

**Meeting:** 1003, Atlanta, Georgia, SS 3A, AMS-MAA Special Session on History of Mathematics, I

1003-01-701            **Craig Graham Fraser\*** (cfraser@chass.utoronto.ca), Inst. Hist. Phil. Sci. Tech., Victoria College, University of Toronto, Toronto, Ontario M5S 1K7, Canada. *Mathematical Instrumentalism in Pre-Copernican Astronomy*. Preliminary report.

Many writers on the history of pre-modern astronomy interpret Ptolemy's models as mathematical instruments designed only to save the phenomena and not intended as physically real descriptions of the world system. Babylonian mathematical astronomy, which operated without any underlying cosmology, stimulated the emergence of Greek quantitative astronomy in the third and second centuries B.C. Greek geometrical models were technical devices to aid prediction and were not intended as explanations of the planetary system. Ptolemy's models for Moon and Mercury accounted for the observed motions of these bodies but were at odds with evidence concerning their actual distances from Earth. The paper provides a critical appraisal of the instrumentalist understanding of ancient Greek astronomy. (Received September 28, 2004)