QGIS Application - Bug report #21405
Raster Calculator wrong results

2019-02-27 12:55 PM - monokultur -

Status:	Closed		
Priority:	High		
Assignee:	Alessandro Pasotti		
Category:	Raster Calculator		
Affected QGIS version:	3.6.0	**Regression?:**	No
Operating System:		**Easy fix?:**	No
Pull Request or Patch supplied:	Yes	**Resolution:**	fixed/implemented
Crashes QGIS or corrupts data:	Yes	**Copied to github as #:**	29222

Description

In Qgis 3.6.0 the Raster Calculator delivers wrong results.

Example:
two geotiffs Sentinel-2
expression: 0.5*((2*"B08@1"+1)-sqrt((2*"B08@1"+1)^2-8*("B08@1"-"B04@1")))

3.6.0: 0.5*((2*0.4544+1)-sqrt((2*0.4544+1)^2-8*(0.4544-"0.0514")))= **nan**
3.4.5: 0.5*((2*0.4544+1)-sqrt((2*0.4544+1)^2-8*(0.4544-"0.0514")))= **0.630549**
Excel: 0.5*((2*0.4544+1)-sqrt((2*0.4544+1)^2-8*(0.4544-"0.0514")))= **0.630549**

3.6.0: 0.5*((2*0.2768+1)-sqrt((2*0.2768+1)^2-8*(0.2768-"0.0448")))= **0.883769**
3.4.5: 0.5*((2*0.2768+1)-sqrt((2*0.2768+1)^2-8*(0.2768-"0.0448")))= **0.4034125**
Excel: 0.5*((2*0.2768+1)-sqrt((2*0.2768+1)^2-8*(0.2768-"0.0448")))= **0.4034125**

Associated revisions

Revision 88a96122 - 2019-02-27 10:21 PM - Alessandro Pasotti

[opencl] Fix raster calculator operator precedence

With test

Possibly fixes #21405 (not yet sure if the user was using OpenCL)

History

#1 - 2019-02-27 01:24 PM - Alessandro Pasotti

- Assignee set to Alessandro Pasotti

#2 - 2019-02-27 06:00 PM - Alessandro Pasotti

Can you share a small portion of the rasters where we can reproduce the issue?

Also, can you check if OpenCL acceleration is enabled in the QGIS settings? If it is enabled please check if disabling it does fix the issue.

#3 - 2019-02-27 06:00 PM - Alessandro Pasotti

- Status changed from Open to Feedback

#4 - 2019-02-28 07:42 AM - Alessandro Pasotti

- Pull Request or Patch supplied changed from No to Yes

PR https://github.com/qgis/QGIS/pull/9305

I've found an issue in the OpenCL implementation of the calculator, but I'm not sure if that is the same issue.

#5 - 2019-03-01 02:29 PM - Alessandro Pasotti

- % Done changed from 0 to 100

- Status changed from Feedback to Closed

Applied in changeset commit:qgis|88a96122b80475dcae53965d78f4e7c27c374a60.

#6 - 2019-03-13 01:20 PM - monokultur -

- File Result_3.4.5_no_opencl.tif added

- File Result_3.6.0_opencl_AMD_RX580.tif added

- File RT_T33UVV_A008628_20181031T101140_B08_clip.tif added

- File RT_T33UVV_A008628_20181031T101140_B04_clip.tif added

- File Result_3.6.0_opencl_NVIDIA_1000M.tif added

- File Result_3.6.0_no_opencl.tif added

- File Result_3.4.5_opencl_AMD_RX580.tif added

Sorry I couldn't answer earlier.
Yes, it's an issue in the OpenCL implementation of the calculator.
I've tested some variants:

- 3.4.5 with OpenCL (AMD RX580) - **OK**
- 3.4.5 without OpenCL (AMD RX580) - **OK**
- 3.6.0 with OpenCL (AMD RX580) - **wrong result**
- 3.6.0 without OpenCL (AMD RX580) - **OK**
- 3.6.0 with OpenCL (NVIDIA 1000M) - **wrong result**
- 3.6.0 without OpenCL (NVIDIA 1000M) - **OK**

#7 - 2019-03-13 01:26 PM - Giovanni Manghi

- Crashes QGIS or corrupts data changed from No to Yes

- Easy fix? changed from Yes to No

- Resolution set to fixed/implemented

#8 - 2019-05-20 11:19 AM - monokultur -

- Status changed from Closed to Reopened

Version 3.6.1, 3.6.2, 3.6.3 > Problem still there.

#9 - 2019-05-20 12:14 PM - Alessandro Pasotti

The patch was never backported, can you please check if current master works with OpenCL? If it does I can backport the fixes to 3.6 in time for the next point release.

#10 - 2019-05-20 12:45 PM - monokultur -

- Status changed from Reopened to Closed

Ah, OK I thought it should be fixed since 3.6.1. My mistake.

The current master works with OpenCL.

Next point release is 3.8.0. So I think its no nessesary to backport to 3.6.

Files

Result_3.4.5_no_opencl.tif	58.8 KB	2019-03-13	monokultur -
Result_3.4.5_opencl_AMD_RX580.tif	58.8 KB	2019-03-13	monokultur -
Result_3.6.0_no_opencl.tif	58.8 KB	2019-03-13	monokultur -
Result_3.6.0_opencl_AMD_RX580.tif	58.8 KB	2019-03-13	monokultur -
Result_3.6.0_opencl_NVIDIA_1000M.tif	58.8 KB	2019-03-13	monokultur -
RT_T33UVV_A008628_20181031T101140_B04_clip.tif	58.8 KB	2019-03-13	monokultur -
RT_T33UVV_A008628_20181031T101140_B08_clip.tif	58.8 KB	2019-03-13	monokultur -