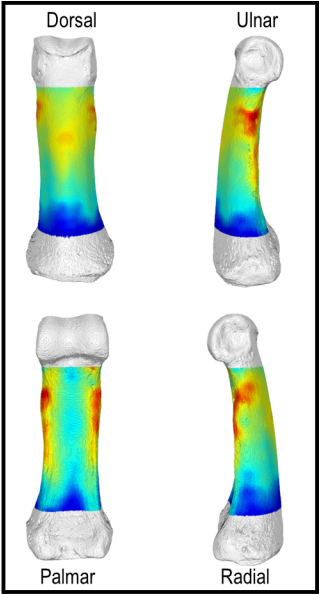


UNIFL_4865

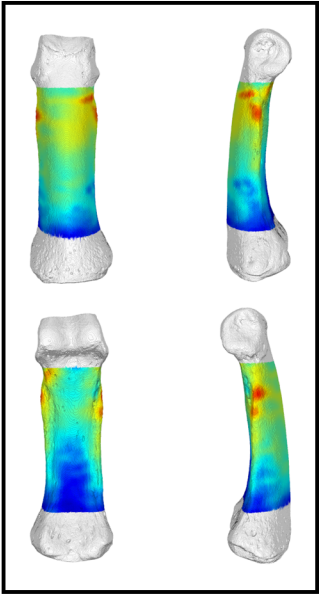


UNIFL_4887

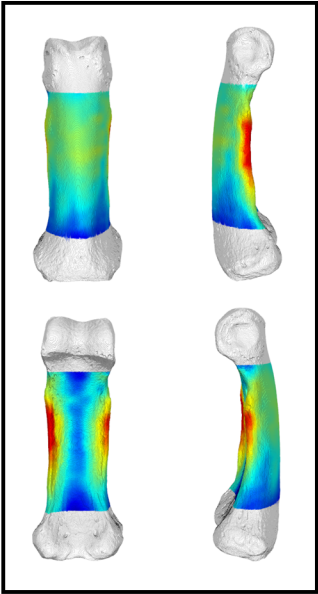
H. sapiens PP2 or PP4



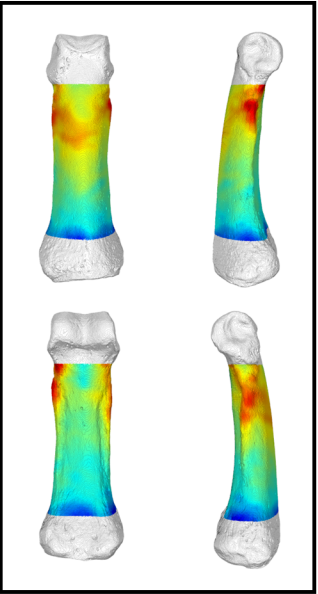
002_81_H172_H



