

SUPPLEMENTARY MATERIAL.

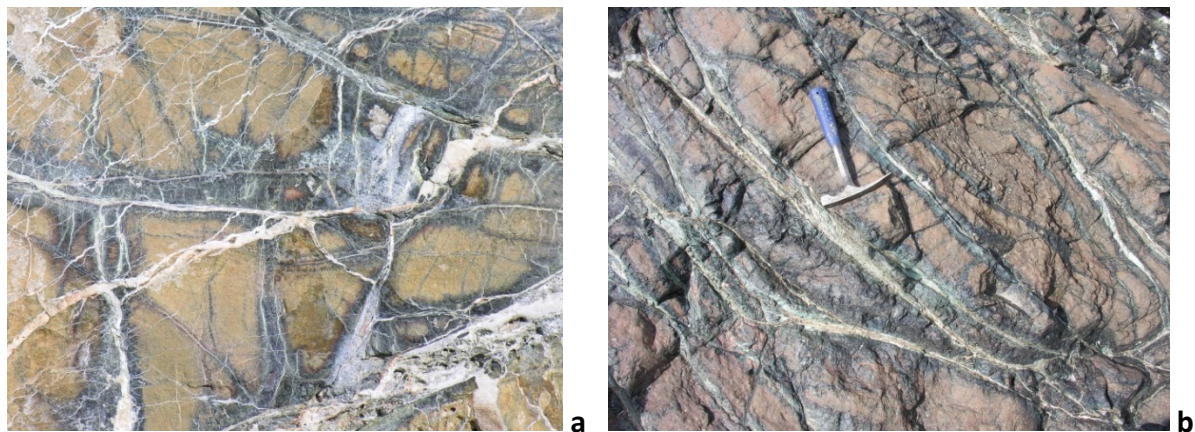
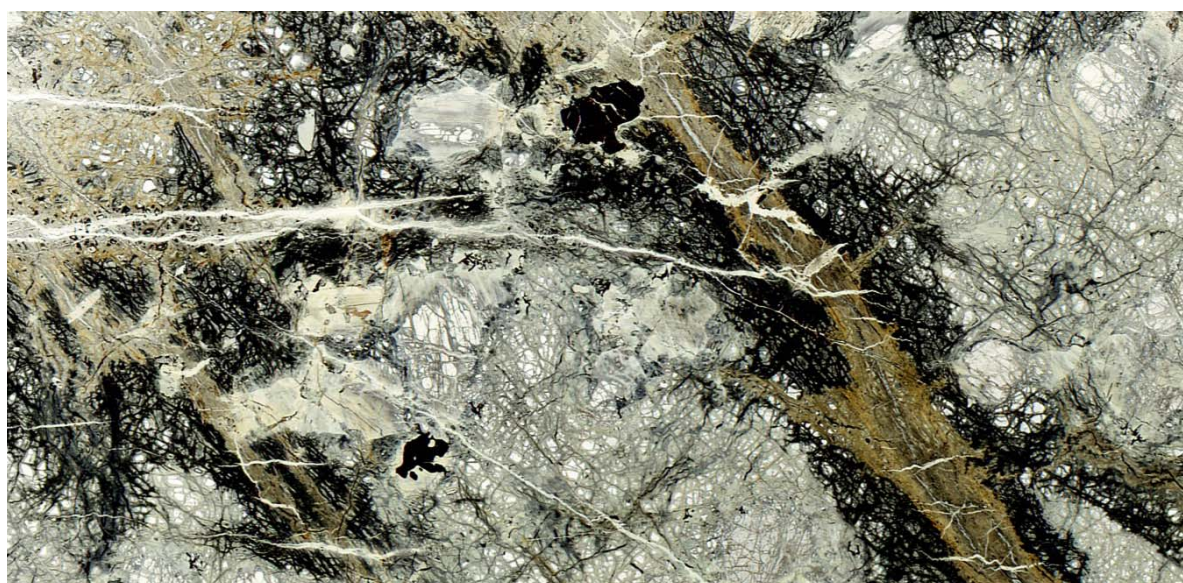
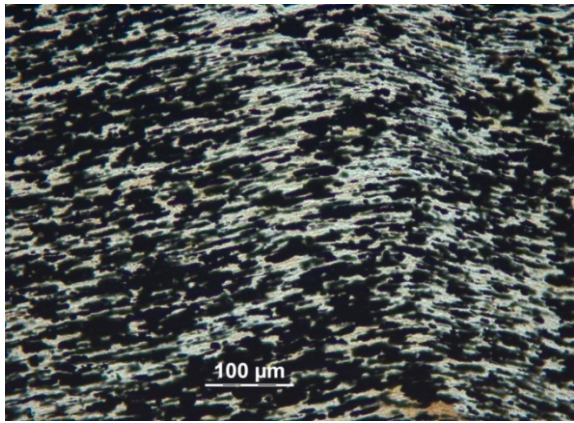


Figure S1 a and b- Photos illustrating alteration processes in the peridotites of Oman. Brown zones correspond to poorly serpentinized peridotites, black zones correspond to serpentinized parts along the fractures which are filled by Mg-Ca carbonate cements.

