multidimensionalArrays

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1 Multidimensional arrays

IHE, Friday 20 Feb 2017

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In [ ]: import numpy as np
```

What is it useful for?
Store multidimensional data, like

- The head in a numerical network in 2 or 3D
- time-distacne arrays, combining all times and distances, for instance of a drawdown
- Multiple measurements

What we'll do

- The differece between sequences (list, tuples) and numpy arrays (numerical arrays)
- Show how to generate (with types), and manipulate multidimensional arrays and how to handle them .size, .shape, .reshape(), .hstack(), .vstack()
- lists of list versus numerical arrays
- slicing and indexing in arrays
  - slicing
  - logical indexing (show what's where)
- Show broadcasting of arrays
- The difference between an array and a matrix
- Compute the drawdown versus time and show the drawns for many times and disctances in a single graph
  - a Theis well
  - a well and a mirror well
- Compute the drawdown on a spatial grid
- Contour the drawdown
  - line
  - full colors
  - colorbar(with title)
- Compute the velocities on the grid

- Show the velocities using quiver
- Set up a system with a large number of linear equations and solve it.
  - regression
- logical array indexing using polyline
  - polyline
  - np.spy

In [ ]: