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The Deformation Field in Greece from 13 Years of continuous and Campaign GPS Measurements

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During the last 13 years continuous GPS and campaign-type measurements have been performed in Greece. All the data in combination with IGS and EUREF stations have been consistently processed in ITRF2005 using absolute antenna phase center corrections. Special efforts are made to reduce artifacts present in regional networks such as scale effects or common mode signals. This allows for a refined modelling of the kinematic field and provides new insights in ongoing deformation processes.

An up-to-date overall kinematic and strain-rate field of Greece is being presented. The shear strain rate field along the North Aegean trough is further elucidated and identified as continuation of the North Anatolian fault zone in terms of strain rates. First analyses and fault-related implications are being discussed. The new results also depict the extensional strain regime extending from northern to central Greece in great detail. Another feature is the pronounced southward motion of Chalkidiki, northern Greece, reaching up to 8 mm/yr. Increased seismic activity south of the island of Zakynthos (Ionian Sea) in April 2006 generates co-seismic displacements of up to 1 cm towards west. The motion is perpendicular to the strike of the West Hellenic arc.

With the new GPS data of high quality and longer time span indications of vertical velocities on the Greek mainland and along the Hellenic trench can be seen for the first time. The magnitude of the vertical velocity differences amounts to a few mm/yr which requires special attention related to reference frame stability and modelling of

change of equipment.