

## **New constraints on the Sinai kinematic plate from a consistent Levant fault velocity field integrating new GPS data in Lebanon.**

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The Levant fault system is a major strike-slip fault bounding the Arabia plate and the Sinai plate. Its kinematics although understood in its main characteristics, remains partly unresolved in its quantification, especially in the Lebanese restraining bend. At this latitude, it splits into three important active fault systems: two left-lateral strike-slip faults, and a large thrust fault system, located mostly offshore Lebanon, but connecting on land to the main strike-slip fault system through lateral ramps. We present a GPS velocity field based on campaign GPS data acquired in the different countries surrounding the Levant fault and GPS data publicly available in the We use the data from LeBeon et al. (2008) Jordan and Israel, GPS data in Lebanon in , 2002 (IPGP-LebaneseCNRS) and 2010 (ISTerre-Géoazur-Lebanese CNRS), and GPS data acquired in Syria in 2001 and 2005 (Paris VI - Alep - Lattaquié Universities). To make denser measurements in Lebanon and Syria, we finally combine our velocity field with the Alchalbi et al. (2010) published velocities. First, we present the velocity field in the transpressive restraining bend. We derive three velocity profiles we analyzed in of elastic strain accumulation. Small lateral fault slip along the main strand of Levant fault (3-6mm/yr) are found despite the uncertainty locking depth of the fault, and whatever profile and data set combined). For reasonable and constant fault locking depth (10 to 15km), a slight decrease of lateral fault slip rates is detected from south to north. Individual slip rates on the main and secondary strands could be solved but remain mostly unconstrained quite speculative. Finally, compression is in current GPS data part of it across Mount Second, we analyze the new GPS velocity in the Arabia/Sinai/Eurasia tectonic propose to evaluate to the kinematics of the Sinai plate is described using one or two poles and to estimate the distinct change in velocity occurs within the Sinai plate in case of two subplates. In particular, we will pay attention the velocity from south of Lebanon to Syria and test its consistency one or two Euler poles.