

This downturn has taken its toll on the workforce. It appears a whole generation has been retired or let go. As the environmental movement strengthens in opposition to Oil and Gas in Canada it makes me think that folks such as GeoScientists should do more to advocate for the Industry and their profession. John Harper is one such individual and writes the following:

*Climate Change - the buzzword of the decade! Whenever we see anything anomalous in the experience of an individual, especially those in the urban world, we hear them invoke the climate change buzz. Interestingly, when asked about their meaning of climate change, most politicians and the public, cannot provide a consistent definition. Neither can many scientists and geoscientists because they tend to be so focussed in their interests that they lack the historical context within which to analyse the full scope of their data. The Earth's climate is recorded in the rocks and geoscientists are those capable of deciphering the record. Advances in technology are greatly improving these capabilities. Geoscientific forensic climatology may become a trend for future scientific research.*

*The Earth's climate during the last 600 Million years has repeatedly oscillated from the extremes of glacial conditions (very cold) to evaporitization (very hot) and back to glaciation. The geologic record is very clear in this regard. Glacial conditions occurred at the end of the Precambrian, end of the Ordovician, earliest Permian, and Tertiary Pleistocene. These climatic changes are first-order oscillations resulting from drift of large land masses into polar regions of the time. During intervening times continental breakup has led to climate warming through temperate to tropical to evaporite conditions. But oscillation orders do not end there.*

*Rock data clearly demonstrate second-order warming and cooling oscillations superimposed on the major first-order occurrences. Silurian salt/carbonate couplets, Pennsylvanian coal measures, Permian Rotliegendes salt/carbonate couplets, and Pleistocene interglacials are all examples of such second-orders. The geologic record suggests there are at least seven orders of cyclicity and there may be more. Geologic climate change research is still evolving but current data strengthen the characteristics of the recognized oscillation orders.*

*Carbon dioxide concentrations during Pleistocene glacial/interglacial couplets have been documented for the last 650,000 years and offer detail not readily available for earlier glaciations. Interglacials lasted an average of 45,000 years. The present interglacial we are experiencing has been active for the past 12,800 – 20,000 years. If the future is to result in a return to glaciation then there may be 25,000 years to go. However if we are beginning to experience a first-order oscillation to evaporitization then continuous warming is inevitable. Interestingly, glaciations are characterized by low carbon dioxide concentrations and warmings by high concentrations. It is evident from geologic data that carbon dioxide variations are a consequence of climate changes, not the cause. It is evident as well that the many orders of oscillations have nothing to do with the existence of humans. It is not possible for humans to interrupt those orders.*

*These geologic facts will continue to be bolstered by increasing geoscientific climatic research. Society would best be served by addressing controllable issues such as pollution (atmospheric, surface land and oceans, and subsurface rocks and reservoirs), and the consequences of the*

*explosive population growth we will be facing in the next 50 years. Geoscientists need to be active contributors to the solutions.*

John has broad experience in industry, academia and government geoscience. His background has been as a Petroleum research geoscientist, Consultant advisor to Domestic, National and International companies, Professor of Petroleum Geology and Sedimentology, and former Director – Energy, of the Geological Survey of Canada. John began his career at Shell Development Company, researching deepwater to fluvial systems in active tectonic margins. Operationally while at Shell Oil, John worked Silurian –Devonian basins from the Houston-Denver line to the Atlantic Ocean. While at Shell Canada, John was the Biostratigraphy Group Leader for geostatistical integration of sedimentology and depositional environments. Upon leaving Shell, John was Vice President, Special Projects at Trend Exploration Ltd. where he worked with datasets from Libya, the Philippines, Indonesia, various Pacific regions, North Africa, Middle East, Europe, North America domestic and Frontier regions. During his career, he also served as a Senior Geological Advisor for Conoco Phillips Canada, conducting frontier exploration for the East Coast, the Labrador Shelf and the Canadian Arctic. John is known for his academic contributions as Professor of Petroleum Geology and Sedimentology at Memorial University of Newfoundland where he taught and mentored many young minds to “take care of the basics”. John has worked within government circles as the Director of Energy for the Geological Survey of Canada. He championed research into Canadian energy issues including gas hydrates, carbon capture, Arctic research, Canadian sovereignty and the Western Canadian Sedimentary Basin (WCSB). John has served as a technical witness and advisor to the International Chamber of Commerce, Paris, France during an arbitration tribunal.

From the Thursday Files

*The most difficult thing is the decision to act, the rest is merely tenacity.*  
**- Amelia Earhart**