

Basic workflow

Surface displacement and InSAR geometry
(okLoadData.m)

Make subset of the data
(okMakeDataSubset.m)

Local cartesian coordinate system
(okLLtoLocalXY.m)

Make Fault geometry
(okMakeFaultModel.m)

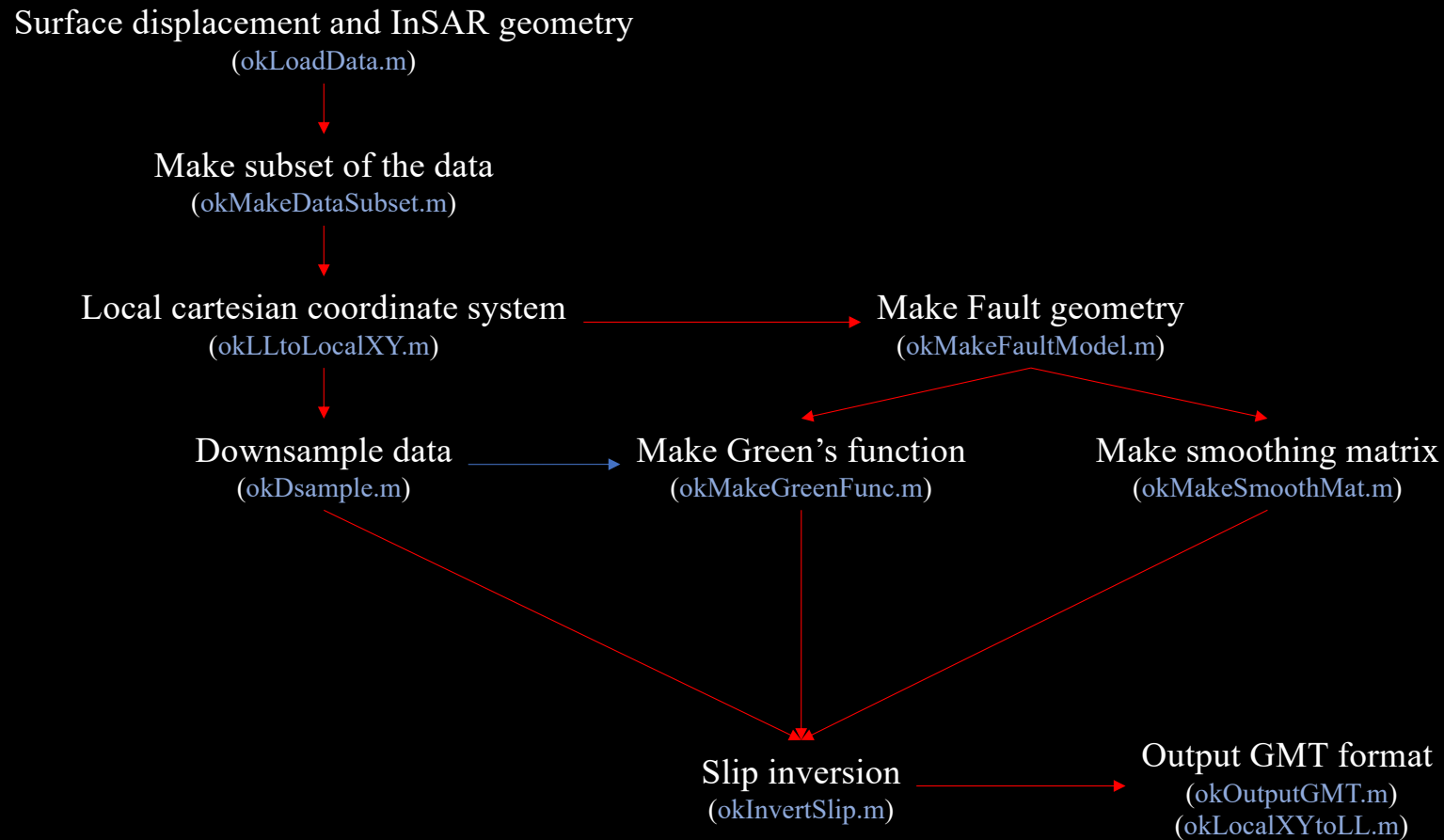
Downsample data
(okDsample.m)

Make Green's function
(okMakeGreenFunc.m)

Make smoothing matrix
(okMakeSmoothMat.m)

Slip inversion
(okInvertSlip.m)

