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PP22A-0348

**Using Core (mcd) to log (mbsf) Depth
Miss-Matches as a Basis for Interpreting Core
Elastic Rebound and Re-calculating Core Physical
Properties. Results From ODP Leg 199.**

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Leg 199 drilled a series of sites in the equatorial Pacific in order to investigate the paleoceanography of the Paleogene Pacific Ocean. The two deepest cored sites, (1218 and 1219) have provided continuous/near continuous spliced sedimentary sections and in situ wireline log data. Comparison of core to log data sets shows the familiar non-linear, increasing with depth, miss-match between the core (metres composite depth - mcd) and log (mbsf) depths and concomitant offset between core and log physical property data sets e.g. porosity, density, velocity. The depth miss-matches represent core expansion due to elastic rebound experienced by the sediments upon unloading i.e. removal of overburden stress, which is a function of the sediment void ratio and log of the effective in situ stress. The increasing depth offset observed between the 1218 core and log data is used to calculate an expansion index ($C\$_{\{r\}}\$$) for continuous discrete measurement intervals, down the core. The $C\$_{\{r\}}\$$ values are used to re-compress the core (mcd) depth scale and as expected provide a good match with the log (mbsf) depths. The $C\$_{\{r\}}\$$ values are also used to correct the core index property data, to in situ values. The quality of the corrected core index property data is good when compared with the in situ measured log data. $C\$_{\{r\}}\$$ values are dependent upon the sediment composition (especially the quantity of clay) and core light absorption spectroscopy (LAS) data collected on Leg 199, provides a continuous down-core record of sediment composition, in terms of the percent clay, carbonate and opal. A relationship between the $C\$_{\{r\}}\$$ values and the sediment LAS composition is established and is then applied to the Site 1219 core LAS data, allowing appropriate $C\$_{\{r\}}\$$ values to be assigned to continuous, discrete core intervals. These composition based $C\$_{\{r\}}\$$ values are then used to re-calculate the core (mcd) depths and correct the index property data to in situ values. The quality of the depth and index property corrections are checked by comparison with the in situ measured log data, and provide encouraging results.

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