1023-35-1483 **Constantin Onica*** (conica@indiana.edu), Department of Mathematics, Rawles Hall, Bloomington, IN 47405, and **Lee R. Panetta**. *Forced Two Layer Beta-Plane Quasi-Geostrophic Flow, Part II: Time and Space Analyticity.*

We consider a model of quasigeostrophic turbulence that has proven useful in theoretical studies of large scale heat transport and coherent structure formation in planetary atmospheres and oceans. The model consists of a coupled pair of hyperbolic PDE's with a forcing which represents domain-scale thermal energy source. Although the use to which the model is typically put involves gathering information from very long numerical integrations, little of a rigorous nature is known about long-time properties of solutions to the equations. In Part I we define a notion of weak solution, and show using Galerkin methods the long-time existence and uniqueness of such solutions. In this paper we continue the mathematical study initiated in Part I. We show that the unique weak solution found in Part I produces, via the inverse Fourier transform, a classical solution for the system. Moreover, we prove that this solution is analytic in space and positive time. (Received September 26, 2006)