

# Bay Area Geophysical Society Seminar Series



## A Thread of Time- A History of Induced Polarization Mr. Ken Witherly

President, Concord Consulting

**November 8<sup>th</sup>, 2023 5 PM PST -- Hybrid Talk  
In-person in Room 265 at McCone Hall (UC  
Berkeley campus)  
and on [Zoom](#)**

### **Abstract:**

The first recorded observation of IP phenomena was by Conrad Schlumberger in 1911. While Schlumberger continued experimenting with the technique, the global impact of Schlumberger's discovery was limited until the US Navy, in 1940s, undertook a program to investigate the application of IP to the detection of marine mines of the variety used as an anti-personnel weapon by the Axis military as a first line of defense to protect shore fronts against marine assaults by the Allied forces.

Several years after the war ended, interest in the IP technique expanded on both the academic and applied/commercial front. While technique had some success in separating the response of pyrite from chalcopyrite, the technique was felt to be impractical as a standard field procedure. This remained a Holy Grail for IP for decades. The current densities required however, were only achievable in special conditions such as borehole logging. In normal field settings, it appears that some information about the size of polarizable grains could be recovered. In some situations, this information could be of value in separating mineralogy.

In the mid-1990s, interest grew in how to acquire larger amounts of high-quality data that could in turn be modeled with recently developed 3D inversion software. Interest in building a next generation system arose in Australia and a group at Mt Isa Mines Ltd. (MIM) recruited several former Anaconda staff who had been key players in the Anaconda technology developed in the 1970s-80s. This work ended up drawing in a Canadian service company Quantec Ltd. who had considerable expertise in ground geophysics and IP surveying. In this development, personal who had originally worked for Anaconda were instrumental in helping to guide the development. In a relationship which ended up being challenging for both parties, two new technologies emerged; MIMDAS for MIM and Titan for Quantec.

In the early 2010s, the technology to carry out full 3D acquisition first appeared and now a decade later, 3D acquisition has become a main stream commercial service.

## Author:

**Ken Witherly** graduated from UBC (Vancouver Canada) with a BSc in geophysics and physics in 1971.

He then spent 27 years with the Utah/BHP Minerals company during which time as Chief Geophysicist, he championed BHP's programs in airborne geophysics which resulted in the development of the MegaTEM and Falcon technologies. In 1999, Ken helped form a technology-focused service company that specializes in the application of innovative processing and data analysis to help drive the



discovery of new mineral deposits. In 2017, he helped establish the Women Geoscientists of Canada, a group dedicated to support early career women in the minerals industry. In the last five years, he has undertaken to help build a historical record of mining geophysics and the people worked in this profession.

## Zoom meeting information:

Zoom ID: 818 4937 6993

Password: BAGS4ever