The files stored with this Readme file contain the results from the study "Comparison of the effects of different viscoelastic and temperature models on the theoretical tidal response of the Moon" by Xiao et al. (2022)

Models used in plotting Figure 1 and following forward calculation from Xiao et al. (2022) are stored in the "Model_G19M2.csv" and "Model_G19M3.csv". In each .csv file, rad is radius (m), rho is density profile (kg/m^3), Vp is the P-wave velocity profile (m/s), Vs is the S-wave velocity profile (m/s); T_noTBL is the temperature profile for the "no-TBL" model, T_TBL is the temperature profile for the "TBL" model, T_CON is the temperature profile for the "CON" model, T_JUMP is the temperature profile for the "JUMP" model, and T_HOT is the temperature profile for the "HOT" model. Since the core temperature profiles are not used in the calculation, thus they are all set to NaN.

Data used to plot Figures 2 (also the figures in SI), and 3 from Xiao et al. (2022) are stored as Data_[%%%%%].csv. The square brackets contain information about the density & seismic velocities models, temperature models, and grain size. For example, the file "Data_G19M2_TBL_d=10.csv" means it contains the synthetic data calculated from the G19M2 model and the "TBL" model with a grain size d=10 μm. In each .csv file, Period is the tidal period (hours), M_k2 is the synthetic k_2 value with the Maxwell model, Bb_k2 is the synthetic k_2 value with the Burgers(background) model, Bp_k2 is the synthetic k_2 value with the Burgers(+peak) model, Ab_k2 is the synthetic k_2 value with the Andrade(fixed β) model, Amb_k2 is the synthetic k_2 value with the Andrade(μ-β) model, and SC_k2 is the synthetic k_2 value with the Sundberg-Cooper model. The cases of Q and h_2 are the same as k_2.

Data used to plot Figure 4 from Xiao et al. (2022) are stored as Results_[%%%%%].csv. The square brackets contain information about the density & seismic velocities model, temperature models, and viscoelastic models. For example, the file "Results_G19M2_CON_M.csv" means it contains the results based on the G19M2 model and the "CON" model with applying the Maxwell viscoelastic model. In each .csv file, Period is the tidal period (hours); k2, h2, and Q are the frequency-dependent tidal parameters k_2, h_2, and Q,

respectively. File “Results_Mass&MoI.csv” contains the synthetic Mass and MoI of these 18 models.