Non-autonomous Ornstein-Uhlenbeck operators in exterior domains

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We consider non-autonomous Ornstein-Uhlenbeck operators in smooth exterior domains $\Omega \subset \mathbb{R}^d$ subject to Dirichlet boundary conditions. Under suitable assumptions on the coefficients, the solution of the corresponding non-autonomous parabolic Cauchy problem is governed by an evolution system $\{P_\Omega(t,s)\}_{0\le s\le t}$ on $L_p(\Omega)$ for $1 < p < \infty$. Furthermore, L^p-estimates for higher order spatial derivatives and L^p-L^q smoothing properties of $P_\Omega(t,s)$, $0 \le s \le t$ are obtained.