FAD8 and iFAD8 Manual

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1. File Description

You may find two files and two folders in this project.

1. README.pdf: FAD8 and iFAD8 manual.
2. Himmelblau.txt: an ASCII DEM file for example discretized from the Himmelblau terrain proposed by *Orlandini et al.* [2014] (1 m resolution; 501×501 cells)
3. code folder: include a folder called FAD8&iFAD8, which is a project of Eclipse code editor.
4. release_version folder: include FAD8 and iFAD8 executable file complied for Windows.

Reference:

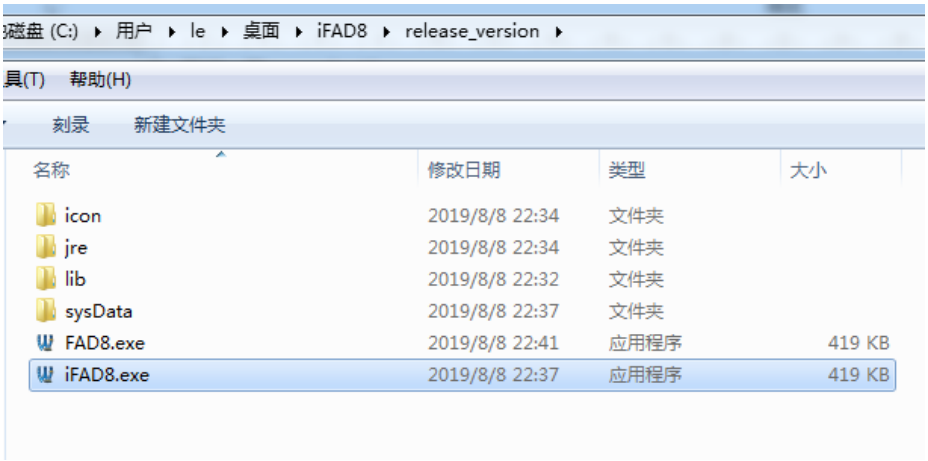
Orlandini, S., G. Moretti, and A. Gavioli (2014). Analytical basis for determining slope lines in grid digital elevation models. *Water Resour. Res.*, 50(1), 526–539, doi:10.1002/2013WR014606.

2. Running FAD8 and iFAD8

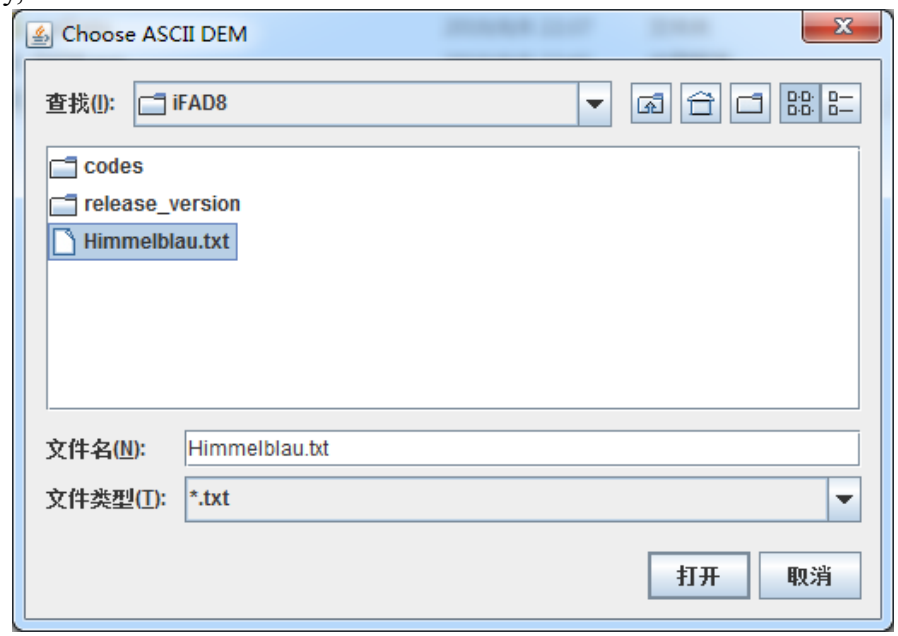
Here we only provide the executable file complied for Windows. Please keep the files and folders in the folder called release_version intact. You can run FAD8 or iFAD8 using the FAD8.exe or iFAD8.exe in release_version folder, respectively. After setting the path of DEM file and the path to save the drainage direction file, the algorithm will be executed.

Here an example is provided.

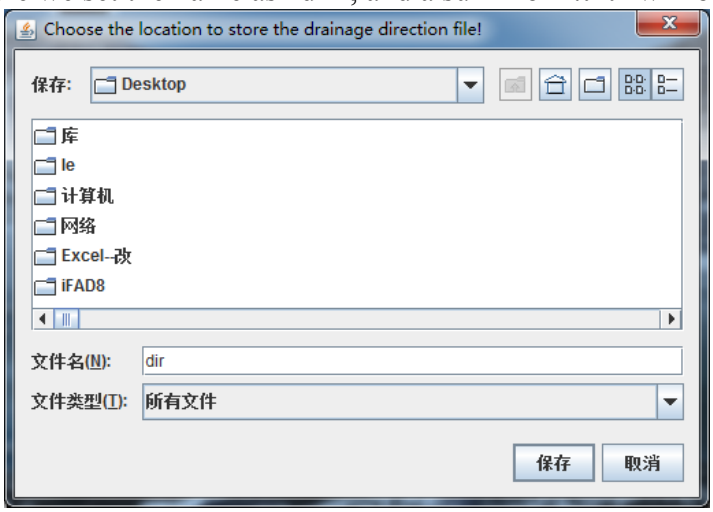
Firstly, run the executable file such as iFAD8.



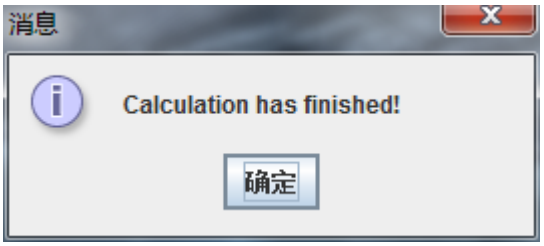
Secondly, choose the DEM file.



Finally, choose the location to save the drainage directions and name the direction file. Here we set the name as “dir”, and a suffix of “.txt” will be added automatically.



When the calculation is finished, a message dialog will appear.



3. Java source codes

The Java classes can be found in “iFAD8\codes\FAD8&iFAD8\src\algorithm\”. And you can import the FAD8&iFAD8 folder in “iFAD8\codes\” to Eclipse code editor as an existing project. Detailed remarks are in the classes.

4.Things to keep in mind

- The import DEM should be in the ascii TXT format.
- The outcome drainage directions are in the Esri format, which can be imported into ArcGIS using the function called ascii to raster.
- A Java structure called PriorityQueue is used to sort the cells with elevations from high to low. Limited by the maximum length of PriorityQueue, the number of cells in the DEM cannot be more than 2 147 483 647, including nodata cells. Of course, an improvement to the limitation is welcome.

If you have any questions, please feel free to contact Pengfei Wu (wpf@hhu.edu.cn) or Jintao Liu (jtliu@hhu.edu.cn).