Comments on "Center manifold for stochastic evolution equations"

1. Page 8, in Lemma 2, θ_t first appears without definition or citation. Better give a definition before Lemma 2. Moreover better give some brief introduction of random dynamical systems and random invariant manifold.

2. Page 9, the last sentence, "...the solution of (9) is the coordinate transformation the solution of (1)." The word "of" is missed after "transformation".

3. The norm of Hilbert space H is used without any statement and better use different notation for the norm on H from the absolute value.

4. Page 11–14, in equation (12), (18) and (19), what is Ψ_0? There is no definition before. Also what is Ψ_α and $\Psi_{-\beta}$ on page 12. There are same problems in other pages.

5. Page 15, in Theorem 6, usually we do not use u to denote the random dynamical system defined by the solution u.

6. Page 15, after Theorem 6, a local center manifold is mentioned without definition. This local center manifold is for RDS, so better give your definition. Some paper [7. e.g.] had defined local random invariant manifold, Lu and Schmalfuß [JDE 236(2), 460–492, 2007] gave a little different definition of local random invariant manifold.

7. Page 16, at the beginning of section 4, you mentioned Duan et al. work [17] implies the existence of M^c, but you also mentioned in the first paragraph on page 4, that the theory of Duan does not apply.

8. Page 25, in Lemma 9, this asymptotic result needs $t \geq 0$ large enough because the tempered property of $z(\theta_t\omega)$. So this t should be larger than a random time, that is this condition depends on ω. Better state this clear. Also in Remark 2.

9. Page 25, in Lemma 9, Is the positive constant U a deterministic constant? Also V in Remark 2.

10. Page 27, line -7, I am not very clear with how the estimate of $|N'(X', \omega)|$ is derived. It seems both Lemma 9 and Remark 2 are used, but Lemma 9 and Remark 2 hold on different time interval. Moreover I think V_2 should be deterministic as G and h^c are Lipschitz continuous with deterministic Lipschitz constants.