Data archive for Haught, D., J. G. Venditti, and S.A. Wright, (2017), Calculation of in-situ acoustic attenuation using off-the-shelf ADCPs. Water Resour. Res.

The files contained in this data archive are all the acoustic profiles and sediment samples used in the data analysis.

Acoustic profiles are contained in the following data files.

1. EchoProfilesRaw\_AllFrequencies.xlsx – The raw echo intensity from ADCPs indexed by time.
2. IdbProfiles\_AllFrequencies.xlsx – The intensity profiles converted from echo intensity to decibels using Equations 4a or 4b.
3. FCBProfiles\_AllFrequencies.xlsx – Fluid Corrected Backscatter (FCB) profiles adjusted for fluid attenuation using Equation 6.
4. RangeProfiles\_AllFrequencies.xlsx – Distance from the ADCPs of each measurement bin. Corrected for beam angles.
5. DepthTempSOS\_AllFrequencies.xlsx – Temperature and depth below the water surface measured by the ADCP for each acoustic profile. Included is the speed of sound calculated assuming no salinity.

The profiles are indexed by date and time. Each profile consists of 128 bins across the channel. The distance of the bins from the ADCPs vary slightly, so range for each profile and bin are given separately in RangeProfiles\_AllFrequencies.xlsx.

The FCB profiles have been truncated to remove data in the near-field. The profiles are also truncated to remove data below the noise floor or where there is interference from bed or water surface as described in the paper.

For each date there are 11-12 profiles reported. These profiles correspond to sediment samples taken at the respective times in the acoustic beams. The FCB that corresponds to a particular sediment sample is drawn from the instantaneous acoustic profile at the nearest range bin to where the suspended sediment sample was taken.

In-situ attenuation is calculated using the instantaneous FCB profile that corresponds to the time the sediment sample was taken.

Sediment information is contained in the following files:

1. InBeamSampleConcGS\_AllSamples\_LISST.xlsx – Contains all the concentration and grain size distribution of all in beam suspended sediment samples processes using the LISST-100. Each sample is indexed by date and the corresponding acoustic profile.
2. LISST\_LS\_GSDcomparison.xlsx – Contains concentration and grain size distribution of large in beam suspended sediment samples collected with the modified P61 sampler and processed using the LISST and the LS instrument. Each sample is indexed by date and the corresponding acoustic profile. Note that the corresponding profile is only coupled with respect to space not time, as the sample were collected at different times of the day.