

Electron, X-ray images, and phase maps of Martian meteorite alteration. (A) Back-scattered electron (BSE) image of an olivine-hosted veinlet containing both iddingsite and siderite (Lafayette meteorite). (B) False-color phase map of A depicting the compositional heterogeneity of the carbonate. Blue: silicate-carbonate inter-growth; yellow: carbonate enriched in Ca; orange: carbonate enriched in Fe; red: carbonate enriched in Mn. (C) BSE image of a pyroxene-olivine grain boundary with an olivine-hosted veinlet filled with a halite and clay assemblage (Nakhla meteorite). (D) False-color X-ray image overlay of C: Na (blue) and Cl (green), highlighting NaCl mineralization. (E) BSE image of massive CaSO_4 (anhydrite) bounded by plagioclase, augite (px-1), and low-Ca pyroxene (px-2) in the mesostasis of the Nakhla meteorite. (F) False-color X-ray image overlay of E showing clays and magmatic phosphate adjacent to anhydrite: S (red), Ca (green), K (blue), and P (cyan).

