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The Paraná-Etendeka Magmatic Province (PEMP) is the second largest igneous province on the Earth (*approx.* 10^6 km²; *approx.* 133 Ma old). Basaltic rocks ($SiO_2 \approx 50\%$) predominate over other chemically more evolved lithologies (dacites and rhyolites: $SiO_2 > 63\%$). Low- and high-titanium groups are distinguished in PEMP and, apparently, followed different evolutionary paths. This work is a first attempt to experimentally reproduce one of the most accepted models for the high-Ti acidic member (Chapecó-type) generation, *i.e.*, the impact of underplating basaltic melt (high-Ti Pitanga-type of PEMP) into a pre-existing continental crust. Isotopic geochemistry supports such a formation/contamination mechanism and guided the contaminants selection. Our goal is to study the role of chaotic mixing dynamics in this process. Two experiments (Exp1 and Exp2) were performed at 1,350°C using independent and non-simultaneous movements of two cylinders (Journal Bearing System [1]): (i) two clockwise rotations of an outer cylinder (35 min); (ii) six anticlockwise rotations of an inner cylinder (18 min). The procedure was repeated twice (212 min in total) and a chaotic flow has been generated. Homogenized glasses were used as the starting end-member compositions before each experiment, *i.e.*, KS-700 basalt (20%; high-Ti Pitanga-type; $\eta_{1350} = 8.78$ Pa.s; $\rho_{1350} = 2.469$ g/cm³) and LMC-027 granite (80%; syenogranite from Capão Bonito Stock; $\eta_{1350} = 1.22 \bullet 10^5$ Pa.s; $\rho_{1350} = 2.292$ g/cm³) for Exp1. For Exp2 the contaminant was another granite (LMC-020; 20%; monzogranite from Cunhaporanga batholith; $\eta_{1350} = 1.73 \bullet 10^4$ Pa.s; $\rho_{1350} = 2.317$ g/cm³). The chaotic dynamics created vortex structures, filaments, stretched and folded arms involving regions of well-preserved end-member compositions and transitional intermediary areas. Representative sections of Exp1 were analysed using an electron microprobe. Major and minor oxide variations show diffusion patterns similar to those from previous experiments with melts from natural samples. Transects for the main oxides crossing the structures present two compositional plateaux: (i) one close (but not the same) to the original basaltic composition and; (ii) one corresponding to the rhyolitic glass. Exceptionally, the K_2O-plateau in the rhyolitic region is systematically lower than expected. Between the plateaux "S" shaped curves are observed, typical for diffusive patterns. SiO_2 and MgO show a smoother behaviour in comparison with TiO_2 and CaO, which represent inflexion-changing points. Na_2O and Al_2O_3 contents are similar in both end-members, therefore the points are more disperse. Besides, some uphill diffusion (*i.e.,* opposite to the gradient) has been detected. The results confirm that basaltic areas change faster in composition (*e.g.* they are faster contaminated) than the rhyolitic ones. Further experiments varying the end-members are on their way. Laser ablation-ICP-MS investigations will be performed for the chemical behaviour of trace elements, which should be crosschecked by numerical simulations.

[1] Swanson & Ottino (1990), J. Fluid Mech., 213: 227-249.