Solar cycle variation of dynamic spectra predicted for radiation from the outer heliosphere

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High intensity radio emissions between 2-3 kHz, originating in the outer heliosphere have been observed approximately once per solar cycle by the Voyager spacecraft. Recently, it was predicted that variations in the pick-up ions generated by charge exchange beyond the heliopause may result in high emission levels approximately 2-3 years after solar maximum, in good agreement with the observed timing of emission events. Here, we combine these results, along with predictions for the interstellar magnetic field and the characteristics of neutrals and pick-up ions, with a semi-quantitative theory for radio emissions from the foreshock region of a global merged interaction region (GMIR) shock. Dynamic spectra are predicted for GMIR shocks propagating from the Sun to the outer heliosphere at various times throughout the solar cycle. We confirm that emission intensities are predicted to be higher by a factor ~ 3 during the period 2-3 years after solar maximum compared with emission at other times. Predicted dynamic spectra also bear a close resemblance to those observed, being similar in frequency and power. Drifting structures somewhat reminiscent of those observed are found. Issues involving the densities, temperatures, and velocities of the interstellar and solar wind plasmas near the heliopause are also raised.