

# Lorenz attractors in unfoldings of homoclinic flip bifurcations

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Lorenz attractors are known to appear in unfoldings from certain codimension two homoclinic bifurcations for differential equations in  $\mathbb{R}^3$  that possess a reflectional symmetry. This includes homoclinic loops under a resonance condition and the inclination flip homoclinic loops. We show that Lorenz attractors also appear in the third possible codimension two homoclinic bifurcation (for homoclinic loops to equilibria with real different eigenvalues), the orbit flip homoclinic bifurcation. We moreover provide a bifurcation analysis, computing the bifurcation curves of bifurcations from periodic orbits and discussing the creation and destruction of the Lorenz attractors.