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**Turbulence statistics with quantified uncertainty in cold-wall supersonic channel flow**[1] RHYS ULERICH, ROBERT D. MOSER, The University of Texas at Austin — To investigate compressibility effects in wall-bounded turbulence, a series of direct numerical simulations of compressible channel flow with isothermal (cold) walls have been conducted. All combinations of $\mathrm{Re} = \{3000, 5000\}$ and $\mathrm{Ma} = \{0.1, 0.5, 1.5, 3.0\}$ have been simulated where the Reynolds and Mach numbers are based on bulk velocity and sound speed at the wall temperature. Turbulence statistics with precisely quantified uncertainties computed from these simulations will be presented and are being made available in a public data base at http://turbulence.ices.utexas.edu/. The simulations were performed using a new pseudo-spectral code called Suzerain, which was designed to efficiently produce high quality data on compressible, wall-bounded turbulent flows using a semi-implicit Fourier/B-spline numerical formulation.

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