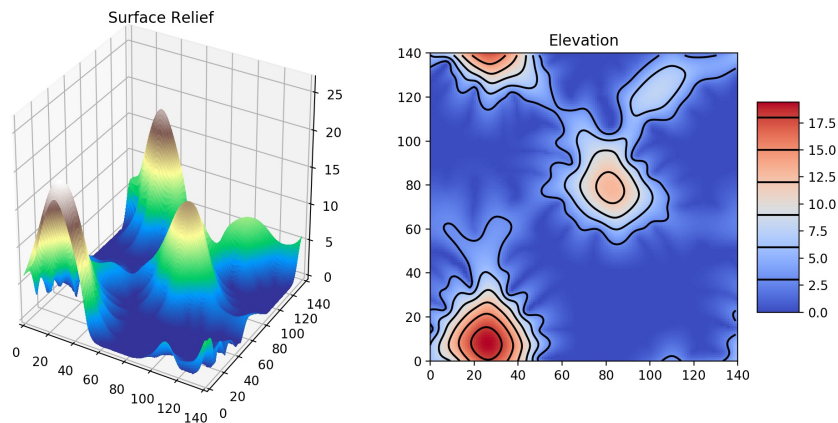


Erosion of a Landscape

For this homework, you will use an existing landscape evolution code that differs from the computer lab's version by the presence of an ocean and the absence of uplifting forces. In the first part of the assignment you will be asked to interpret the provided simulation code, and in the second part, you will be asked to simulate the erosion of a landscape that you created yourself.



(1) Download the Python file, *landscapeWithOcean.py* and the notebook *erosion_with_ocean.ipynb*. Execute all cells in the notebook. (If the code runs too slowly on your computer, reduce the number of grid points NX or NY.) Describe in your own words, how the initial conditions are chosen and what geological features they represent.

Have a look inside *landscapeWithOcean.py* and give an interpretation of the variable 'oceanLevelParameter'.

Run the code several times and describe the resulting evolution. Say how the geological features change with time. What happens in the oceans?

(2) Please modify the code and replace existing initial conditions with your own ideas and code.

(3) Now change the simulation parameters including K , D , n , m , the ocean level, and maybe dt and also the spatial resolution in order to erode your own landscape in a different way. Say what effects the parameter changes had. Points be assigned for good descriptions. See if you find some interesting effects.