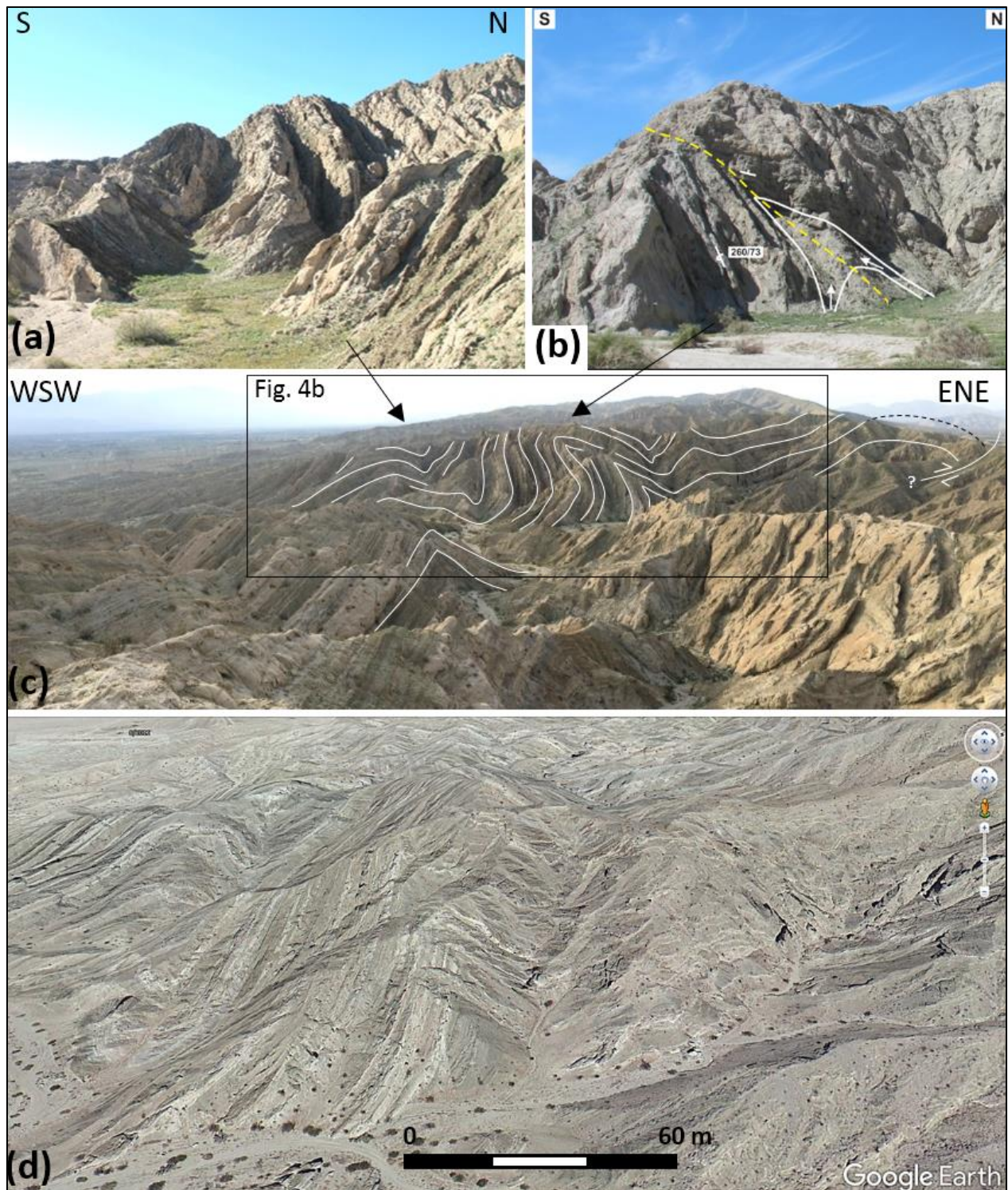
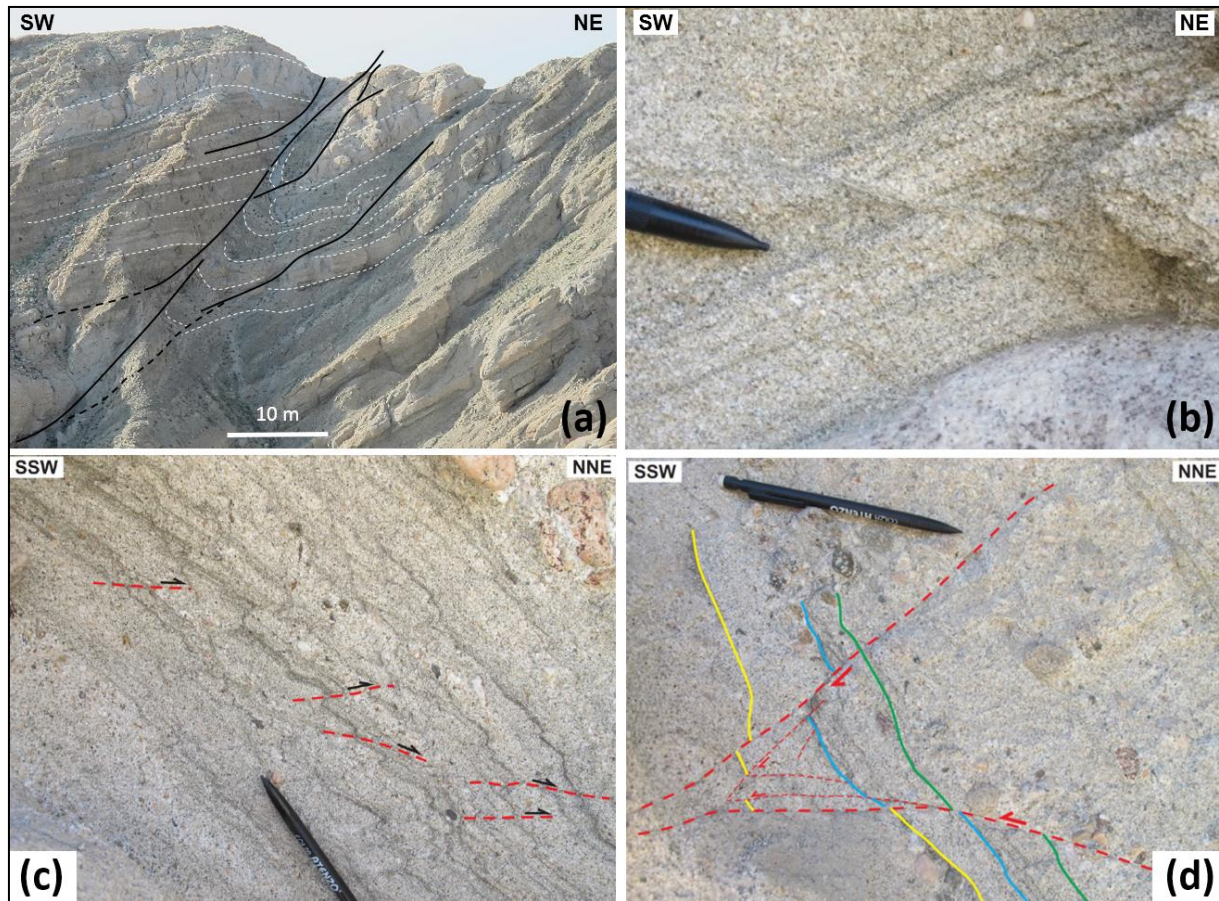
