

Data processing tools for raster based flood simulation

Yun Seok, Choi

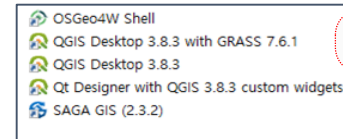
Department of Land, Water and Environment Research,
Korea Institute of Civil Engineering and Building Technology

<https://github.com/floodmodel/References>

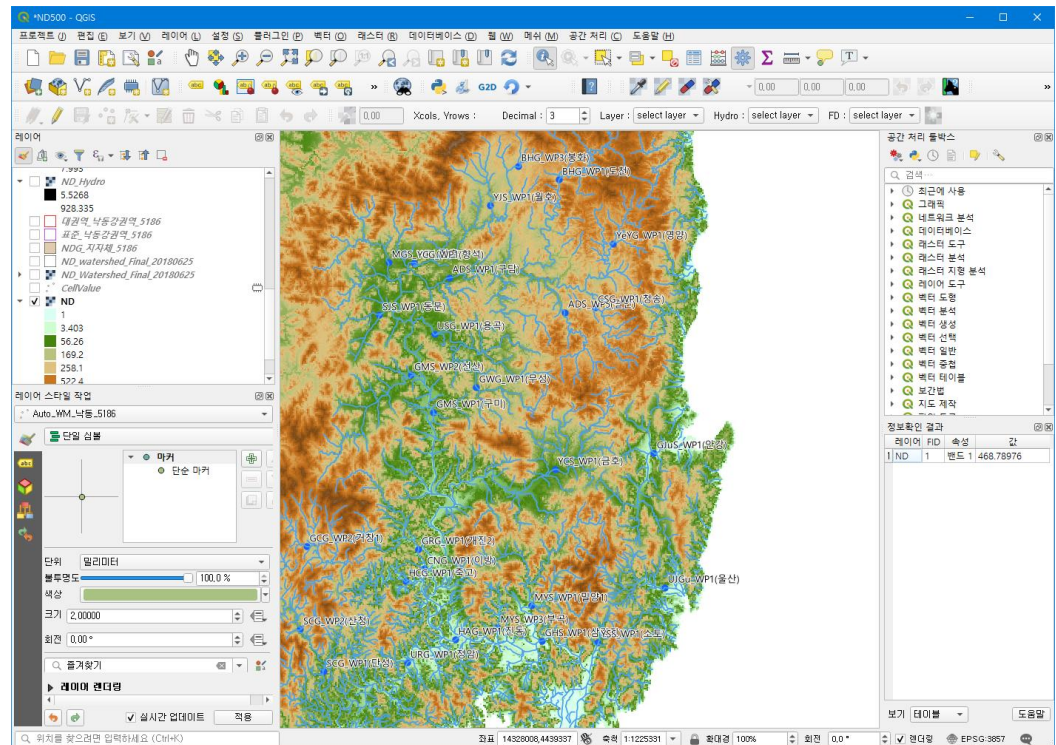
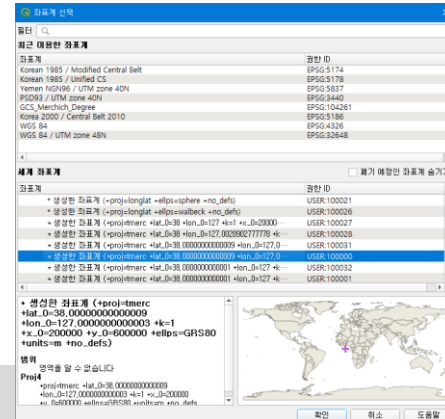
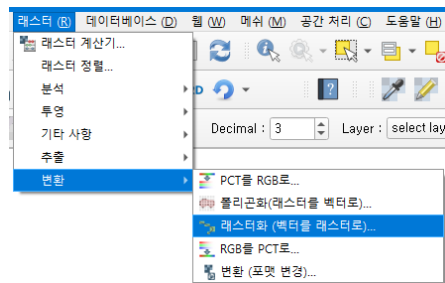
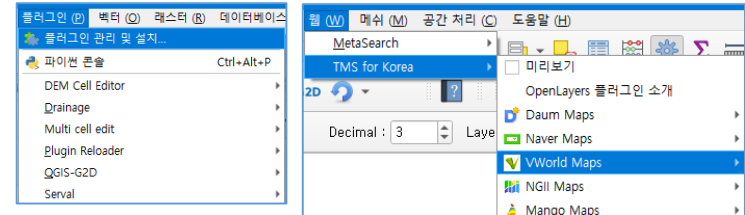


- 1. QGIS**
- 2. QGIS 3.8 plug-ins**
- 3. ALTEK tool**
- 4. How to get the softwares**

- Download QGIS : <https://qgis.org/downloads/> (QGIS-OSGeo4W-3.8.3-1-Setup-x86_64.exe)
Default 옵션으로 설치
- 좌표계 설정, 좌표계 변환, 다양한 GIS 포맷 변환
- 다양한 데이터의 중첩 분석(위성영상 등)
- 벡터 편집
- 벡터 <-> 래스터 변환
- 버퍼 데이터 생성
- 다양한 플러그인 사용