Output GMT format
(okOutputGMT.m)
(okLocalXYtoLL.m)



okMakeDsampleParam.m → okDsample.m

(Down-sampling InSAR data)

okMakeDsampleParam(FuncType, varargin)

FuncType == 'quadtree'

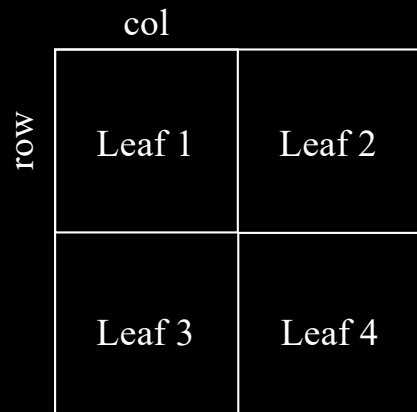
Criterion: 'variance*' or 'curvature**'

Tolerance: Variance threshold in each leaf

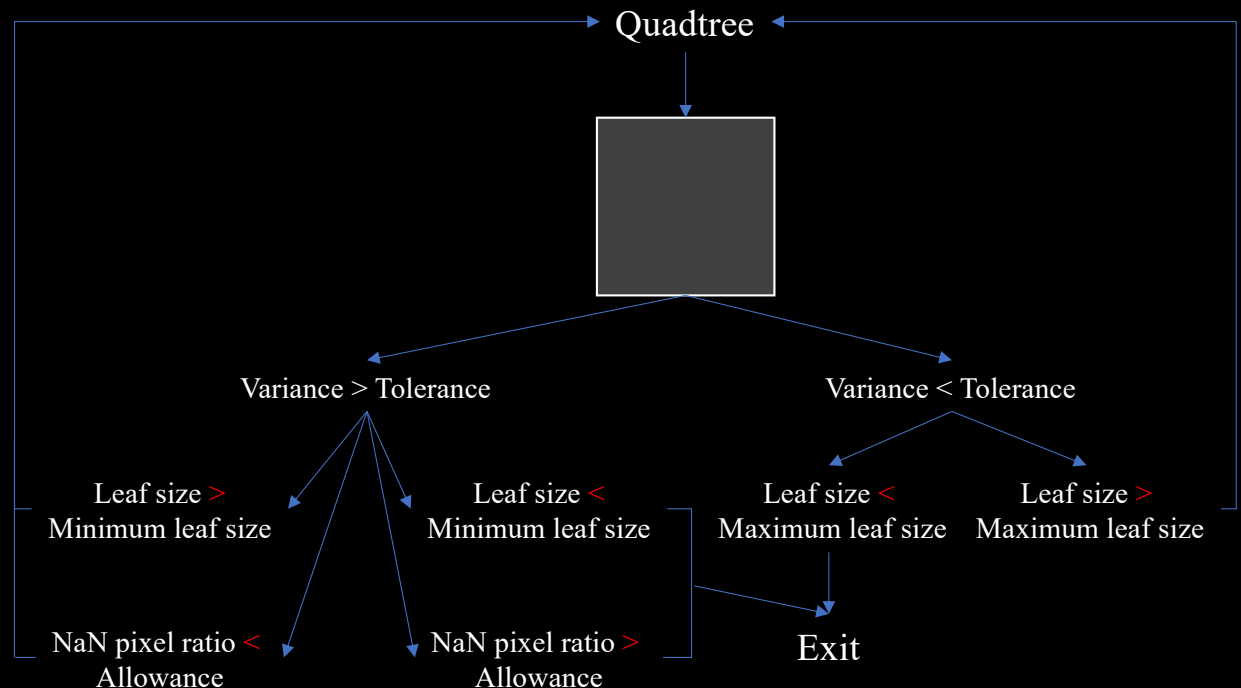
LeafMinSize: The minimum size one leaf can be

