

Points in Polygon Analysis

QGIS Tutorials and Tips



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GIS 中 的 点 在 多 边 形 内 部 的 判 断 是 一 个 常 见 的 问 题 。 本 文 将 介 绍 一 种 简 便 的 判 断 方 法 ， 即 使 用 **Points-in-Polygon** 算 法 。 该 算 法 可 以 通 过 计 算 点 的 绕 行 数 来 判 断 点 是 否 在 多 边 形 内 部 。 这 种 方 法 在 GIS 中 有 着 广 泛 的 应 用 ， 例 如 在 地 理 信 息 系 统 中 进 行 空 间 分 析 和 数 据 处 理 时 。

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[illegible]

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□□ □□□ □□□ □□□□□ NOAA's National Geophysical Data Center □ `Significant
 Earthquake Database
 <<http://www.ngdc.noaa.gov/nndc/struts/form?t=101650&s=1&d=1>> `□ □□□□□.
 `tab-delimited earthquake data <[http://www.ngdc.noaa.gov/nndc/struts/results?type=0=Exact&query_0=\\$ID&t=101650&s=13&d=189&dfn=signif.txt](http://www.ngdc.noaa.gov/nndc/struts/results?type=0=Exact&query_0=$ID&t=101650&s=13&d=189&dfn=signif.txt)> `□ □□□□ □□□.

Natural Earth Admin 0 – Countries 10m. countries <http://www.naturalearthdata.com/http://www.naturalearthdata.com/download/10m/cultural/ne_10m_admin_0_countries.zip> _ 10m.

For convenience, you may directly download a copy of the dataset from the link below:

signif.txt

ne_10m_admin_0_countries.zip

□□ □□: [NGDC] [NATURALEARTH]

1. `## Text Layer --> ## Add Delimited Text Layer`
signif.txt``



2. Open the 'Add Delimited Text Layer' dialog box. In the 'File format' dropdown, select 'Tab'. In the 'X field' dropdown, select the field containing the X coordinates. In the 'Y field' dropdown, select the field containing the Y coordinates. Click the 'OK' button to add the layer.

Note

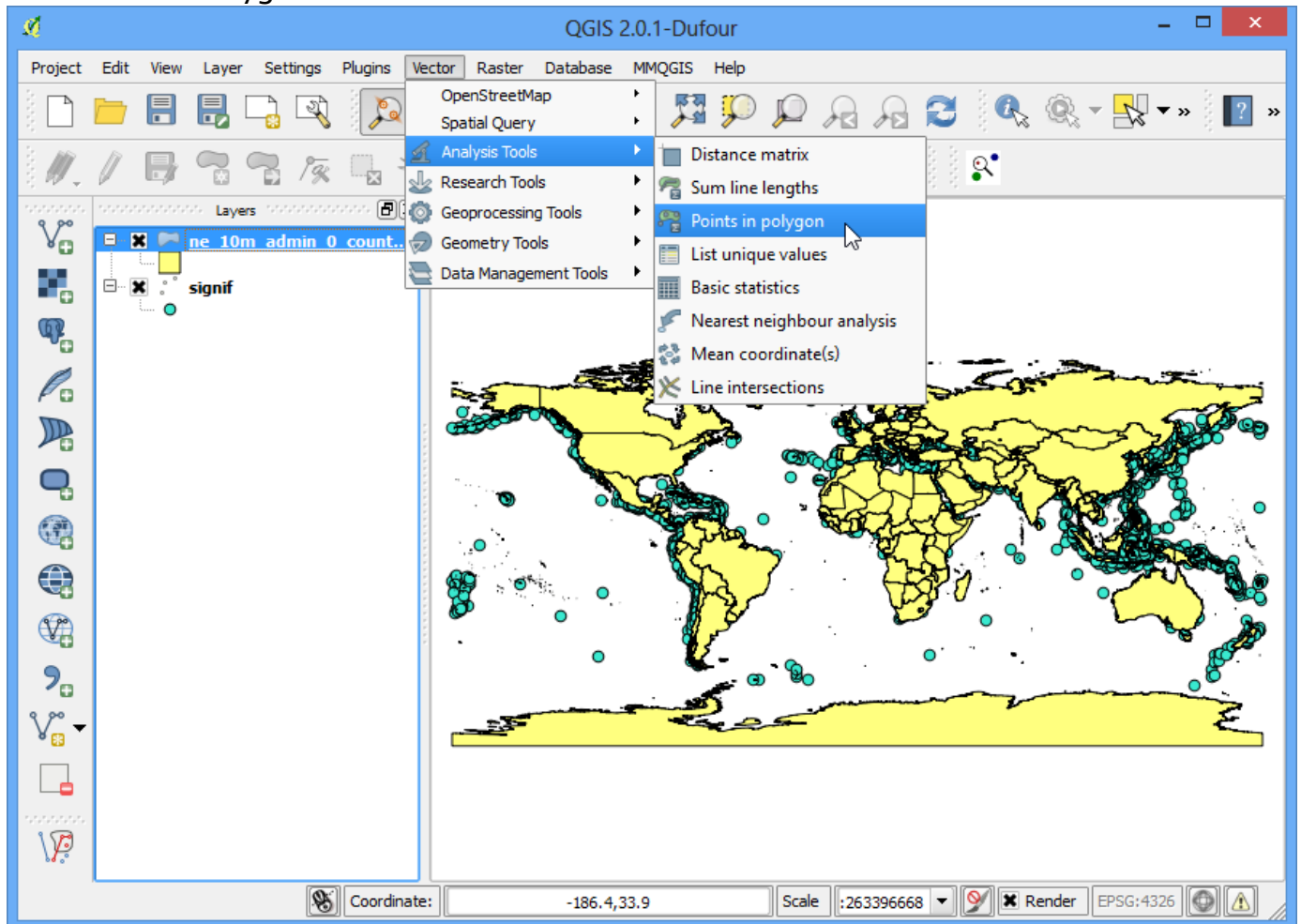
The QGIS interface is designed to be user-friendly and intuitive. It includes a variety of tools and options to help you work with your data. The 'Add Delimited Text Layer' dialog box is a key component for importing data into QGIS.



