Supplement to “Work optimization predicts accretionary faulting: An integration of physical and numerical experiments” (http://doi.org/10.5880/fidgeo.2017.005)

Citation information:

 When using the data please cite:

Souloumiac, Pauline; Maillot, Bertrand; Herbert, Justin W.; McBeck, Jessica A.; Cooke, Michele L. (2017): Supplement to "Work optimization predicts accretionary faulting: An integration of physical and numerical experiments". GFZ Data Services. http://doi.org/10.5880/fidgeo.2017.005

The data are supplementary material to:

McBeck, Jessica A.; Cooke, Michele L.; Herbert, Justin W.; Maillot, Bertrand; Souloumiac, Pauline (2017) Work optimization predicts accretionary faulting: An integration of physical and numerical experiments, *Journal of Geophysical Research,* in press.

Data Description

The data set includes photos, force measurements, and incremental displacement fields captured in experiment E240 run at the physical modeling laboratory (GEC) at the Université de Cergy-Pontoise. We built the accretionary wedge using a novel sedimentation device [*Maillot*, 2013] that distributes sand in planar layers and creates homogeneous sandpacks. We include photos of the side of the accretionary wedge in a zipped folder (E240_sideviews). Throughout the experiment, we took a photo every 5 seconds.

We include the incremental displacement fields calculated from digital image correlation of sequential photos [*Adam et al.*, 2005; *Hoth*, 2005] as matlab (.mat) files in a zipped folder (E240_001-062_DIC_MAT), and as .csv files in a zipped folder (E240_001-062_DIC_CSV). The .mat and .csv files are numbered to indicate which sequential photo pairs were used to calculate the displacements. For example, E240_001-062_0001_CSV.csv (and E240_001-062_0001.mat) contain the incremental displacements between photo 001.jpg and 002.jpg. All files are included in a single zip folder (Souloumiac-et-al-2017-supplementary-datasets.zip).

The matlab files include the variable arrays *x*, *y*, *u*, *v*, which are the x and y coordinates (in pixels relative to the upper left corner of the image), and the horizontal (*u*) and vertical (*v*) incremental displacement fields (in pixels), respectively. The .csv files contain four columns of

data with the *x* and *y* coordinates in the first two columns, and the horizontal (*u*) and vertical (*v*) displacements in the last two columns. We include force measurements in a text file (E240_force_corrected) with two columns: the first column is the total displacement of the backwall in millimeters at the time that the force measurement was recorded, and the second column is the normal force exerted on the backwall, in Newtons. The force measurements are calculated from measurements of strain gauges mounted on a wall of the sand box (i.e., the backwall) [e.g., *Souloumiac et al.,* 2012].

Keywords

Analogue modeling, accretionary wedges, digital image correlation, EPOS, multi-scale laboratories

References

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