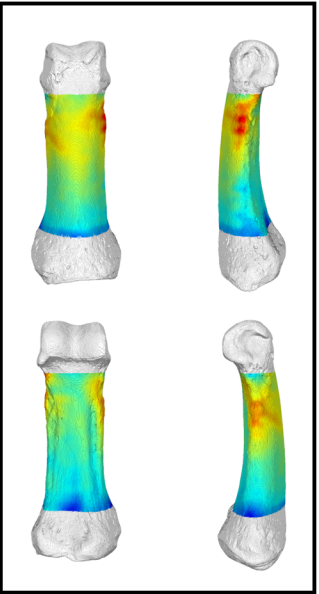
003_81_H172_H



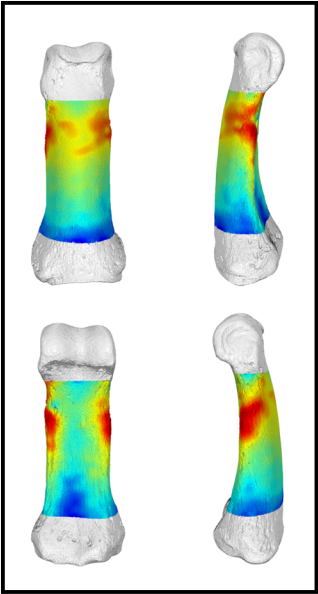
005_81_H172_H



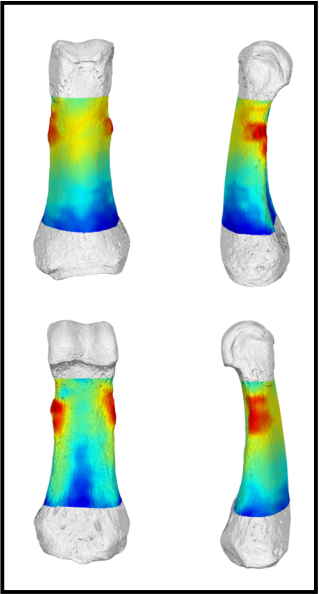
006_81_H172_H



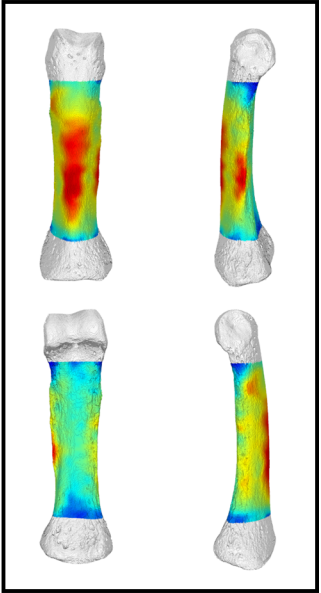
