

Wyniki poleceń z cw_6-7 Bazy Danych Przestrzennych:

- Przygotowanie danych:

- Przykład 1 - ST_Intersects:

- Przykład 2 - ST_Clip:

[illegible]

- [illegible]

[illegible]

- ```
CREATE TABLE golda.porto_parishes AS
WITH r AS (SELECT rast FROM rasters.dem LIMIT 1)
SELECT st_union(ST_AsRaster(a.geom,r.rast,'8BUI',a.id,-32767)) AS rast
FROM vectors.porto_parishes AS a, r
WHERE a.municipality ilike 'porto';
```

- ```
CREATE TABLE golda.porto_parishes AS
WITH r AS (SELECT rast FROM rasters.dem LIMIT 1)
SELECT st_tile(st_union(ST_AsRaster(a.geom,r.rast,'8BUI',a.id,-
32767)),128,128,true,-32767) AS rast
FROM vectors.porto_parishes AS a, r
WHERE a.municipality ilike 'porto' ]
```

14

Statistics 1	Output
Name	Value
Updated Rows	8
Query	<pre>CREATE TABLE golda.porto_parishes AS WITH r AS (SELECT rast FROM rasters.dem LIMIT 1) SELECT st_tile(st_union(ST_AsRaster(a.geom,r.rast,'8BUI',a.id,- 32767)),128,128,true,-32767) AS rast FROM vectors.porto_parishes AS a, r WHERE a.municipality ilike 'porto'</pre>
Start time	Mon Jan 27 11:32:24 CET 2025
Finish time	Mon Jan 27 11:32:24 CET 2025

Konwertowanie rastrów na wektory (wektoryzowanie)

- Przykład 1 - ST_Intersection:

The screenshot shows the QGIS application window. At the top, there's a toolbar with icons for file operations, editing, and viewing. Below the toolbar is a command bar where a SQL query has been entered:

```
select * from golda.intersection  
limit 50
```

The main panel displays the results of the query as a table. The table has two columns: 'id' and 'geom'. The 'id' column contains numerical values ranging from 1 to 16. The 'geom' column contains complex WKT (Well-Known Text) strings representing polygons. To the right of the table, there's a sidebar with various toolbars and panels, including a legend, layers panel, and a console area.

id	geom
1	POLYGON ((-39604.86528035818 168624.02902255123, -39633.58795484908 168624.02902255123, -39628.6628 168626.5004, -39604.86528035818 168629.03306...)
2	POLYGON ((-39574.553878279854 168624.02902255123, -39604.86528035818 168624.02902255123, -39604.86528035818 168629.03306905692, -39574.55387827...)
3	POLYGON ((-39786.73369282809 168594.3232286338, -39794.3786661896 168594.3232286338, -39786.73369282809 168595.42423341493, -39786.73369282809...)
4	POLYGON ((-39756.42229074977 168594.3232286338, -39786.73369282809 168594.3232286338, -39786.73369282809 168595.42423341493, -39771.1801 168597...)
5	POLYGON ((-39726.11088867145 168594.3232286338, -39756.42229074977 168594.3232286338, -39756.42229074977 168599.52577940546, -39726.11088867145...)
6	POLYGON ((-39695.79948659313 168594.3232286338, -39726.11088867145 168594.3232286338, -39726.11088867145 168603.38464741287, -39695.79948659313...)
7	POLYGON ((-39665.488084514815 168594.3232286338, -39695.79948659313 168594.3232286338, -39695.79948659313 168607.24351542027, -39665.488084514815...)
8	POLYGON ((-39635.1766824365 168564.61743471635, -39665.488084514815 168564.61743471635, -39665.488084514815 168611.10238342767, -39657.2622 168...)
9	POLYGON ((-39604.86528035818 168624.02902255123, -39604.86528035818 168564.61743471635, -39635.1766824365 168564.61743471635, -39635.1766824365...)
10	POLYGON ((-39574.553878279854 168624.02902255123, -39574.553878279854 168564.61743471635, -39604.86528035818 168564.61743471635, -39604.8652803...)
11	POLYGON ((-40120.159115689596 168564.61743471635, -40140.8828966886 168564.61743471635, -40141.3853 168572.939, -40120.159115689596 168576.09533...)
12	POLYGON ((-40089.84771361128 168564.61743471635, -40120.159115689596 168564.61743471635, -40120.159115689596 168576.095338396, -40108.4958 168...)
13	POLYGON ((-40089.84771361128 168564.61743471635, -40089.84771361128 168578.1999567744, -40067.7263 168581.4706, -40061.66849746671 168564.617434...)
14	POLYGON ((-39998.913507376325 168534.9116407989, -40029.22490945464 168534.9116407989, -40029.22490945464 168560.57733587959, -39998.9135073763...)
15	POLYGON ((-39998.913507376325 168534.9116407989, -39998.913507376325 168566.5202784358, -39998.1871 168566.6627, -39987.8769 168566.3624, -39970...)
16	POLYGON ((-39907.979301141364 168534.9116407989, -39912.205874024134 168534.9116407989, -39907.979301141364 168537.9961052009, -39907.979301141...)

