Quadrupolar ordering in a 5f electron system has been observed directly for the first time, using x-ray scattering techniques. In UPd(3) at low temperatures satellite peaks appear at (1, 0, l) (orthorhombic notation) with l odd and even. Both sets of peaks show a resonant enhancement of the scattering at the M(IV) edge of U. At resonance, the dominant scattering of the 1 odd peaks occurs in the unrotated polarization channel, whereas for l even a significant rotated component is found. These results are discussed in terms of possible structures of the antiferroquadrupolar phases.