***Big Dipoles and Megawatts to Small Poles and milliwatts;***

***60 years of electrical geophysics (in 15 minutes)***

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# Abstract

The 1960s were heady times for IP and resistivity in the southwest U.S. The thrust for more porphyry copper deposits was at its peak. IP was the tool to use. Deeper targets called for more power to overcome noise and larger electrode spacings such as a kilometer, or more, to see deeper. In the U.S. this ultimately resulted in 100 amp and multi-thousand-volt transmitters. There was little interest in the shallow subsurface, it being only something to “see” through. However, as mining exploration waned, environmental applications waxed. Most environmental problems were *extremely* shallow, especially compared to mineral and oil exploration, so the power needed for shallow subsurface investigations was minimal and electrode spacing became tiny. This led to the development of completely self-contained, battery-powered systems that are so common today.

My personal experience over the years has been involved in what I would consider incredibly interesting spinoffs from and for electrical methods. Large scale surveys required an understanding of electromagnetic coupling; which for even the simplest of layered earth models can be surprisingly complex. At the other end of the scale, one-meter, or sometimes less, electrode spacings have become common leading to a better understanding of non-point-source electrodes.