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Processes related to the production of vorticity in the forward and rear flank downdrafts and their interaction with the boundary layer are thought to play a role in tornadogenesis. We apply a three-dimensional vortex gas model to supercritical vortices produced at the surface boundary layer possibly due to interactions of vortices brought to the surface by the rear flank downdraft and also to those related to the forward flank downdraft. The three-dimensional vortex gas model of Chorin, developed further by Flandoli and Gubinelli, is proposed as a model for intense small-scale subvortices found in tornadoes and in recent numerical studies by Orf et al. In this paper, the smaller scales are represented by intense, supercritical vortices, which transfer energy to the larger-scale tornadic flows. We address the formation of these vortices as a result of the interaction of the flow with the surface and a boundary layer. In a second part of this paper we use the fractal dimension of the cross sections of negative-temperature vortices to address the role supercritical vortices play in the increase of energy in the tornado vortex and in tornadogenesis and then use these ideas to interpret the power laws of Cai and Wurman. (Received August 23, 2016)