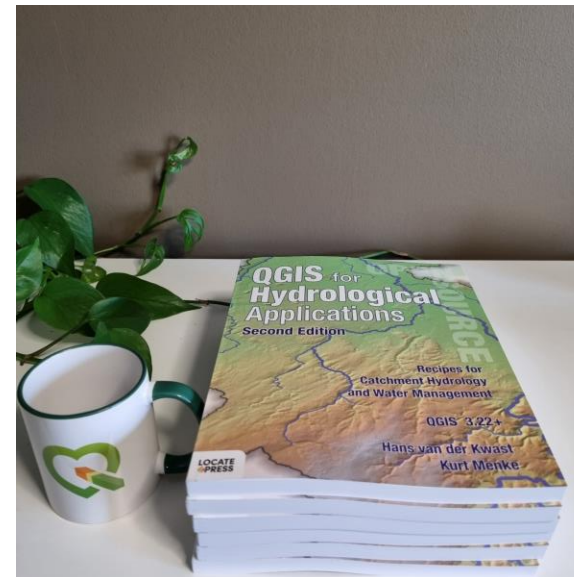


State of the PCRaster Tools Plugin

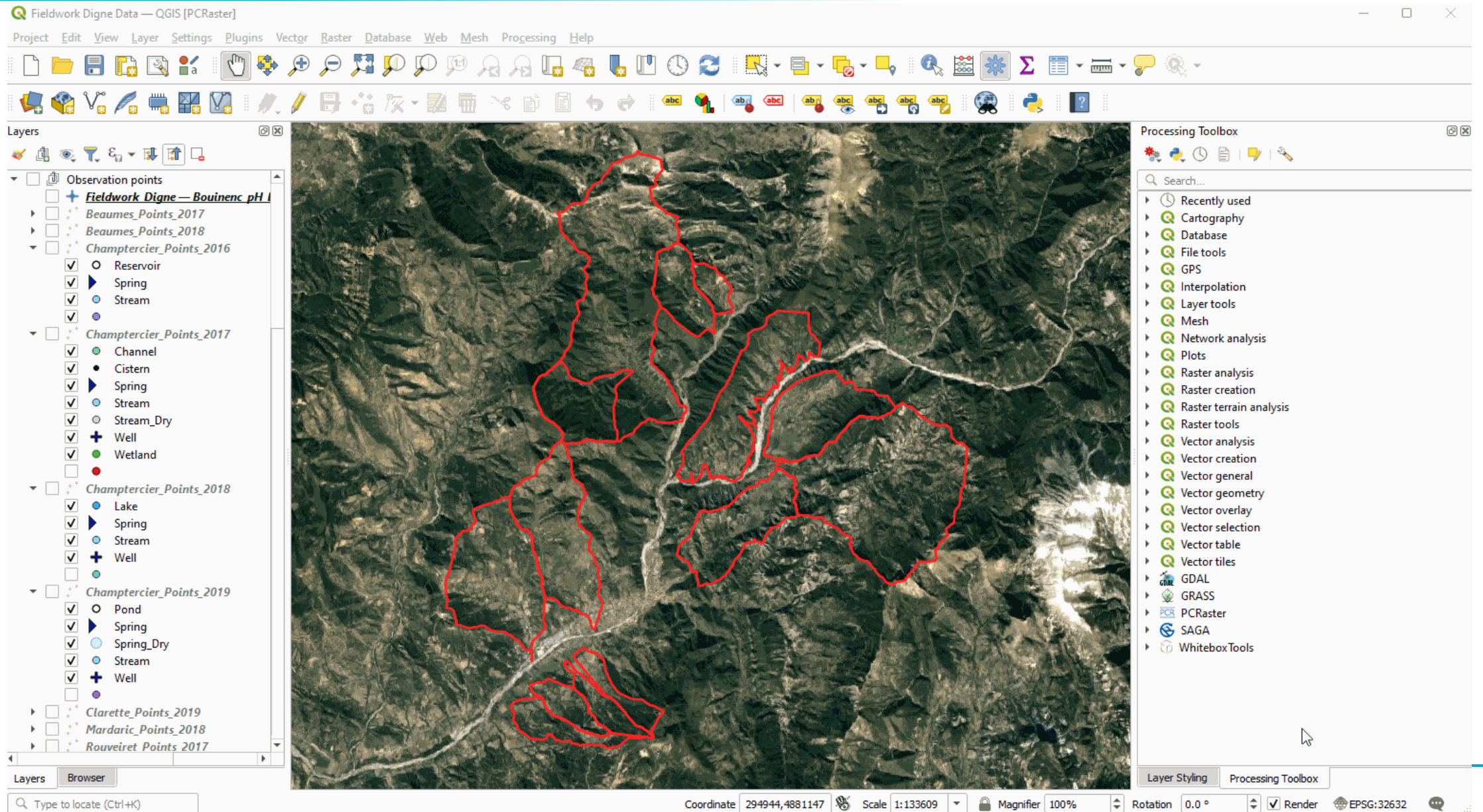
Dr. Hans van der Kwast
IHE Delft Institute for Water Education / QWAST-GIS

