

FUNDAMENTAL RADIO REFERENCE FRAME FROM VLA OBSERVATIONS OF MINOR PLANETS

G. H. Kaplan  
U. S. Naval Observatory  
Washington, D.C. 20390

K. J. Johnston  
Naval Research Laboratory  
Washington, D.C. 20375

P. K. Seidelmann  
U. S. Naval Observatory  
Washington, D.C. 20390

C. M. Wade  
National Radio Astronomy Observatory  
Socorro, New Mexico 87801

T. S. Carroll  
U. S. Naval Observatory  
Washington, D.C. 20390

**ABSTRACT.** The weak thermal emission from the largest minor planets can be detected in the microwave regime by the Very Large Array (VLA). Signal-to-noise ratios are sufficiently high to permit precise measurement of the positions of these objects at all points in their orbits with respect to background extragalactic sources. We are in the process of obtaining observations of astrometric accuracy for minor planets 1 Ceres, 2 Pallas, 4 Vesta, and 10 Hygeia.

Minor planets have historically served as "test particles" in the solar system, and optical observations of these objects have been valuable in the determination of fundamental astronomical constants. In particular, optical observations of minor planets have played an important role in the establishment of the fundamental optical reference frame by permitting the determination of the orientation of the Earth's orbit relative to the stars defining the frame.

Similarly, radio observations of these bodies can play a corresponding role in the establishment of a fundamental radio reference frame. Our observations will provide a direct link between the dynamical and radio reference frames, and provide important information on the relationship between the radio and optical reference frames.