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ECE Imaging of Temperature Fluctuations and Drift Waves in DIII-D Plasmas SAMUEL ZEMEDKUN, TOBIN MUNSAT, University of Colorado - Boulder, BENJAMIN TOBIAS, PPPL, NEVILLE LUHMANN, CALVIN DOMIER, University of California - Davis — Recent observations of 2-D turbulent structures have been performed with the ECEI instrument on DIII-D. The experiments were performed in NBI and ECH-heated plasmas, over a range of external heating power. Correlation techniques similar to those used in Correlation Electron Cyclotron Emission (CECE) systems are employed, with the advantage that the ECEI system detects a full 2-D array of plasma locations: vertical separation is provided by an optical system and horizontal separation is provided by frequency discrimination in the detection electronics. Among the results are 2-D images of poloidally-propagating drift-waves, and correlation properties of fluctuations (< 200 kHz) in both the radial and poloidal directions. Scaling and parameter dependencies on plasma and heating conditions will be presented. In addition to the physics results, the data demonstrates the viability of the ECEI system in the presence of ECH heating, which will also be discussed.

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