Hans van der Kwast

- Physical Geographer, Associate Professor of Open Science and Digital Innovation at IHE Delft
- MSc, PhD at Utrecht University, the Netherlands
- Researcher at the Flemish Institute for Technological Research (VITO, Belgium)
- Board member of Dutch QGIS User Group
- Owner of QWAST-GIS and member of QCooperative
- Co-author of QGIS for Hydrological Applications with Kurt Menke (Septima)
- GIS OpenCourseWare
- Interests:
 - Open source GIS and modelling (QGIS certified instructor)
 - Remote sensing for hydrology
 - Spatial data infrastructures (SDI) / Open Data
 - Fieldwork

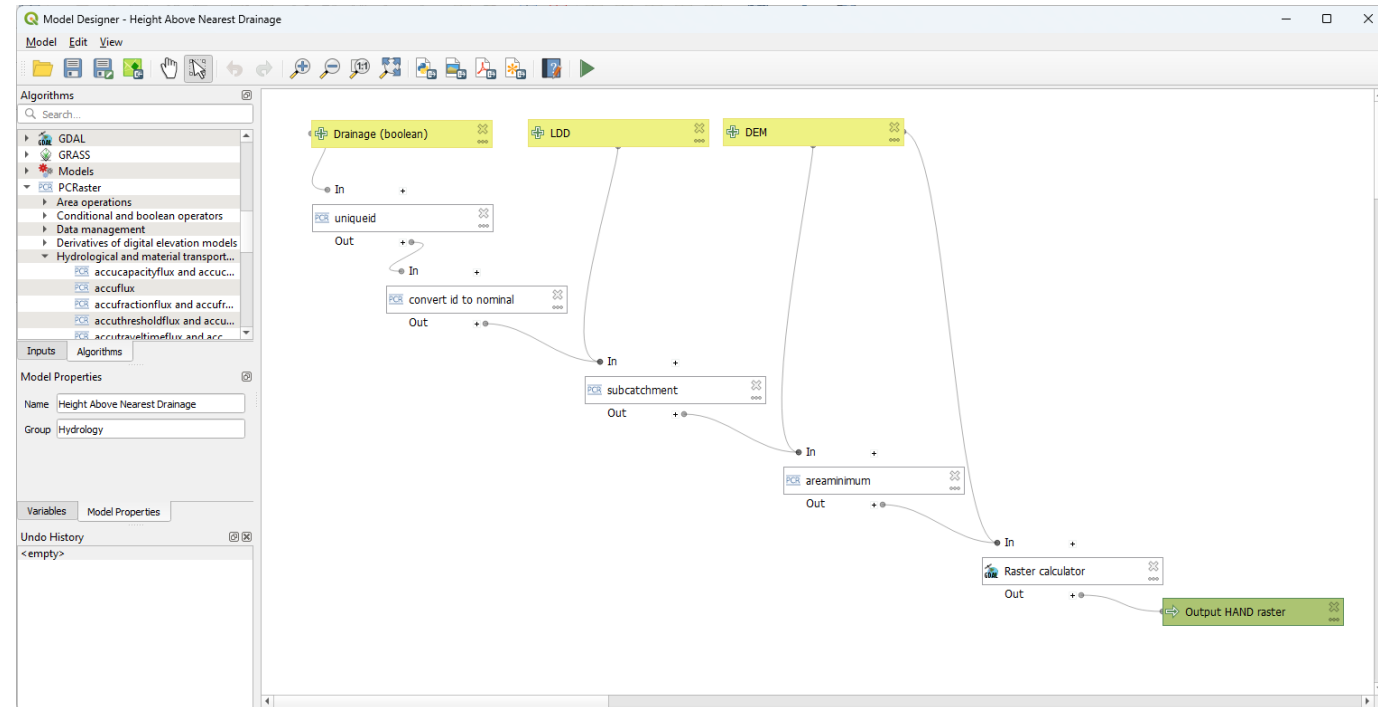


QGIS as integrator of tools



Processing Provider Plugins

- Add new algorithms (tools) to the Processing Toolbox of QGIS
- Can be used in the model builder (graphical models)
- Batch processing
- Python classes
- Can also add menus



