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Title: SOLAR-DRIVEN NEUTRAL DENSITY WAVES

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Abstract: Interstellar neutral hydrogen atoms flowing into the solar system are attracted by the solar gravitational force, repelled by solar hydrogen Ly-alpha radiation pressure, and are ionized, primarily, through charge exchange with the solar wind protons. The solar cycle variation of the radiation pressure causes the net central solar force to fluctuate between attraction and repulsion resulting in the modulation of the neutral hydrogen density about the usual time independent model. The calculation presented here shows that the time dependent downstream density is strongly modulated by a large number of travelling neutral density waves. The waves possess a continuous range of wavelengths as is to be expected for a Maxwellian gas subjected to several eleven year solar cycle variations during its journey through the solar system. The amplitudes of the density modulation were found to be quite large. The backscattered glow was found to depend on the position of the detector and the phase of the solar cycle. At the most favorable condition a deviation of the order of 25% from the time independent glow might be observed.

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