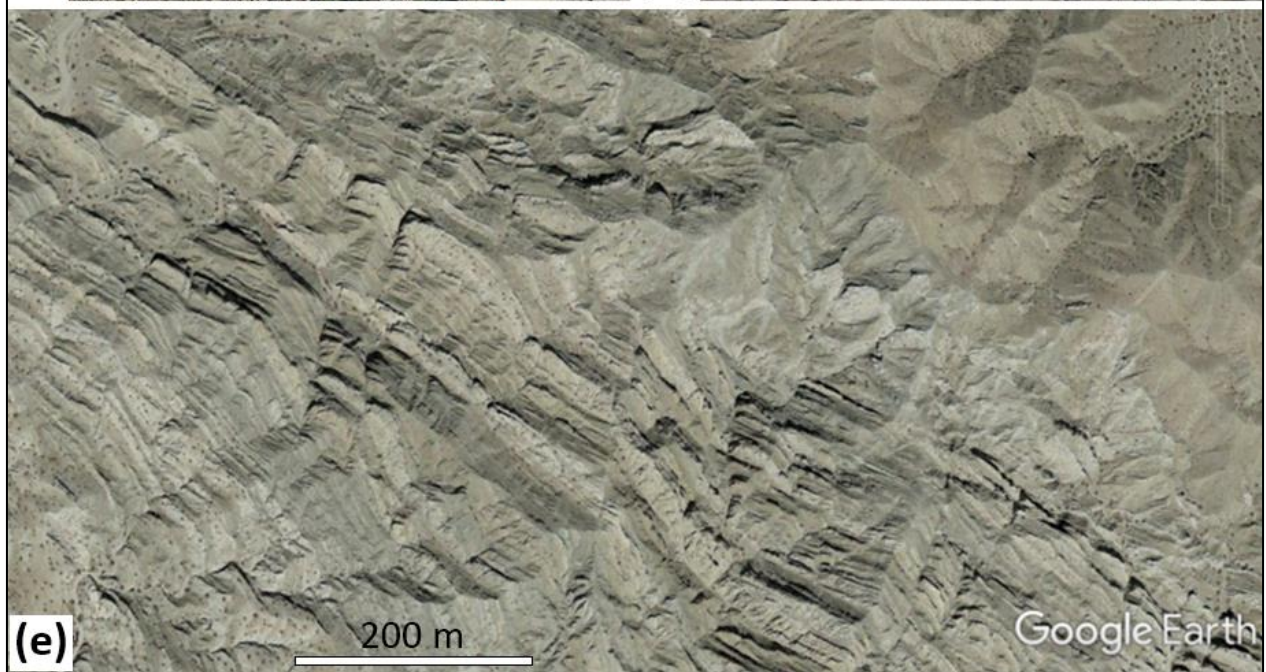
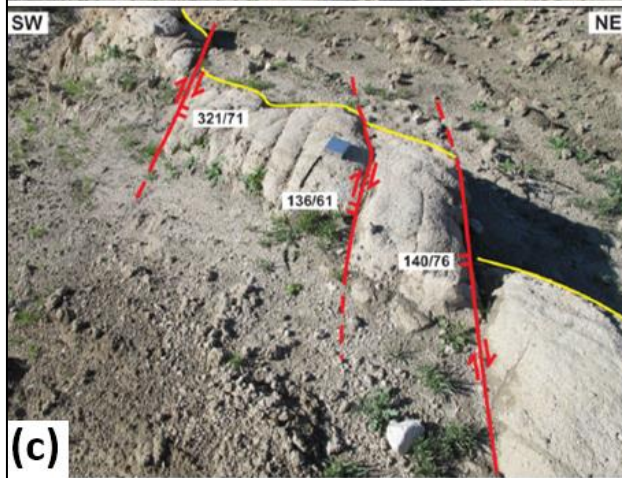
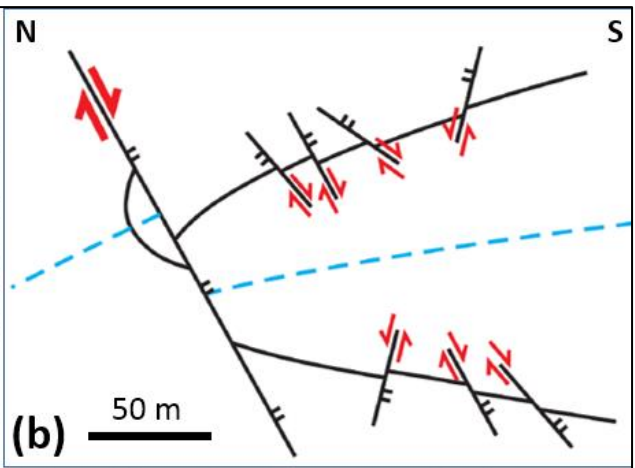