- Przykład 2 - ST_DumpAsPolygons:

The screenshot displays the QGIS application window. At the top, the SQL console shows the query: `select * from golda.dumppolygons limit 50`. Below the console, the attribute table for the 'dumppolygons' layer is visible. The table has three columns: 'id', 'geom', and '123 val'. The 'id' column contains values from 1 to 16. The 'geom' column contains polygon coordinates. The '123 val' column contains numerical values ranging from 12,761 to 13,258. The status bar at the bottom indicates '50 row(s) fetched - 0.005s (0.004s fetch), on 2025-01-27 at 11:34:54'.

Analiza rastrów

- Przykład 1 - ST_Band:

[illegible]

- [illegible]

- [illegible]

- [illegible]

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- The screenshot shows the RStudio interface. In the console, a SQL query is executed: `SELECT st_summarystats(a.rast) AS stats FROM golda.paranhos_dem AS a;`. The results are displayed in the Environment pane, showing a table with 7 columns: count, sum, mean, stddev, min, and max. The data is as follows:
- | | count | sum | mean | stddev | min | max |
|---|-------|---------|----------------|---------------|-----|-----|
| 1 | 2,616 | 278,385 | 106.4162844037 | 11.6226287622 | 87 | 143 |
| 2 | 682 | 95,581 | 140.1480938416 | 12.0780721866 | 103 | 158 |
| 3 | 216 | 31,874 | 147.5648148148 | 4.2628306283 | 137 | 158 |
| 4 | 6,463 | 816,615 | 126.3523131673 | 14.0438229209 | 94 | 158 |

- Przykład 6 - ST_SummaryStats oraz Union:

```
-- Przykład 6
SELECT st_summarystats(ST_Union(a.rast))
FROM golda.paranhos_dem AS a;
```

Results 1 × Output

	123 count	123 sum	123 mean	123 stddev	123 min	123 max
1	9,977	1,222,455	122.5273128195	16.9080042027	87	158

Value ×

Name	Value
123 count	9,977
123 sum	1,222,455
123 mean	122.5273128195
123 stddev	16.9080042027
123 min	87
123 max	158

- Przykład 7 - ST_SummaryStats z lepszą kontrolą złożonego typu danych:

```
-- Przykład 7
WITH t AS (
SELECT st_summarystats(ST_Union(a.rast)) AS stats
FROM golda.paranhos_dem AS a)
SELECT (stats).min, (stats).max, (stats).mean FROM t;
```

Results 1 × Output

	123 min	123 max	123 mean
1	87	158	122.5273128195

- Przykład 8 - ST_SummaryStats w połączeniu z GROUP BY:

```
-- Przykład 8
WITH t AS (
SELECT b.parish AS parish, st_summarystats(ST_Union(ST_Clip(a.rast,
b.geom,true))) AS stats
FROM rasters.dem AS a, vectors.porto_parishes AS b
WHERE b.municipality ilike 'porto' and ST_Intersects(b.geom,a.rast)
group by b.parish)
SELECT parish, (stats).min, (stats).max, (stats).mean FROM t;
```