QGIS 실행 아이콘



❖ QGIS 3.8 plug-ins

- **Plugin reloader** : 설치된 플러그인을 다시 로딩
- **TMS for Korea** : 위성영상, 지도 등 가시화, 데이터 중첩 분석 가능
- QGIS **"Serval"** plug-in : 몇 개의 격자 값 수정에 효과적
- "플러그인 관리 및 설치" 메뉴에서 저장소 추가

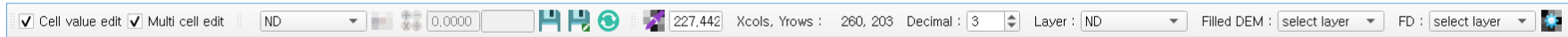
<https://raw.githubusercontent.com/floodmodel/repository/QGIS3.8/master/plugins.xml>

- ▷ **Drainage Tool** : 수문학적 공간정보 생성(흐름방향, 하천망, 유역 등)

TauDEM : Drainage Tool을 실행하기 위한 필수 S/W

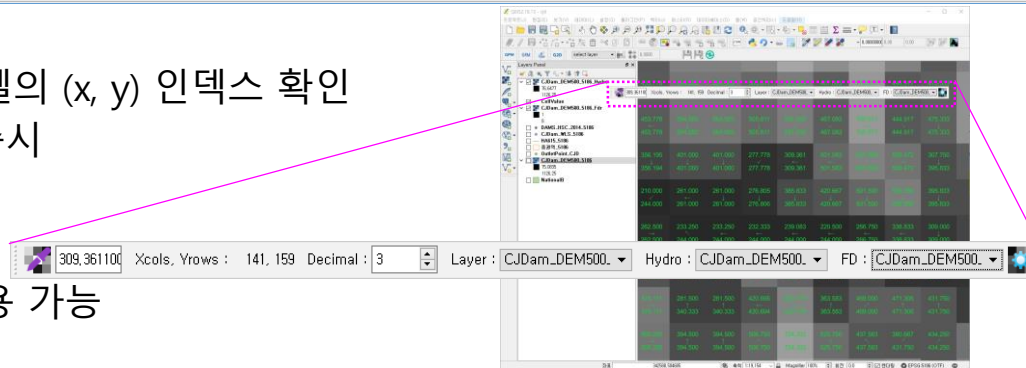
<https://github.com/dtarb/TauDEM/releases/tag/v5.3.1> (TauDEM531_prerelease.exe)

- ▷ QGIS **"Cell Editor"** plug-in



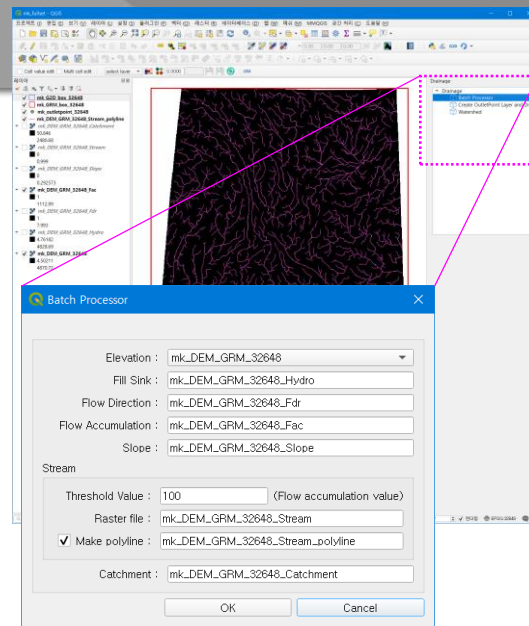
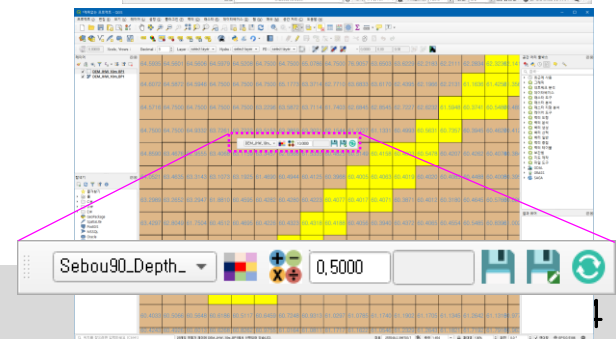
• Cell value editor

- 흐름방향을 고려한 셀 값 수정, 선택한 셀의 (x, y) 인덱스 확인
- 1차원 유역 모델(GRM 등) 입력자료 구축시 DEM 수정에 활용 가능
- GRM, G2D 모델의 watchpoint 설정, 경계조건 설정 지점 위치 확인 등에 적용 가능



