



Preliminary results from the COMET CGPS network in Greece

M. Floyd (1), J.-M. Nocquet (1,2), H. Billiris (3), D. Paradissis (4), P. England (1), B. Parsons (1)

(1) COMET, University of Oxford, UK, (2) CNRS-Géosciences Azur, Nice, France, (3) Department of Topography, Higher Geodesy Laboratory, Athens, Greece

The ability of the Hellenic subduction zone to produce large earthquake is a key question for the seismic and tsunami hazard in the Mediterranean. However, how this subduction accommodates the convergence between the oceanic lithosphere of the African plate and the extending continental lithosphere of the Aegean still remains a matter of debate. For instance, former studies (e.g. Jackson McKenzie, 1988) concluded that earthquakes can only account for 10% of the relative motion, suggesting that the subduction mainly is in a stable sliding state. In contrast, some authors (e.g. Pirazzoli et al., 1982), using the Holocene geological record, suggested that large events ($M > 8$) may have occurred in historical times, indicating that the zone is capable of producing great earthquakes through more stick-slip behaviour. In order to discriminate between these two views, a network of permanent GPS stations is being developed throughout the south-west Aegean region to monitor the strain accumulation and release along the interface and over the surrounding region. We analyse the CGPS network together with a subset of IGS and EUREF sites in Europe on a routine basis to derive the daily solutions and time series. We present the analysis of the time series and results for sites having about 2 years of data. Preliminary estimates of velocities suggest that the current convergence rate accommodated across the Hellenic trench is ~ 35 mm/yr, in agreement with McClusky et al. (2000, 2003). No shortening perpendicular to the trench is found between sites located in the southern Peloponnese and Crete relative to sites located further landward. The results are compared to the seismicity of the region in order to reassess the ratio of seismic and aseismic deformation. Moreover, the geodetic results confirm the presence of strike-parallel spreading along the arc at ~ 2.7 mm/yr between south-western Peloponnese and western Crete,

which correlates with several extensional structures described by Armijo et al. (1992) and earthquake focal mechanisms.