Processing Provider Plugins

QEP #230

Officially drop support for the SAGA provider (without removing it), show warning to all users when running SAGA tools #230

New issue

Open nyalldawson opened this issue on 8 Aug - 7 comments



nyalldawson commented on 8 Aug • edited

QGIS Enhancement: Officially drop support for the SAGA provider (without removing it), show warning to all users when running SAGA tools

Date 2021/08/08
Author Nyalldawson (@nyalldawson)
Contact nyalldawson at gmail dot com
Version QGIS 3.22

Summary

The SAGA Processing provider has been a constant source of conflict since it was introduced in QGIS 2.x. Despite our best efforts, we CANT offer users a first class, well supported experience with this provider.

Recent QGIS versions officially support only SAGA 2.3 LTR, and show a user-facing warning whenever users try to run SAGA tools with SAGA 7.

I propose that we extend this warning and show it regardless of the SAGA version, advising users that the provider is now officially unsupported by QGIS and will be moved to a 3rd party plugin in QGIS 4.0.

The screenshot shows the 'Upslope Area' dialog box in QGIS. At the top, a yellow warning banner states: 'SAGA version 7.8.2 is not officially supported - algorithms may encounter issues'. Below this, the 'Log' tab is active, displaying the following text:

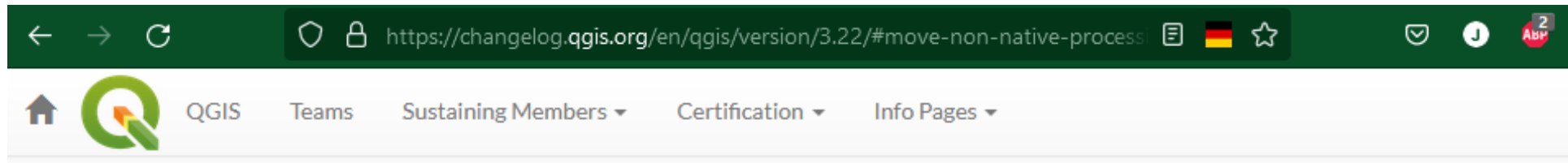
```
#####  ## #####  ##  
###  ##  ##  ##  
###  #  ##  ##  #####  #  ##  
###  #####  ##  #  #####  
#####  #  ##  #####  #  ##
```

SAGA Version: 7.8.2 (64 bit)
Error: tool needs graphical user interface [Upslope Area]
C:\hansa\Documents\exit
Execution completed in 7.18 seconds
Results:
{'AREA': 'Z:/fieldwork/usloopenw.sdat'}

Loading resulting layers
The following layers were not correctly generated:
• Z:/fieldwork/usloopenw.sdat
You can check the 'Log Messages Panel' in QGIS main window to find more information about the execution of the algorithm.

At the bottom, there is a progress bar at 0%, a 'Run as Batch Process...' button, and 'Change Parameters' and 'Close' buttons.

Processing Provider Plugins



Feature: Move non-native processing providers into independent plugins

In line with the discussion in [QEP 226](#), the SAGA, GRASS, and OTB providers have been separated into independent plugins.

This should prevent issues with the loading of the Processing plugin in cases where any one of these providers is broken. It will also make it easier to convert them into third-party plugins in the future.

The SAGA and GRASS plugins are enabled by default, leaving the UX unchanged. The OTB provider can be enabled in the Plugin Manager if necessary, however, the enabling or disabling of any of these providers is now performed via the Plugin Manager as with any other plugin.

This is mostly an internal change, with the only visible change on the part of end-users being that the Plugin Manager is used to activate or deactivate the SAGA, GRASS, and OTB providers.