4. The earthquake point layer would now be loaded and displayed in QGIS. Let's also open the Countries layer. Go to Layer > Add Vector Layer. Browse to the downloaded *ne_10m_admin_0_countries.zip* file and click Open. Select the *ne_10m_admin_0_countries.shp* as the layer in the Select layers to add... dialog.



5. `□□ □□ --> □□ □□ --> □□□□ □ :menuselection: `Vector --> Analysis Tools --> Point in Polygon` □ □□□□□.`

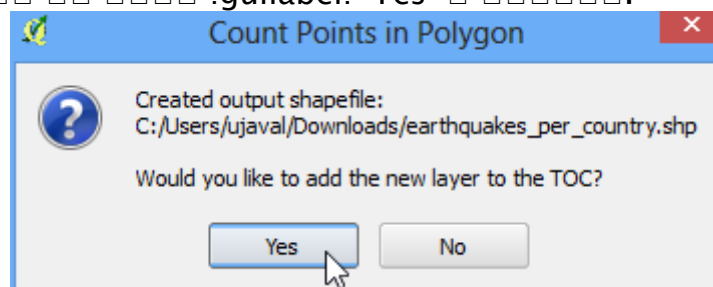


6. `earthquake_per_coutry.shp` ` :guilabel: OK` ``

Note

OK □ □ □ □ □ □ □ . QGIS □ □ □ □ □ □ □ □ □ 10 □ □ □ □ □ □ □ .

7. ☐ TOC ☐ ☐ ☐ ☐ :quiblabel: `Yes` ☐ ☐ ☐ ☐.



8. TOC □ □□ □□□ □□□□ □□ □□□ □□□□. □□□□ □□□□□□ □□ □□□□ □□ □□□□□ □□
:quilabel: `Open Attribute Table` □ □□□□.



9. 〇〇 〇〇〇〇〇 〇〇 〇〇〇〇 〇〇〇 〇〇〇〇 〇〇〇〇 〇〇〇〇 〇〇〇. 〇〇〇 〇 〇〇〇〇〇 〇〇〇
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Attribute table - earthquakes_per_country :: Features total: 255, filtered: 255, selected: 0

	REGION_WB	NAME_LEN	LONG_LEN	ABBREV_LEN	TINY	HOMEPART	PNTCNT
0	Latin America ...	5.00	5.00	5.00	4.00	-99.00	0.000000000000...
1	South Asia	11.00	11.00	4.00	-99.00	1.00	57.000000000000...
2	Sub-Saharan Af...	6.00	6.00	4.00	-99.00	1.00	0.000000000000...
3	Latin America ...	8.00	8.00	4.00	-99.00	-99.00	0.000000000000...
4	Europe & Centr...	7.00	7.00	4.00	-99.00	1.00	44.000000000000...
5	Europe & Centr...	5.00	13.00	5.00	5.00	-99.00	0.000000000000...
6	Europe & Centr...	7.00	7.00	4.00	5.00	1.00	0.000000000000...
7	Middle East & ...	20.00	20.00	6.00	-99.00	1.00	0.000000000000...
8	Latin America ...	9.00	9.00	4.00	-99.00	1.00	20.000000000000...
9	Europe & Centr...	7.00	7.00	4.00	-99.00	1.00	14.000000000000...
10	East Asia & Pac...	14.00	14.00	9.00	3.00	-99.00	0.000000000000...
11	Antarctica	10.00	10.00	4.00	-99.00	1.00	0.000000000000...
12	East Asia & Pac...	23.00	27.00	7.00	-99.00	-99.00	0.000000000000...
13	Sub-Saharan Af...	22.00	35.00	10.00	2.00	-99.00	0.000000000000...
14	Latin America ...	17.00	19.00	6.00	4.00	1.00	0.000000000000...
15	East Asia & Pac...	9.00	9.00	4.00	-99.00	1.00	9.000000000000...
16	Europe & Centr...	7.00	7.00	5.00	-99.00	1.00	4.000000000000...
17	Europe & Centr...	10.00	10.00	4.00	-99.00	1.00	15.000000000000...
18	Sub-Saharan Af...	7.00	7.00	4.00	-99.00	1.00	1.000000000000...
19	Europe & Centr...	7.00	7.00	5.00	-99.00	1.00	2.000000000000...
20	Sub-Saharan Af...	5.00	5.00	5.00	-99.00	1.00	1.000000000000...
21	Sub-Saharan Af...	12.00	12.00	4.00	-99.00	1.00	0.000000000000...

