README for shear margin hydrology code

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This folder contains the code to run a simulation for the evolution of temperature, porosity, and effective pressure.

The main code is 'RunCode.m', which does the time-stepping, applies the boundary conditions, and calls the functions that are required to do portions of the computation. The current configuration solves a nondimensional version of Equations (10) and (11). The various parameters in the model are described in 'loadparameters.m'. The grid size, specified on lines 9 (`dx`) and 13 (`dy`), is coarse in order for the simulations to run quickly. The values of `dx` = `256` and `dy` = `128` were used in the paper.

The two functions that are called within the 'RunCode.m' are the solution to the effective pressure 'Nfun2d.m' and subglacial hydrology model 'subglacialhydrology.m'.

'RunCode.m' will produce 1 dataset and 8 figures:

```
hydrologydataset.mat
ds_effp4000.jpg
ds_effp8000.jpg
ds_effp12000.jpg
ds_effp16000.jpg
ds_effp20000.jpg
downstream_effectivepressure.jpg
downstream_porosity.jpg
downstream_temperature.jpg
```

The script 'loadsimulationruns.m' replots the the three downstream figures.