This feature was developed by [Alexander Bruy](#)

Examples



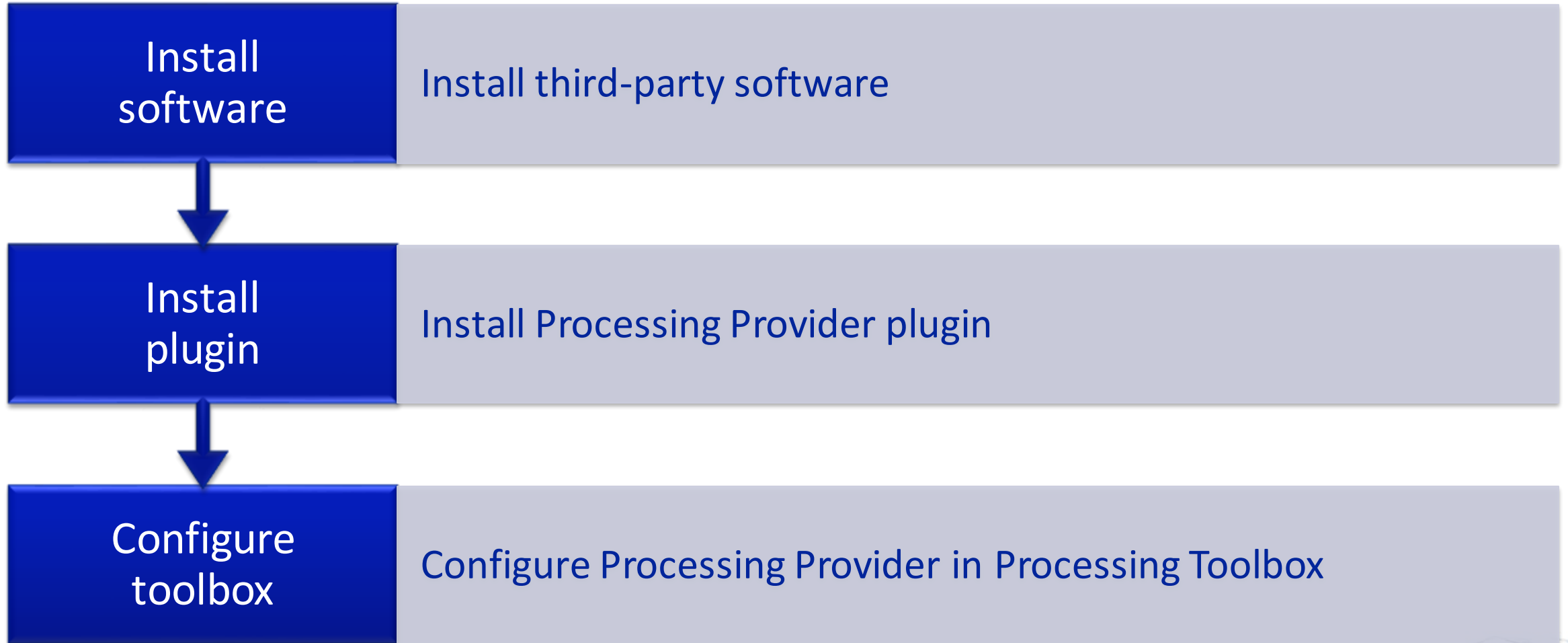
Whitebox Geospatial[™]