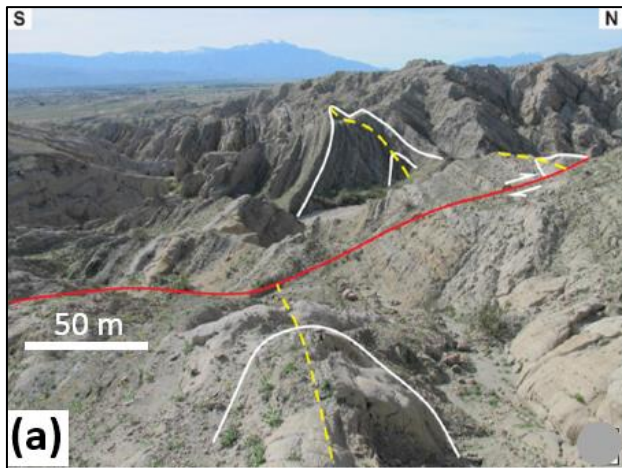
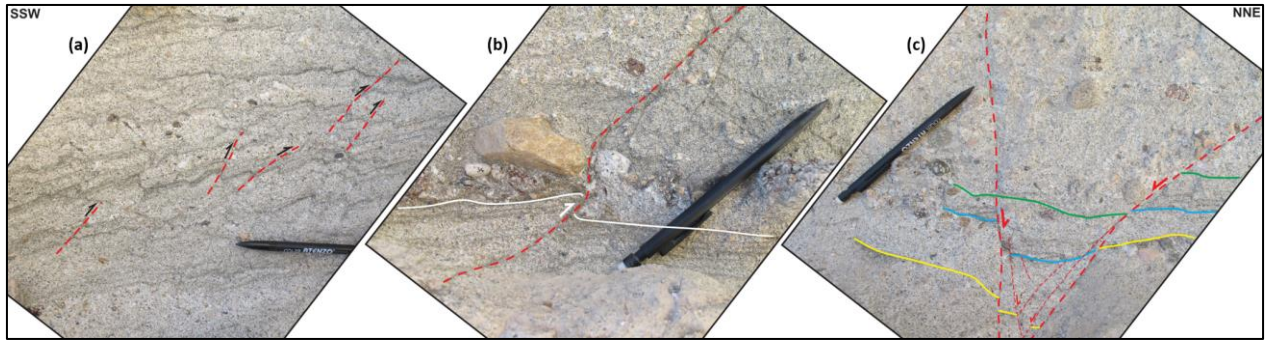
Supplements

