Ice Sheet System Model
Quick Start Guide

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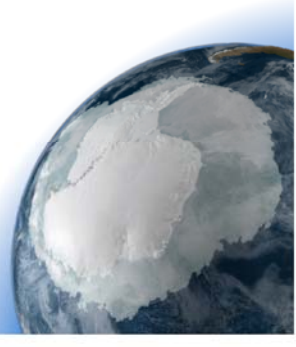

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Quick Start
Larour et al.
Example: Steady state ice shelf with square domain
Model set up
Model parameterization
Compute & display model solution

Outline

1. Example: Steady state ice shelf with square domain
   - Model set up
   - Model parameterization
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Example: Steady state ice shelf with square domain

- Go to working directory

```
$ cd $ISSM_TIER/examples/SquareIceShelf/
```

- Copy the `startup.m` file to current directory

```
$ cp $ISSM_TIER/startup.m .
```

- Start-up Matlab

```
$ matlab
```

- In Matlab, create empty model structure

```
>> md=model;
```

- Build mesh over domain with desired resolution (try 50,000 m)

```
>> md=triangle(md,'DomainOutline.exp',50000);
```

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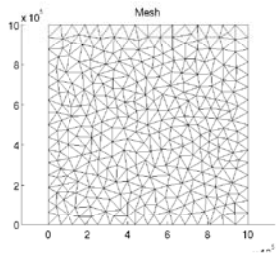
- To plot mesh...

```
>> plotmodel(md,'data','mesh');
```



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- Define glacier type: grounded or ungrounded (default is grounded); typically takes form of...

```
>> md=setmask(md,'floatingicename.exp','groundedicename.exp')
```

- For our purposes, set floating ice to 'all'

```
>> md=setmask(md,'all','');
```

- Call parameterization file (here: use 'Square.par')

```
>> md=parameterize(md,'Square.par');
```

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- Select ice flow model (here: MacAyeal/Morland Shallow-Shelf model; no vertical shear)

```
>> md=setflowequation(md,'macayeal','all');
```

- Compute velocity field for the domain

```
>> md=solve(md,DiagnosticSolutionEnum);
```

- Plot the velocity field

```
>> plotmodel(md,'data',md.results.DiagnosticSolution.Vel,...
   'xlabel','[m]','ylabel','[m]',...
   'title','Square Ice Shelf: Velocity');
```

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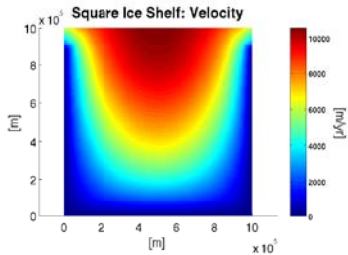

- Save figure...

```
>> print -dpng Velocity.png;
```

Thanks!