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Linking Nubian and Central European geodetic networks with a new GPS combination solution

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The understanding of the intraplate tectonics of Central Europe requires a detailed picture of how stress is transferred from the interaction of the Eurasian, Nubian and Anatolian plates to the Alpine, Carpathian, Pannonian and Dinaric regions. Recent strain distribution is controlled by the Adria horizontal push, by the Vrancea vertical slab pull and associated horizontal displacements, by the Aegean/ Anatolia extension and slab-roll back, and by the northwards push of the Nubia plate. Local GPS networks can certainly contribute to constrain the horizontal, and possibly vertical velocity field at continental level provided that sufficient homogeneity is granted in the reduction of raw data, so that velocities obtained from the different networks can be combined. We present a horizontal velocity field for the Mediterranean and Central European region resulting from a new combination of seven different GPS networks formed of permanent and campaign stations. The backbone is the CEGRN network, operational since 1994 and which includes permanent stations from the European Permanent Network (EPN) of EUREF and of IGS, assuring accurate alignment to the International Terrestrial Reference Frame. Five additional networks at the national level complement and densify the EPN and CEGRN networks thanks to a standardized processing scheme adopted by the CEGRN analysis centers for CEGRN, EPN and local network processing. The EPN and Italian networks include a number of stations in the Nubia plate which are crucial to establish a geodetic link between the Nubia and Eurasia plate.