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Properties of oblique chorus observed in the Dayside Outer Zone (DOZ)

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We discuss properties of obliquely propagating chorus in the Dayside Outer Zone (DOZ) portion of the Earth's magnetosphere. Fine structure and polarization of the whistler mode electromagnetic waves are studied using GEOTAIL and CLUSTER plasma wave and magnetic field data. Dayside chorus elements are noted to be composed of coherent subelements or packets with durations of 0.005 to 0.01s. Chorus waves are detected propagating both $\leq$ 20 degrees to the ambient magnetic field, Bo, and highly obliquely at angles near the Gendrin angle. It is observed that chorus wave magnetic fields are circularly polarized in the Minimum Variance Analysis frame independent of propagation angle. We discuss theoretically the polarization of chorus electric fields as a function of wave direction of propagation, frequency, etc. Physical properties of Gendrin modes are analyzed. Important consequences for wave-particle interactions for both parallel propagating and Gendrin mode waves are outlined.