

Astrophysics

[EFFECT OF ASTROMETRIC OFFSETS IN OBSERVATIONS OF INTERSTELLAR MASERS](#), [H. K. Kim](#), E. D. Araya*, Physics Department, Western Illinois University, Macomb, IL 61455, ed-araya@wiu.edu

On 2007, J. D. Pandian and collaborators reported results of a survey for methanol masers conducted with the 305m Arecibo Radio Telescope in Puerto Rico. The survey is the most sensitive blind search for methanol masers ever conducted and provides an ideal sample to identify young sites of star formation in the Galaxy. Last year, Pandian and collaborators published a follow-up article with precise astrometry of the methanol masers they had reported in 2007. They found significant offsets between their 2007 and 2011 positions, which implies that observations toward the positions reported in their 2007 paper may have underestimated the flux density of the masers. On 2012 August 27, we used Arecibo to observe a sample of nine masers from Pandian's survey with the goal of checking the effect of such astrometric offsets on the flux density measurement of the masers. We observed the masers using the 2007 and 2011 positions and compared the results. We found that the flux density of most masers included in our sample is underestimated by less than 50% when pointing at the 2007 positions. The flux density ratios between the 2007 and 2011 positions agree (within the errors) with the expected decrease in sensitivity from angular offsets with respect to the half power beam width (HPBW) of the telescope. Our data show that applying a sensitivity correction factor based on angular offsets would improve the flux density calibration of the masers.