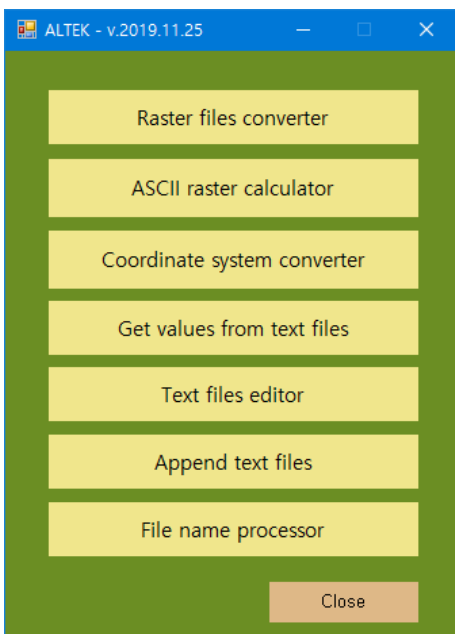
• Multi Cell Edit Tool

- 다수의 셀 값을 일괄적으로 수정, 다양한 셀 선택 기능
- 선택된 셀을 같은 값으로 수정
- 선택된 셀을 같은 값/비율로 증감
- G2D 모델의 DEM 수정에 활용 가능



● ASCII raster file, text file processing tool (ALTEK) : 다수의 파일 처리

https://github.com/floodmodel/ALTEK/tree/master/DownloadStableVersion_BinariesAndDocuments



○ Raster files converter(using GDAL tool)

- Convert GTiff files <-> ASCII raster files
- Convert GRIB/GRIB2 files -> ASCII raster files
- Convert ASC raster files -> image files
- Clip and resample ASCII raster files
- Get raster files information

○ ASCII raster calculator

- Algebraic or conditional calculation of ASCII raster files

○ Coordinate system converter(using GDAL tool)

- Convert coordinate systems in a batch process

○ Get values from text files

- Extract values in a cell of ASCII raster files
- Calculate average values of ASCII raster files
- Accumulate all ASCII raster files
- Aggregate ASCII raster files in some interval
- Extract values in a certain column of text files

○ Text files editor

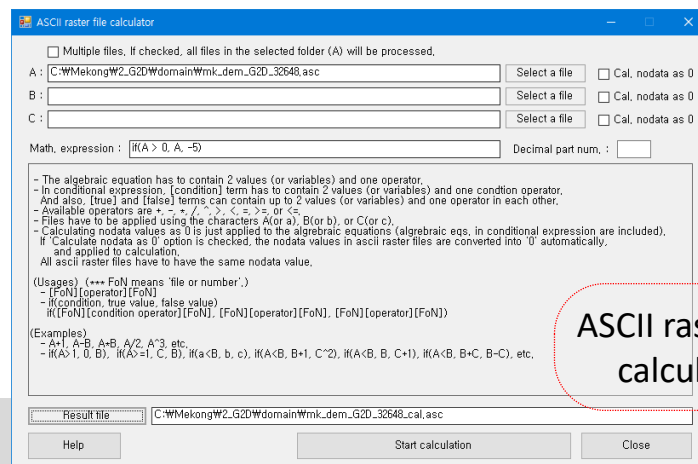
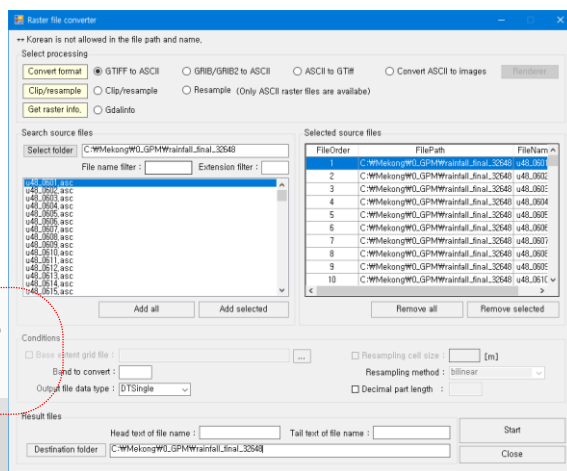
- Replace text in text files
- Search and replace lines in text files
- Insert a line to text files
- Remove lines from text files
- Replace values in certain region of ASCII raster files
- Cut decimal parts in ASCII raster files

○ Append text files

- Append text files in column mode
- Append text files in row mode

○ File name processor

- Rename files
- Rename files to DateTime format
- Change the extensions of files
- Save file list (full path and name) to a file
- Make a batch file using file list



Raster file
converter

ASCII raster file
calculator

How to get the softwares

➤ Searching web site

- Search Google (<https://www.google.com>)

using keywords "floodmodel", "github floodmodel", "floodmodel drainage"
"floodmodel altek", etc

➤ QGIS plug-in tools repository location

- (QGIS 3.8) https://raw.githubusercontent.com/floodmodel/repository_QGIS3.8/master/plugins.xml

➤ GitHub website

- <https://github.com/floodmodel>

- ALTEK은 QGIS plug-in이 아니므로,

https://github.com/floodmodel/ALTEK/tree/master/DownloadStableVersion_BinariesAndDocuments

에서 다운로드 후 사용

Thank you...