S1: Examples of subsidiary fold styles in the northwestern macro-fold. For location, see fig. 3a. (a) DEM image showing an upright and west-plunging anticline-syncline pair. © Google

Earth 2011. (b) Symmetric and concentric anticline, same as in (a) viewed to the east. (c) Kink-style syncline changed along strike southeastward from symmetric in (a). (d) Tight to isoclinal, steeply west-plunging anticline in the northern part of the macro-fold. Note folded quartz-rich sandstone layer used as stratigraphic marker in the upper Palm Spring Formation. (e) Same quartz-sandstone layer as in (d) repeated by tight/isoclinal folding..

S2: Examples of macro- and meso-scale fold styles in the central macro-fold (location in fig. 3b). (a) Open to slightly asymmetric syncline fold hinge plunging moderately west. (b) Outcrop of the fold hinge of the central macro-fold. The hinge zone is relatively tight, and the fold partly overturned to the SW. Note how the mudstone bed (white lines) thickens into

the fold hinge. Dashed yellow line represents the fold axial surface. (c) Panorama view of the central macro-fold, showing change in geometry and tightness of subsidiary anticline-syncline pairs toward northeast. Note presence of the major SAFZ-parallel, open anticline in the northeast, and the location of Indio Hills fault. (d) DEM image of the same outline as in (c). © Google Earth 2011.

S3: (a) Cliff view of a reverse/thrust fault system (black lines) in upper Palm Spring Formation strata that truncates and offset bedding surfaces (white stippled lines). Note the presence of fault-related drag folds that reveal top-NE (right) sense of shear. See fig. 3c for location. **(b)** Minor reverse fault in SW-dipping sandstone bed. Note fault movement top-SW. Location is shown in fig. 3c. **(c)** Outcrop photograph viewed in section on NNE-dipping sandstone beds, comprising E–W-trending, north-verging minor, asymmetric folds and faults. Note that the low-angle minor faults (dashed red lines) formed within the minor fold hinges. Location is shown in fig. 3c. **(d)** Field photograph on NNE-dipping sandstone layers showing a conjugate set of minor reverse faults (dashed red lines) that offset normally, thin sandstone beds (green, blue and yellow). Location is shown in fig. 3c.

S4: (a) Outcrop photograph showing right-lateral offset (c. 70 m) of the central macro-fold axial surface trace (yellow stippled line) by a steep, NNW–SSE trending, NE-dipping brittle fault (red line). Note partly overturned bedding (white line) in the hinge zone to the west. See fig. 3b for location. **(b)** Sketch of the steep right-lateral strike-slip fault that decapitates the entire hinge of the central macro-fold. Note also subsidiary NW–SE and NNE-SSW trending, NE-dipping, right- and left-lateral faults, respectively that offsets the macro-fold limbs. See fig. 3b for location. **(c)** Outcrop photograph of a meter-thick sandstone bed crosscut and offset by minor steep, NW–SE to NNW–SSE trending right-lateral strike-slip fault. See fig. 3b for location. **(d)** Outcrop in vertical view showing a minor conjugate fault set defined by N-S and NNE-SSE trending right- and left-lateral strike-slip faults. Locality shown in fig. 3c. **(e)** Satellite image illustrating large scale kink bands arranged as cross faults at high angle to bedding on the southeastern macro-fold. See fig. 2 for location. © Google Earth 2011.

S5: Uninterpreted Fig. 6. See Fig. 2 for location. From Google Earth. © Google Earth 2011.

S6: Field photographs of centimeter-scale faults in the Indio Hills. The photographs were rotated anticlockwise by 52° to better analyze the microstructures they display. Low-angle, bending normal faults in (a) and (b) become similar to micro thrust-faults and planar reverse faults in (c) resemble extensional, graben-bounding fault. Notice the potential thickened wedges of syn-tectonic sediments in the extensional micro-graben in (c) (cf. green, blue and yellow lines). Location is shown in fig. 3c.