PCRaster



Installing Processing Provider Plugins



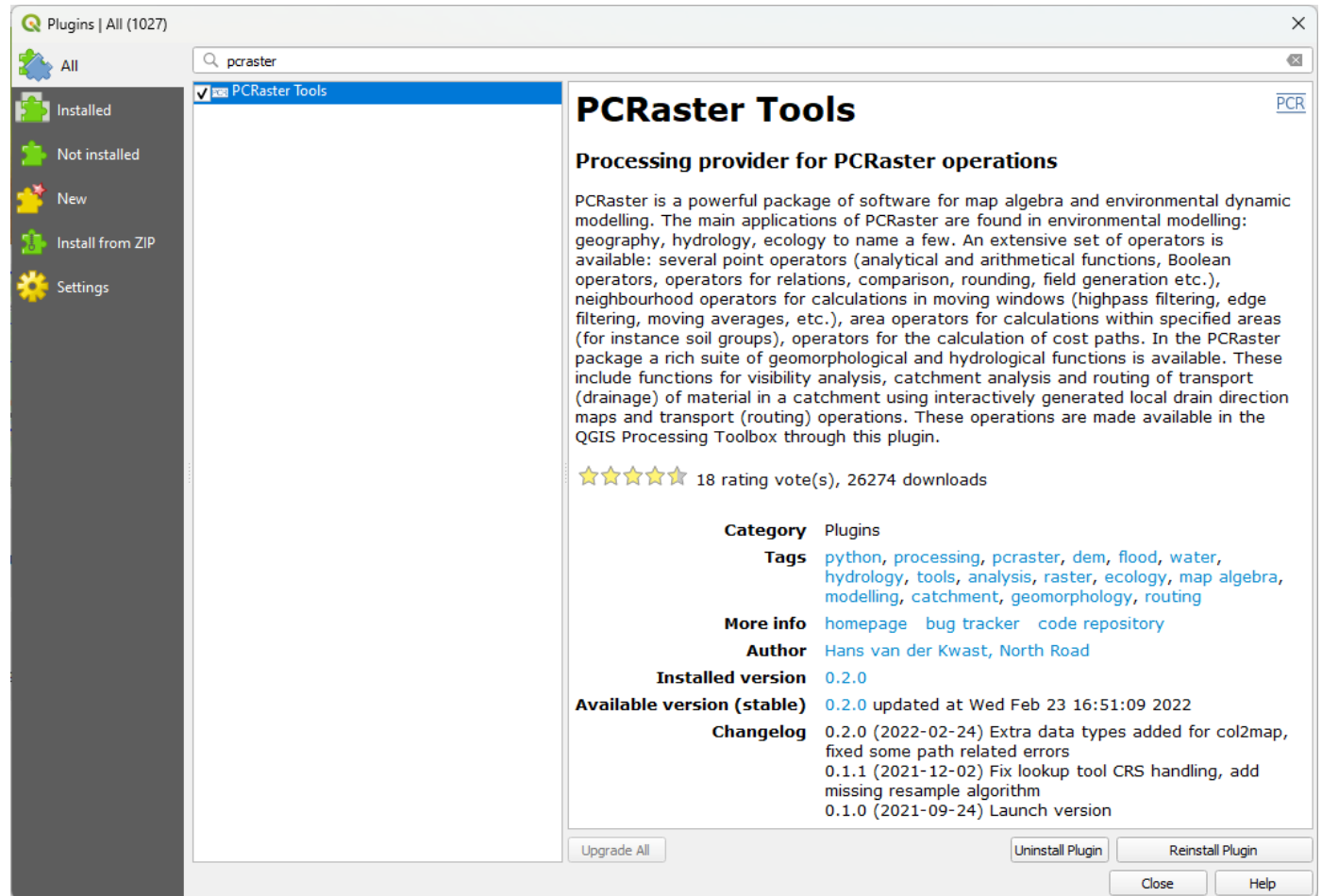
PCRaster

- Is developed and maintained by the Department of Physical Geography, Faculty of Geosciences at Utrecht University.
- Is a collection of software targeted at the development and deployment of spatio-temporal environmental models.
- Is a Python package with a framework for static, dynamic, stochastic modelling and data assimilation
- Is mainly applied in environmental modelling: geography, hydrology, ecology to name a few. But also other models can be constructed. Examples include rainfall-runoff models, vegetation competition models and slope stability models.
- Is free and open source software (GPLv3, as of PCRaster version 4).
- Has ~100 map algebra functions for hydrology, ecology and environmental studies



The PCRaster Tools plugin

- 2020 – 2021: Prototype with scripts via the Resource Sharing plugin. Worked only in a Conda environment
- Developed as plugin together with Nyall Dawson (North Road)
- 24 September 2021: Launch
- 26,275 times downloaded
- 2022: used in chapter 4 of the book QGIS for Hydrological Applications – 2nd Edition
- Easy install on windows with the OSGeo4W installer, thanks to Jürgen Fischer
- Works great on Conda for all operating systems



The screenshot shows the QGIS Plugins Manager window. The search bar contains 'pcraster' and the 'PCRaster Tools' plugin is selected. The left sidebar shows the 'Installed' tab. The main panel displays the following information:

PCRaster Tools

Processing provider for PCRaster operations

PCRaster is a powerful package of software for map algebra and environmental dynamic modelling. The main applications of PCRaster are found in environmental modelling: geography, hydrology, ecology to name a few. An extensive set of operators is available: several point operators (analytical and arithmetical functions, Boolean operators, operators for relations, comparison, rounding, field generation etc.), neighbourhood operators for calculations in moving windows (highpass filtering, edge filtering, moving averages, etc.), area operators for calculations within specified areas (for instance soil groups), operators for the calculation of cost paths. In the PCRaster package a rich suite of geomorphological and hydrological functions is available. These include functions for visibility analysis, catchment analysis and routing of transport (drainage) of material in a catchment using interactively generated local drain direction maps and transport (routing) operations. These operations are made available in the QGIS Processing Toolbox through this plugin.

