

Abstract Submitted  
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**Laboratory-Scale Simulation of Spiral Plumes in the Mantle.**

ALBERT SHARIFULIN, Perm State Technical University, ANATOLY POLUDNITSIN, Perm State University — On the basis of laboratory simulation a mechanism is established for the formation of the upper mantle convection spiral plumes from a core hot point in the presence of a roll-type large-scale convective flow. The observed plume has horizontal sections near the upper limit of cavity, which may lead to the formation of chains of volcanic islands. We experimentally simulated the appearance of a plume from the hot by green laser generated hot spot and study its interaction with cellular flow, simulating beneath the plates shear flow. It is shown that the presence of cellular convective motion may lead to the formation of a strange spiral convective plume. Experimentally showed that the presence of cellular convective motion (simulating the large-scale shear flow exists beneath the plates) the plume from a point source of heat (core hot point) can acquire a spiral shape with horizontal sections needed to launch the mechanism of formation of chains of volcanic islands [1].

[1] Skilbeck, J. N.; Whitehead, J. A. (1978). Formation of discrete islands in linear chains. *Nature* **272**: 499–501. [http://en.wikipedia.org/wiki/Nature\\_\(journal\)](http://en.wikipedia.org/wiki/Nature_(journal))

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