In this lecture, I will showcase some of the finest evidence for these past glaciations from geological expeditions in the USA, North Africa, Arabia, southern Africa, Australia and China. I will draw attention to oddities: How and why the record for glaciation differs between ice ages of different vintages, and why each of them is important in the evolution of our planet. I will also demonstrate how the advent of digital data on a number of scales (from satellite imagery to micro-scale analysis) is enabling us to make exciting new advances, and ever improved insight into the secrets of our icy past.