

## Ice Sheet System Model

### Quick Start Guide

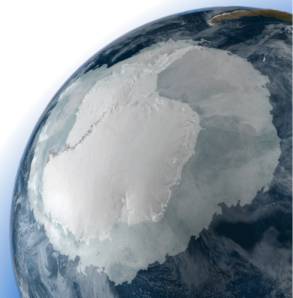
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# Outline

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## ① Example: Steady state ice shelf with square domain

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## Example: Steady state ice shelf with square domain

- Go to working directory

```
1 $ cd $ISSM_TIER/examples/SquareIceShelf/
```

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

```
1 $ cp $ISSM_TIER/startup.m .
```

- Start-up Matlab

```
1 $ matlab
```

- In Matlab, create empty model structure

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

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

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

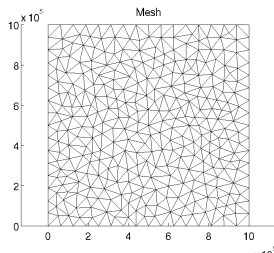


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## Example: Steady state ice shelf with square domain

- To plot mesh...

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





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## Example: Steady state ice shelf with square domain

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

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

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

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

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

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



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## Example: Steady state ice shelf with square domain

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

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

- Compute velocity field for the domain

```
1 >> md=solve(md,DagnosticSolutionEnum);
```

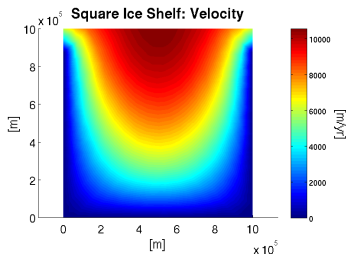
- Plot the velocity field

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



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## Example: Steady state ice shelf with square domain



- Save figure...

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



Thanks!

