Computer Code Availability: The code, developed by Madeline Kollegger and Jorge Lorenzo-Trueba can be accessed since DATE HERE at https://github.com/JorgeMSU.

For details about this code, contact Jorge Lorenzo-Trueba via email (lorenzotruej@montclair.edu) or by phone (973-655-5320). Jorge Lorenzo-Trueba's office is at 1 Normal ave., Montclair State 437 University, NJ 07043. The code can run on a standard laptop and is written in Matlab.

Combine
The experimental data we used was downloaded from this SEAD repository (https://sead2.ncsa.illinois.edu/datasets/58dd9ac4e4b0b223acc5ff80#folderId=58ddbea2e4b0b223acc6468b&page=0) from the "Matrix_DryZ" folder. This particular code is used for the hours of the HMSP phase, and we downloaded the associated folders (hours 680-1170). These files are then extracted to a desktop folder entitled (HMSPdryZ). The code is written to cycle through all the files in this folder turning the DEM data into a matrix and saves each hour into a 3D Matrix called A. This matrix was then manually renamed "ThisisHMSPmatrix," saved to the desktop, to be used in other codes.

LMLPCombine
The experimental data we used was downloaded from this SEAD repository (https://sead2.ncsa.illinois.edu/datasets/58dd9ac4e4b0b223acc5ff80#folderId=58ddbea2e4b0b223acc6468b&page=0) from the "Matrix_DryZ" folder. This particular code is used for the hours of the LMLP phase, and we downloaded the associated folders (hours 50-540). These files are then extracted to a desktop folder. The code is written to cycle through all the files in this folder turning the DEM data into a matrix and saves each hour into a 3D Matrix called A. This matrix was then manually renamed "LMLP," saved to the desktop, to be used in other codes.

AverageProfile
The following code is written to manipulate data from the paper Yu et al 2017 wherein they study channel dynamics in a deltaic system using a flume experiment. Here we use the scans (Data compiled by the "Combine" script) taken in their experiment to observe the dynamics of the fluvial surface as influenced by the allogenic factors (sea level). For each hour of the experiment (of their last phase HMSP) we calculate the average elevation along the profile and generate the profile in cross-section. We then locate the shoreline at each hour, (Using the curve intersect function written by S. Hölz, TU Berlin, Germany). For each profile, we calculate the first derivative which we use as a proxy for the relief as a function of the shoreline. We then calculate the difference in the area of each profile to understand the shape of the profile. We also calculate the volume change in each profile and identify the change as erosion or deposition and its location along the fluvial surface.

RadialAverageMatrixResiduals
The following code is written to manipulate data from the paper Yu et al 2017 wherein they study channel dynamics in a deltaic system using a flume experiment. Here we use the scans (Data compiled by the "Combine" script) taken in their experiment to observe the dynamics of the fluvial surface as influenced by the allogenic factors (sea level). For each hour of the experiment (of their last phase HMSP) we calculate the average elevation along the profile and generate the profile in cross-section. We then track

three locations and store there elevation changes over time. This code has additional lines to run analysis for “dampening” and “timelag.”

LMLPAverageProfile
The following code is written to manipulate data from the paper Yu et al 2017 wherein they study channel dynamics in a deltaic system using a flume experiment. Here we use the scans (Data compiled by the “LMLPCombine” script) taken in their experiment to observe the dynamics of the fluvial surface as influenced by the allogenic factors (sea level). For each hour of the experiment (of the LMLP) we calculate the average elevation along the profile and generate the profile in cross-section. We then locate the shoreline at each hour, (Using the curve intersect function written by S. Hölz, TU Berlin, Germany). For each profile, we calculate the first derivative which we use as a proxy for the relief as a function of the shoreline. We then calculate the difference in the area of each profile to understand the shape of the profile. We also calculate the volume change in each profile and identify the change as erosion or deposition and its location along the fluvial surface. The stratigraphy movie at the bottom uses the shade function (2018 Javier Montalt Tordera).

LMLPRadialAverageMatrixResidual
The following code is written to manipulate data from the paper Yu et al 2017 wherein they study channel dynamics in a deltaic system using a flume experiment. Here we use the scans (Data compiled by the “LMLPCombine” script) taken in their experiment to observe the dynamics of the fluvial surface as influenced by the allogenic factors (sea level). For each hour of the experiment (of their LMLP phase) we calculate the average elevation along the profile and generate the profile in cross-section. We then track three locations and store the elevation changes over time.