

In Memoriam Professor Paul F. Worthington

Earlier this summer the world of ocean drilling lost a great supporter and innovator when Paul Worthington sadly passed away. Paul was an industry petrophysicist, with academic credentials, who was greatly instrumental in bringing downhole logging into ocean drilling on a routine basis, as DSDP developed into ODP. From 1986–1992 he served as Chair of the Downhole Measurements Panel (ODP) and for 10 years was co-editor of *Petroleum Geoscience*. Amongst many publications, in 1988 he co-authored a paper on Scientific applications of downhole measurements in the ocean basins, and in 1989 co-organised a workshop on ODP Log Data Quality Control.



Paul's background was a degree in physics and maths, an MSc in geophysics, and a PhD characterising the petrophysics of Britain's second most important aquifer, the Sherwood sandstone. He started his technical career in the water industry, before moving into the oil industry with BP in 1980, where some years later he became Head of Formation Evaluation at the BP Research Centre in Sunbury-on-Thames, England. Here, crucially, he promoted the study of both the theoretical side of petrophysics and the use of core data to condition the interpretations obtained from well log data. This interest in integrated studies for reservoir evaluation and in assimilating data from different measurement scales was ideally suited to becoming involved in ocean drilling.

Those involved in the early days of downhole measurements in ODP have fond memories of Paul's involvement.

Roger Anderson, the first Director of the ODP Logging Program, states that "without Paul, wireline logging would never have made it into ODP. Logging schools in each of the global member countries was completely Paul's idea! He was wonderful to work with!"

Dave Goldberg commented: "Very, very sad news. I have many memories of my own in working with him, both early on while I was finishing my PhD and later as Director of the ODP logging program, and then from many, many conference meetings. I recall Paul as a "tour-de-force" in regard to advancing downhole

measurements for scientific drilling. Paul was generous with his time whenever and wherever it was requested, flying over from the UK to uncountable ODP meetings and conferences. From his industry experience, he was especially adamant that clear and accurate correlation of downhole logs with similar measurements made on core samples would convince the scientific community of the vast benefits of logging. He was correct. Logging became more commonplace in the ODP, and new oceanographic discoveries (and sea-going experts) related to core-log integration and stratigraphic correlation were hatched. It's hard to underestimate the positive impact this had on scientific research - from paleoclimate studies to methane hydrates to stratigraphic imaging - which has continued to propagate through today in the current International Ocean Discovery Program."

Dan Moos remembers his first encounter with Paul at a DMP (or maybe the Tech Panel?) meeting back in the day (1986 maybe?). "I was the L-DGO lithosphere panel liaison. Regardless of which it was, they both were always active and lively with many smart vocal people contributing - and at that meeting I watched Paul masterfully encouraging contributions from quieter members and orchestrating positive outcomes that reflected what was said by each. It wasn't till I had gotten to know him better that I realized that he also had well-considered opinions with which those outcomes were well aligned. A master lesson in "leading from behind" that I have never forgotten! The community is a bit smaller for his passing..."

Keir Becker said "My most enduring memory of Paul was how skillful he was at chairing international panel meetings: I don't think he failed to end any meeting later than 5 minutes past the time he had predicted when he convened the meeting, and he always composed complete and concise minutes on his flight home, and distributed them right away." (Reader, please take note.)

My own memories of Paul are of his role in promoting downhole measurements in ocean drilling, largely in collaboration with Roger Anderson who was instrumental in bringing downhole measurements in as a major part of ocean drilling in the 1980s. Paul seemed to be everywhere, at every meeting, and later was even closely involved in the deep drilling project in Germany (KTB). My involvement with ocean drilling started in 1986, firstly at Nottingham and then at Leicester University, and Paul was always a great supporter as we established ocean drilling petrophysics within UK academia, and developed collaborative links with industry.

Separate to Paul's involvement in ocean drilling, he was devoted to the pursuit of excellence and to sharing his knowledge for the benefit of all. Although Paul worked primarily in industry, he published over 100 peer-reviewed papers in the fields of engineering geoscience and petroleum unitization and coedited four books on core and log analysis. He has been described within petrophysical circles as "one of the giants of the discipline" and one of its "most referenced authors". Paul was the recipient of numerous industry awards including the Society of Petrophysicists & Well Log Analysts' top honour, the Gold Medal for Technical Achievement (2012), as well as the Medal of Honour for Career Service (2006), the Distinguished Technical Achievement Award (2004), and the Distinguished Service Award (1996). He was also the recipient of the Distinguished Service Award of the Society of Core Analysts.

Paul was a major player in petrophysics and highly regarded. Many of his papers are considered seminal and are essential references in any relevant research. But in addition to this, perhaps one of Paul's major legacies, is how he could write excellent review papers, condensing a large number of technical and complex petrophysical publications down into a logical and coherent summary that really helped our understanding of petrophysics. I think this contribution is easily underestimated in its importance and this should be corrected. He leaves a legacy of these publications that will be read for many years to come and provide an excellent starting point for further discussion of petrophysics.

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