LeafMaxSize: The maximum size one leaf can be

NaNPixelAllow: The maximum allowed NaN pixel ratio



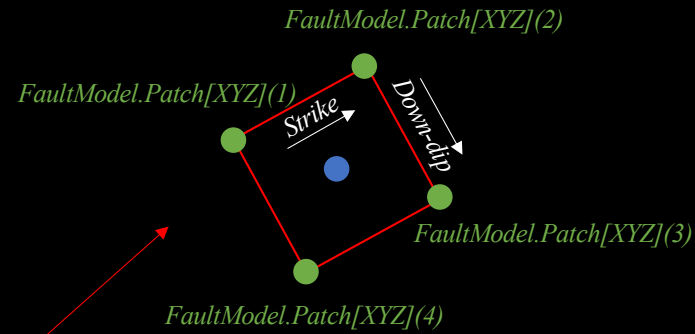
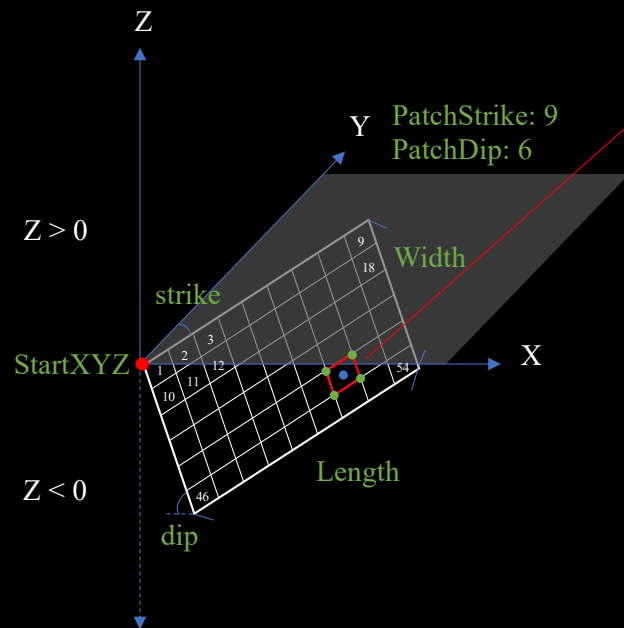
Leaf size = row x col



variance: Jonsson, S. (2002). Modeling volcano and earthquake deformation from satellite radar interferometric observations. Stanford University.

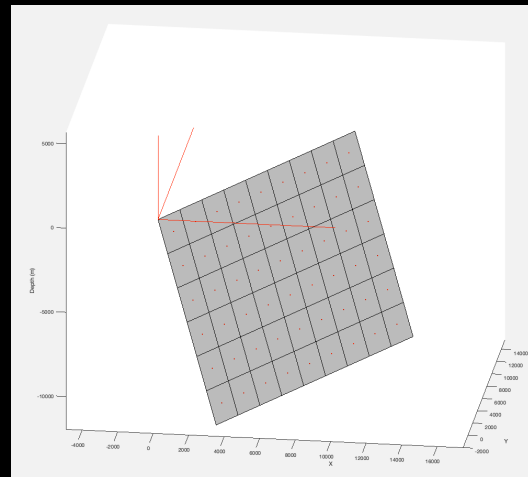
**curvature*: Simons, M., Fialko, Y., & Rivera, L. (2002). Coseismic deformation from the 1999 Mw 7.1 Hector Mine, California, earthquake as inferred from InSAR and GPS observations. Bulletin of the Seismological Society of America, 92(4), 1390-1402.

okMakeFaultModel.m



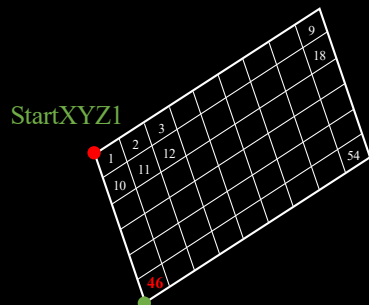
`okMakeFaultModel(StartXYZ,Length,Width,Strike,Dip,PatchStrike,PatchDip)`

`FaultModel = okMakeFaultModel([0,0,0],18000,12000,30,70,9,6)`
`okPlot(FaultModel,'FaultModel')`



(To make a listric fault geometry)

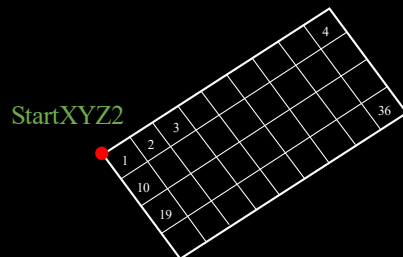
Fault 1



```
FaultModel1 =  
okMakeFaultModel([0,0,0],18000,12000,30,70,9,6)
```

```
Combined =  
okCombineFaultModel({FaultModel1,FaultModel2},'dip')
```

Fault 2



```
StartXYZ2 =
[FaultModel1.PatchX(4,46),
FaultModel1.PatchY(4,46),
FaultModel1.PatchZ(4,46)]
```

```
FaultModel2 =  
okMakeFaultModel(StartXYZZ,18000,8000,30,40,9,4)
```

Combined fault model

