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Epicentral-near field and far field effects from recent earthquakes in Greece. Implications for the recently introduced INQUA Scale

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Preliminary results from recent earthquakes in Greece show that the newly introduced INQUA scale appears to record the intensity degree in the epicentral area and the near field effects in an accurate and satisfactory way. This is true not only for the shallow events, but also for the recent 2006 event (Mw=6.9) at Kythira island that was of intermediate depth (70 km). An inconsistency is related to the far field effects of the 1981 earthquake sequence. In the 1981 Alkyonides Earthquake sequence (M=6.7, M=6.4, M=6.3) in the Eastern Corinth Gulf there appears to be an anomalous M.Mercalli intensity distribution with a core of high intensities in the epicentral area and a second maximum of intensities at long distances. These shallow normal faulting earthquakes affected not only the Perachora Peninsula (Intensities IX-X) Plataies (IX+) or Kapareli (IX), but also the city of Athens (where buildings collapsed in certain town districts) that is located 70km to the East. In Athens, the area of damage was highly localized and the degree of damage changed abruptly over short distances due to surface geology. Multi-store buildings at Halandri and Moschato (suburbs of Athens) that are founded on fluvial deposits suffered severe damage. This inconsistency for the far field of the 1981 events between the INQUA and the M. Mercalli scale can be attributed to several reasons. It could be due to the strictly localized area of damage and the limited geographical coverage so that intensive geologically related effects in Athens have not been expressed. However, we feel that this inconsistency is probably due to the structural response of multi-store buildings, the bedrock geology and local site effects in accordance to the long distance from the epicentre. In this case there was a long

period resonance involved that cause severe building damage.