Some old (1970s) interplanetary space magnetic field and plasma observations will first be reviewed. Although the phenomena (directional discontinuities, Alfvén waves, magnetic holes/magnetic decreases and proton heating) were all originally thought to be unrelated to each other, recent results demonstrate a clear linkage among them. The talk will focus on nonlinear ($\Delta B/B \sim 10^{-2}$) Alfvén waves and the Ponderomotive Force. Cross-field energetic $\sim$1 MeV proton diffusion due to nonresonant interactions with magnetic magnitude structures (magnetic holes/magnetic decreases) will be discussed, as well as current directions in this research topic.