

BuildSlugSed wraps all the external functions into the body of the main shell script, and can be manually edited to identify which external functions should be embedded.

The function filename is written before each embedded function, thus making it explicitly clear which function (or version thereof) is being used. This is advantageous because changes to individual external functions can be easily incorporated and tested without altering or renaming all the function calls within the main shell script.

For example, let's say the user wants to calculate sediment porosity (ϕ) as a function of depth (z) using a function that is different from the one coded into `ss_porosity`, namely $\phi = A+Bz+Cz^2+Dz^3+E\ln z+F\exp(G*Z)+H^{(Iz)}$ where A, B, \dots, I , are constants. If the user wants to calculate sediment porosity in the manner done by *Wang and Davis (1992)*:

$\phi = \phi_{\text{surface}} / (A+Bz+Cz^2+Dz^3)$, the cleanest way to do this is to do the following:

(1) Copy `ss_porosity.m` to `ss_porosity_WD.m`

(2) Edit `ss_porosity_WD.m` in the following manner:

Comment out (or delete) the following section which calculates porosity, where `a1, a2, ...a11` correspond to the coefficients specified in the input deck and `A` is a vector of sediment depths :

```
if a8==0 & a9 == 0 & a5 == 0;
    phi = (a1+(a2*A)+(a3*A.^2)+(a4*A.^3)+(a6*exp(a7.*A))+a10*A.^a11);
else
    if a8==0 & a9 == 0 & a5~=0
        phi = (a1+(a2*A)+(a3*A.^2)+(a4*A.^3)+(a5*log(A))+ ...
            (a6*exp(a7.*A))+ a10*A.^a11);
    else
        phi = (a1+(a2*A)+(a3*A.^2)+(a4*A.^3)+(a5*log(A))+ ...
            (a6*exp(a7.*A))+(a8.^(a9*A))+a10*A.^a11);
    end
end
```

and replace it with

```
phi = phi_surface ./ (a1 + (a2*A) + (a3*A.^2) + (a4*A.^3));
```



```
'ss_estimate',...  
'ss_remnode',...  
'ss_plotter' } } );
```

- (6) Save `BuildSlugSed` , and then run `BuildSlugSed` and assign a different output name for the new wrapped `SlugSed` function with the new method for calculating porosity as done in *Wang and Davis* (1992):

```
BuildSlugSed('SlugSed.m', 'SlugSed_phiWD.m')
```

The new wrapped function `SlugSed_phiWD` will now calculate porosity in the manner used by *Wang and Davis* (1992).