☆☆☆☆☆ 18 rating vote(s), 26274 downloads

Category Plugins

Tags [python](#), [processing](#), [pcraster](#), [dem](#), [flood](#), [water](#), [hydrology](#), [tools](#), [analysis](#), [raster](#), [ecology](#), [map algebra](#), [modelling](#), [catchment](#), [geomorphology](#), [routing](#)

More info [homepage](#) [bug tracker](#) [code repository](#)

Author Hans van der Kwast, North Road

Installed version 0.2.0

Available version (stable) 0.2.0 updated at Wed Feb 23 16:51:09 2022

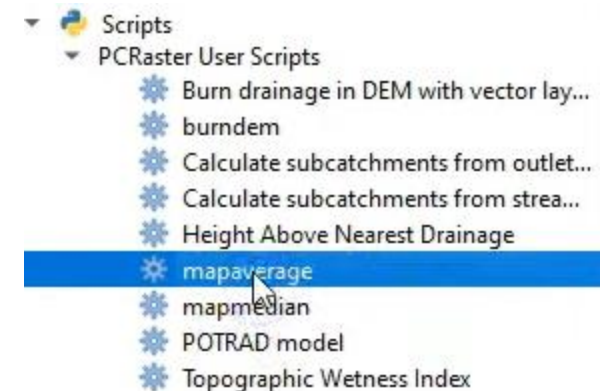
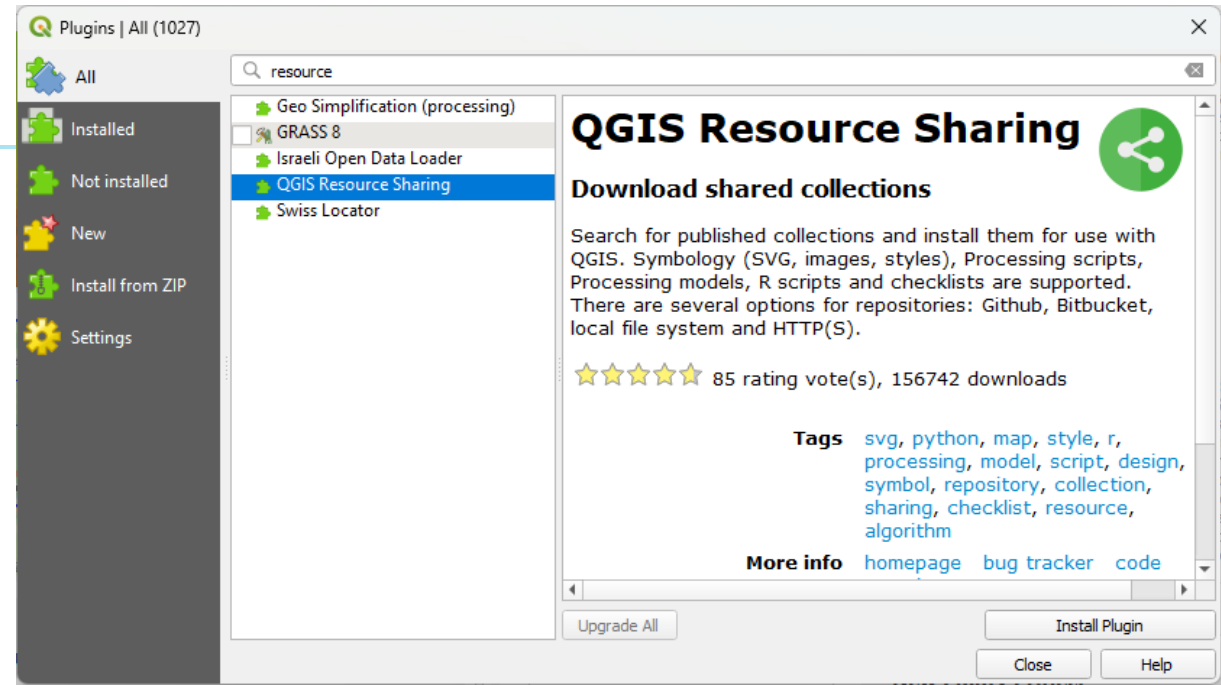
Changelog

- 0.2.0 (2022-02-24) Extra data types added for col2map, fixed some path related errors
- 0.1.1 (2021-12-02) Fix lookup tool CRS handling, add missing resample algorithm
- 0.1.0 (2021-09-24) Launch version

Buttons: Upgrade All, Uninstall Plugin, Reinstall Plugin, Close, Help

More tools and models

- Resource sharing plugin
- Plan to have an easier repo linked with the plugin
- Add dynamic models to QGIS



Demo