Show All Features

10. 00 00 00 ``PNTCNT`` 000 0000 00 00 00 000 00 0000. 0000000 0000 00
 ``PNTCNT`` 00 20 000000. 000 00000 000 0000 00 00000 00 00000 00000.

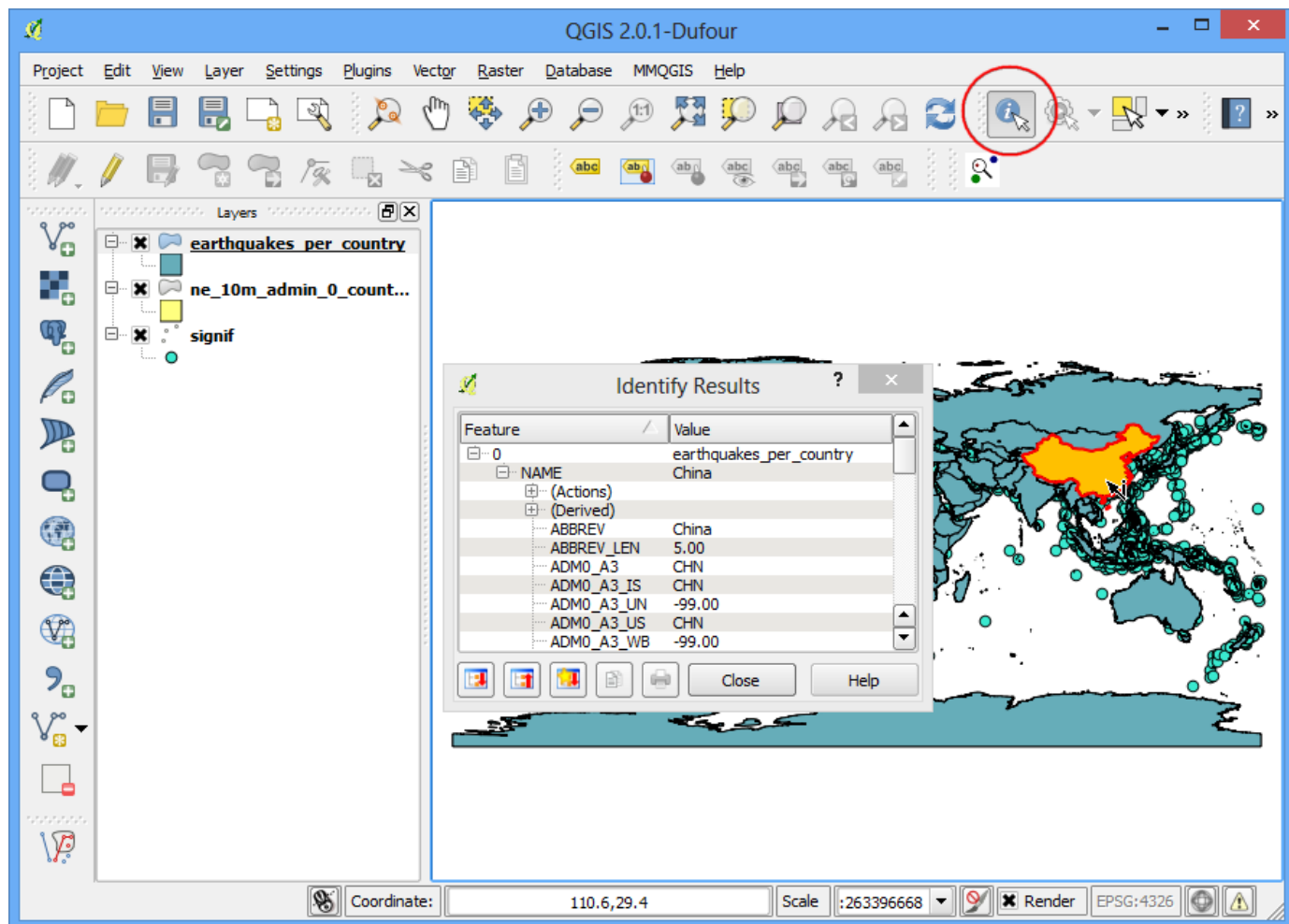


Figure 1. Map of China showing the distribution of earthquakes. The map displays the outline of China and its surrounding regions. The earthquake data points are represented by green dots, showing a high density of earthquakes along the eastern coast and in the central region of China. The map is titled '2010 Earthquake Distribution in China'.