

Glitch observations in slow pulsars

G.H. Janssen¹, B.W. Stappers^{1,2}

¹Astronomical Institute “Anton Pannekoek”, University of Amsterdam,
Kruislaan 403, 1098 SJ Amsterdam, The Netherlands

²Stichting ASTRON, Postbus 2, 7990 AA Dwingeloo, The Netherlands

ABSTRACT: We have analyzed 5.5 years of timing observations of 7 “slowly” rotating radio pulsars, made with the Westerbork Synthesis Radio Telescope. We present improved timing solutions and 30, mostly small, new glitches. Particularly interesting are our results on PSR J1814–1744, which is one of the pulsars with similar rotation parameters and magnetic field strength to the Anomalous X-ray Pulsars (AXPs). Although the high-B radio pulsars don’t show X-ray emission, and no radio emission is detected for AXPs, the roughly similar glitch parameters provide us with another tool to compare these classes of neutron stars. Furthermore, we were able to detect glitches one to two orders of magnitude smaller than before, for example in our well-sampled observations of PSR B0355+54. We double the total number of known glitches in PSR B1737–30, and improve statistics on glitch sizes for this pulsar individually and pulsars in general. We detect no significant variations in dispersion measure for PSRs B1951+32 and B2224+65, two pulsars located in high-density surroundings. We discuss the effect of small glitches on timing noise, and show it is possible to resolve timing-noise looking structures in the residuals of PSR B1951+32 by using a set of small glitches.