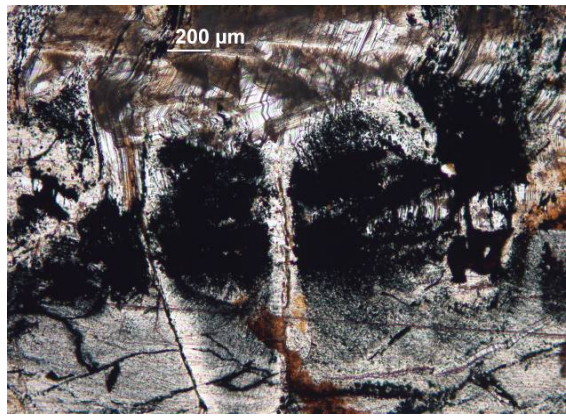


2 cm

Figure S2 - Photo of a thin section illustrating alteration processes in the peridotites of Oman. grey zones correspond to poorly serpentinized peridotites, black zones correspond to serpentinized parts along the fractures which are filled by Mg-Ca carbonate cements which appear in brown.



a



b

Figure S3 a and b - Photos of thin sections showing magnetite aggregates.



Figure S4 - An example of a blue pool in Oman (Sayah). Note the blue color related to the formation of carbonates in water. A precipitate of aragonite and brucite is observed at the bottom of the basin.



Figure S5 - Another example of a blue pool in Oman. The water in these basins shows pH values generally between 11 and 12. A film of calcite develops on the water surface and a precipitate of aragonite and brucite is deposited at the bottom of the basin.



Figure S6 - Calcite film appearing on the surface of ultra-basic water (Oman).



Figure S7 - Aragonite precipitation in ultra-basic water (Oman).

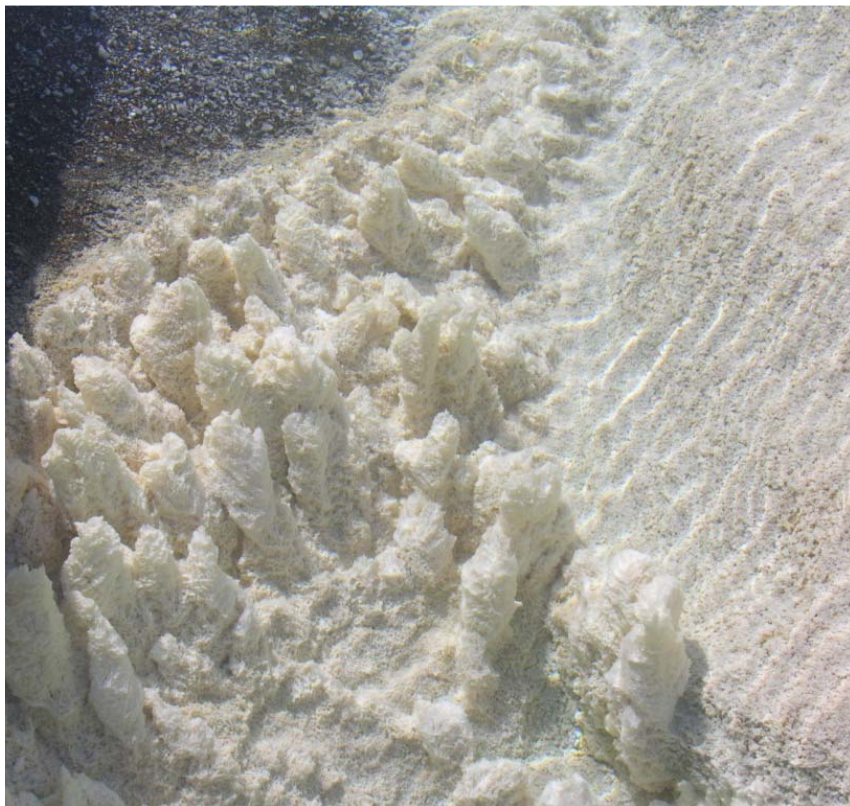


Figure S8 - Aragonite chimneys forming in ultra-basic water (Oman).



Figure S9 - Needles of primary Brucite in the foreshore of the Baie des Kaoris (New Caledonia).

Sample	$\delta^{18}\text{O}$	$\delta^{13}\text{C}$	Type of rock	RXD
WAA3	11.53	2.19	Carbonated peridotite	magnesite
O26A	33.19	8.15	Carbonate cement in fracture	magnesite
O2	31.18	-8.28	Carbonate cement in fracture	dolomite
WAA1	29.58	-6.65	Carbonate cement in fracture	dolomite
O1	30.2	-6.53	Carbonate cement in fracture	dolomite
O35B	28.99	-12.47	Surface carbonate crust	aragonite, calcite
O16A	23.57	-9.14	Surface carbonate crust	calcite
O31	29.21	-8.91	Surface carbonate crust	aragonite
O18	28.96	-8.16	Surface carbonate crust	dolomite, calcite
O11	18.11	-4.15	Surface carbonate crust	calcite
O10	23.87	-1.48	Surface carbonate crust	calcite
O23B	29.29	-10.51	Surface carbonate crust	aragonite, dolomite

Table S1 - $\delta^{13}\text{C}$ PBD (‰) and $\delta^{18}\text{O}$ SMOW (‰) of carbonate rocks (carbonated peridotite, carbonate cement in fracture, surface carbonate crust) associated with the ophiolites of Oman.