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A Decade of Pulsar Monitoring Campaign with LOFAR

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As pulsars are point-like objects in the Galaxy, they are the best sources to study various effects of the ionised and magnetised interstellar medium (ISM). As the effects of ISM on pulsar signals depend strongly on observing frequency (for example: dispersion measure scales as ν^{-2} , scattering as ν^{-4} , where ν is the observing frequency), low frequency telescopes are particularly well suited to precisely measure them. We observe more than 100 pulsars using the LOFAR core and international stations with a weekly to monthly cadence. The decade-long campaign makes this a unique data set for making a better understanding of the ISM. I will be presenting some of the interesting results from our monitoring campaign on pulsar dispersion measure variations, scintillation and scattering. In addition, I will be presenting the results on scatter-broadening and dispersion measure variations of a sample of 11 pulsars. Some of these sources have associated HII regions along their line of sight, some of them being supernovae remnants, and multiwavelength analyses are allowing us to, e.g., understand their contribution to the Galactic turbulence. We are doing a high frequency observing campaign with the Effelsberg radio telescope to monitor variations in the scintillation arc curvature of some of these pulsars to identify the location of the dominant scattering region. Some of the initial results from this campaign will also be presented.