

Geophysical Research Abstracts,  
Vol. 10, EGU2008-A-07187, 2008  
SRef-ID: 1607-7962/gra/EGU2008-A-07187  
EGU General Assembly 2008  
© Author(s) 2008



Models for high precision, high frequency determination of Earth orientation  
parameters from VLBI observations

**V. Uzodinma**

Department of Geoinformatics and Surveying,

University of Nigeria,

Enugu Campus 400006, Enugu, Nigeria

(vnuzodinma@yahoo.com / Phone: +234(0)8052803797 (mobile))

Inadequate modelling of such geophysical processes as precession-nutation, UT1, and polar motion as well as incorrect earth tide and ocean loading models usually introduce systematic errors into the VLBI (Very Long Baseline Interferometry) estimation process. This is because the present observation and analysis technique observes radio sources one-at-a-time and models the observed time delay and derivatives as functions of baseline vector, radio source position, geophysical processes, atmospheric media effect, clock errors, etc. This Paper describes a new observation and analysis technique which determines very accurate values for Earth Orientation Parameters (EOP) at  $\sim 20$  minutes interval using single epoch VLBI observations taken on single baselines. The models developed for the new technique do not depend on externally determined terrestrial and celestial reference frames or geophysical models. Their high accuracy and speed will enable geoscientists to model such phenomena as atmospheric angular momentum, ocean tides and currents, and the elastic response of the solid earth with improved accuracy.