007_81_H172_H



004_FCS8

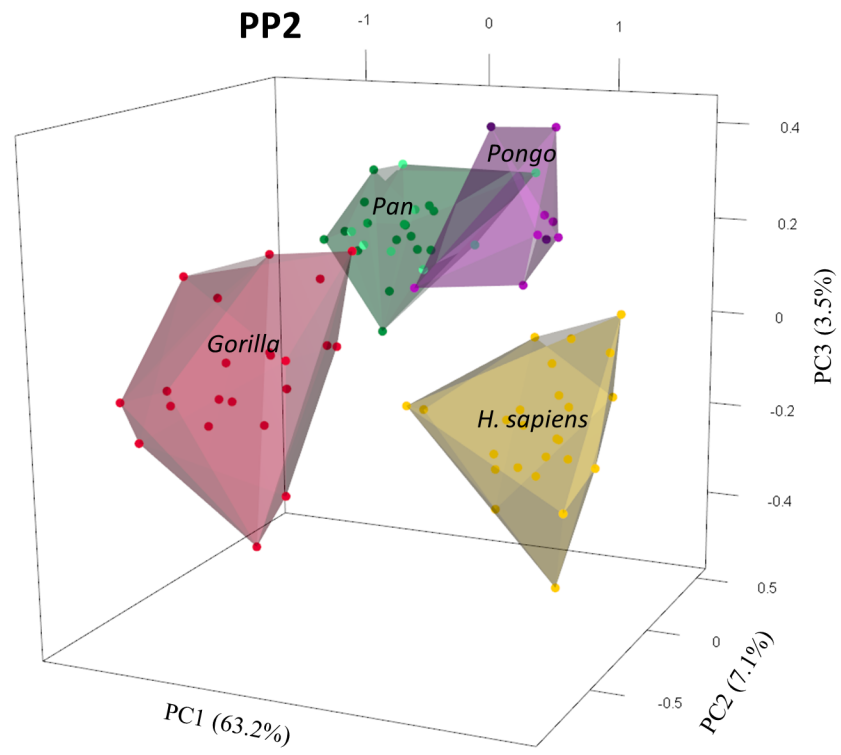


008_FCS8

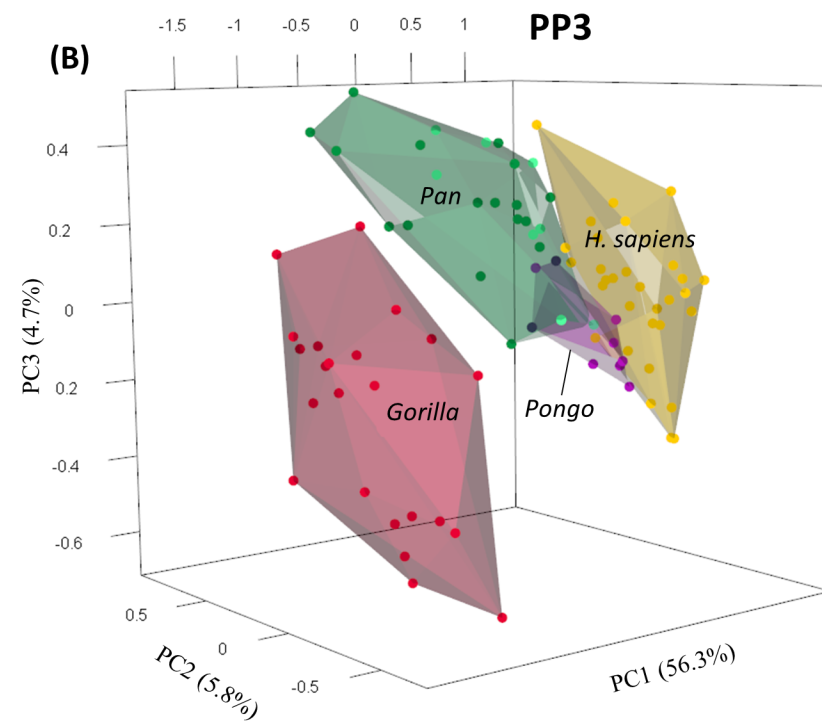


DCW_OC_1_0_26

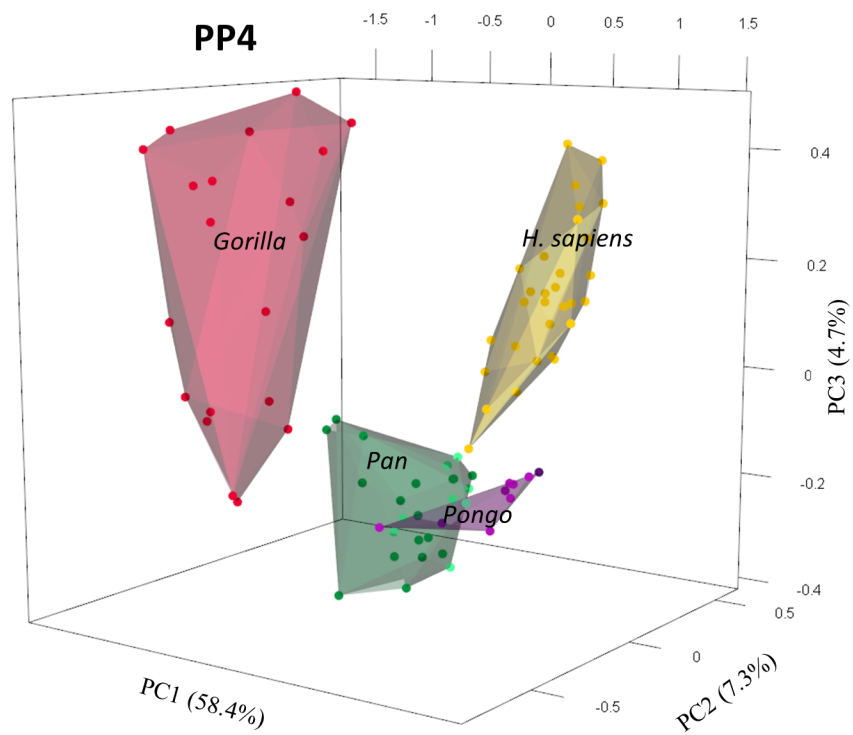
(A)



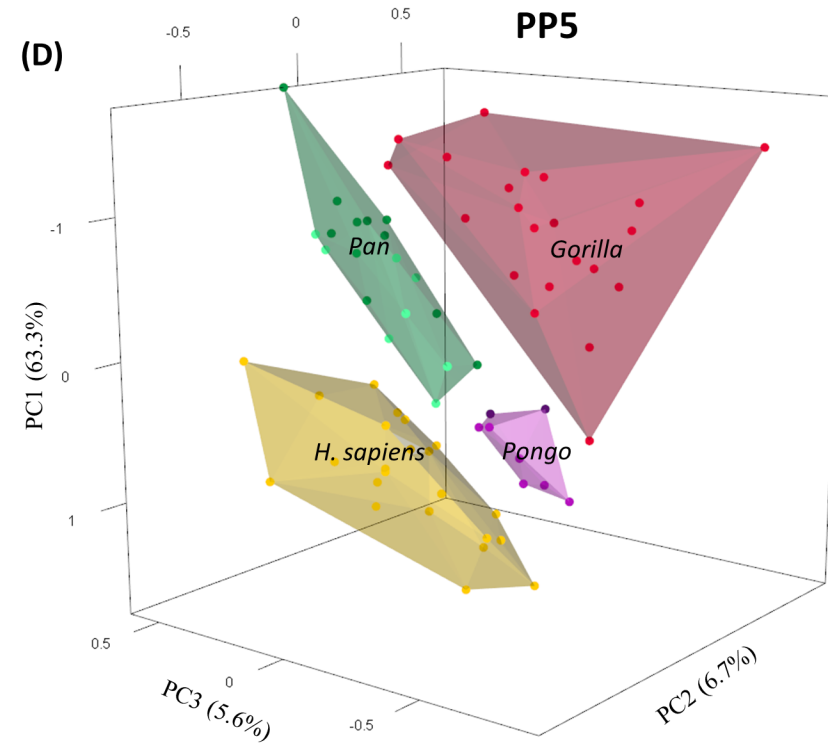
(B)

