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Baseball Aerodynamics: What do we know and how do we know it?

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Baseball aerodynamics is governed by three phenomenological quantities: the coefficients of drag, lift, and moment, the latter determining the spin decay time constant. In past years, these quantities were studied mainly in wind tunnel experiments, whereby the forces on the baseball are measured directly. More recently, new tools are being used that focus on measuring accurate baseball trajectories, from which the forces can be inferred. These tools include high-speed motion analysis, video tracking of pitched baseballs (the PITCHf/x system), and Doppler radar tracking. In this contribution, I will discuss what these new tools are teaching us about baseball aerodynamics.