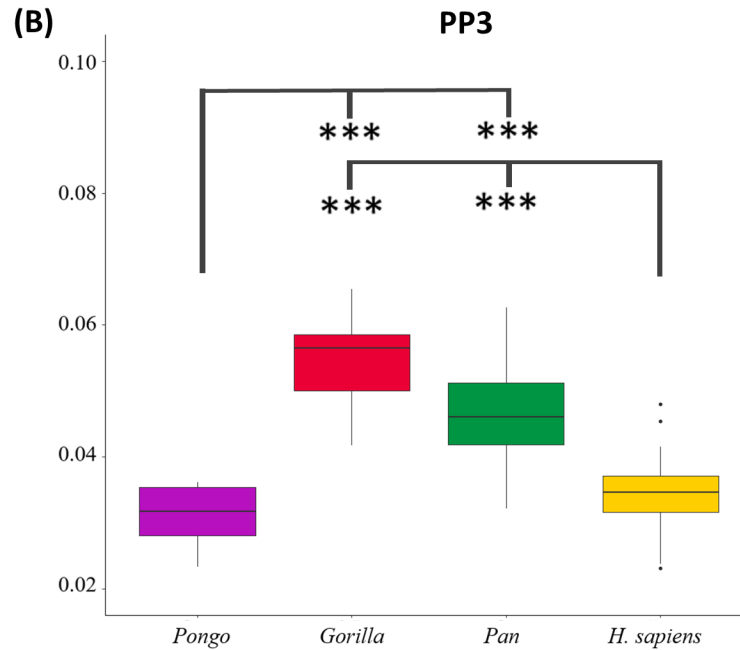
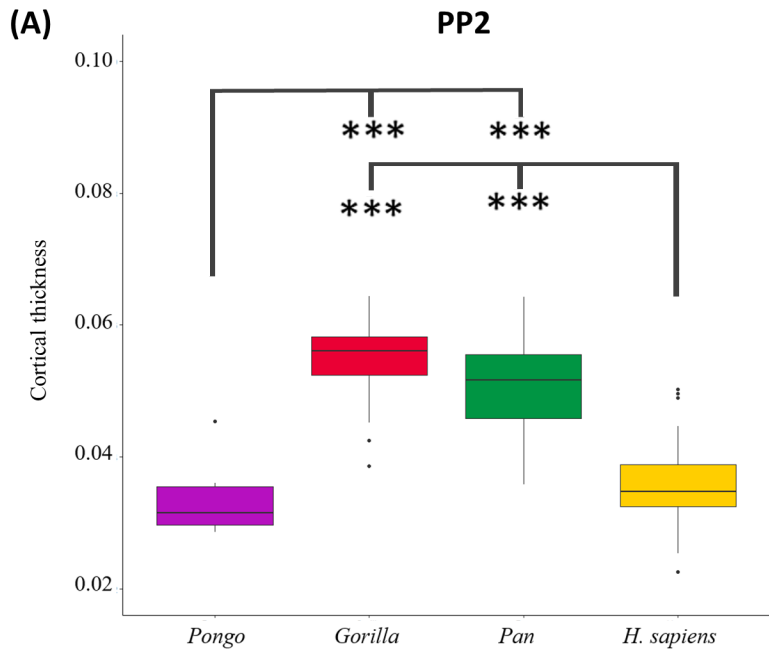


(C)



(D)





Species

- H. sapiens*
- Pan*
- Gorilla*
- Pongo*