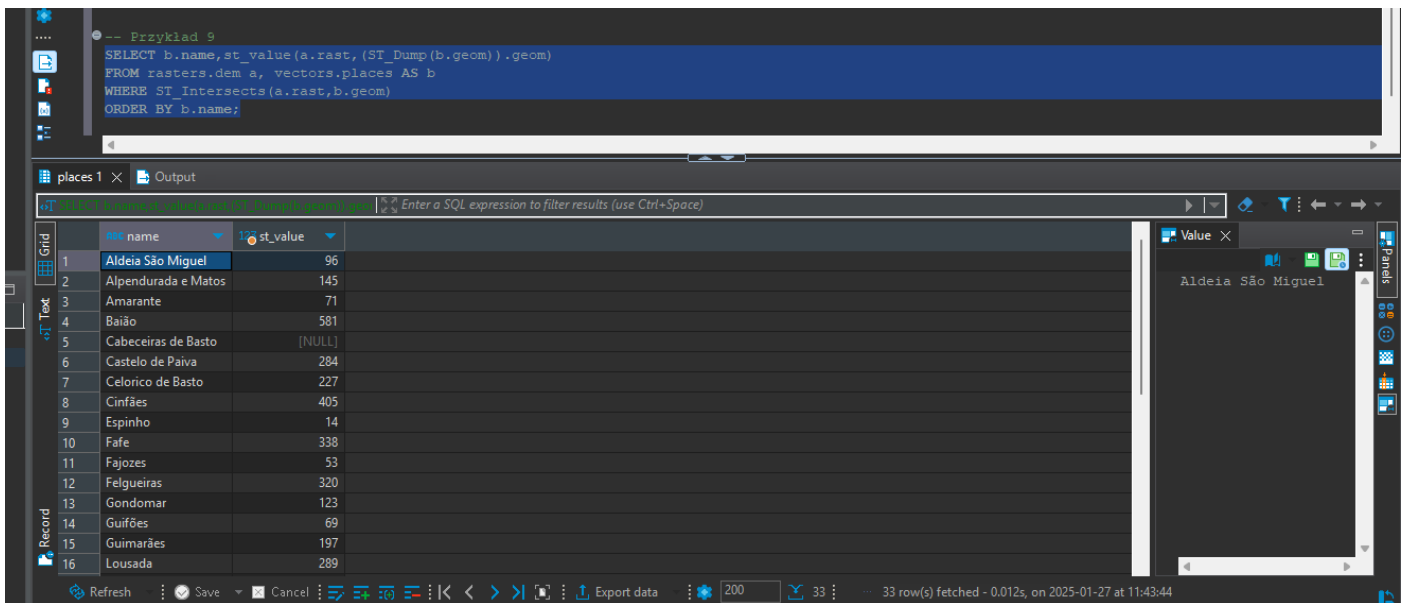
porto_parishes 1 × Output

	parish	123 min	123 max	123 mean
1	Bonfim	1	159	107.5658842668
2	Campanhã	0	178	74.6673221309
3	Paranhos	87	158	122.5273128195
4	Ramalhe	48	108	77.5844444444
5	União das freguesias de Aldoar, Foz do Douro e Nevogilde	-4	83	34.6673548979
6	União das freguesias de Cedofeita, Santo Ildefonso, Sé, Miragaia, São Nicolau e Vitória	1	157	95.0027774104
7	União das freguesias de Lordelo do Ouro e Massarelos	-1	117	49.5005144033

Value ×

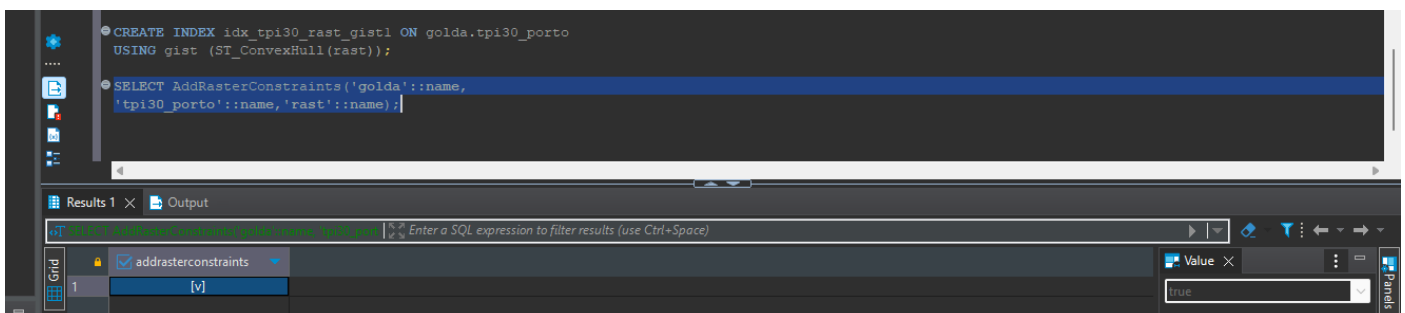
Bonfim

- Przykład 9 - ST_Value:



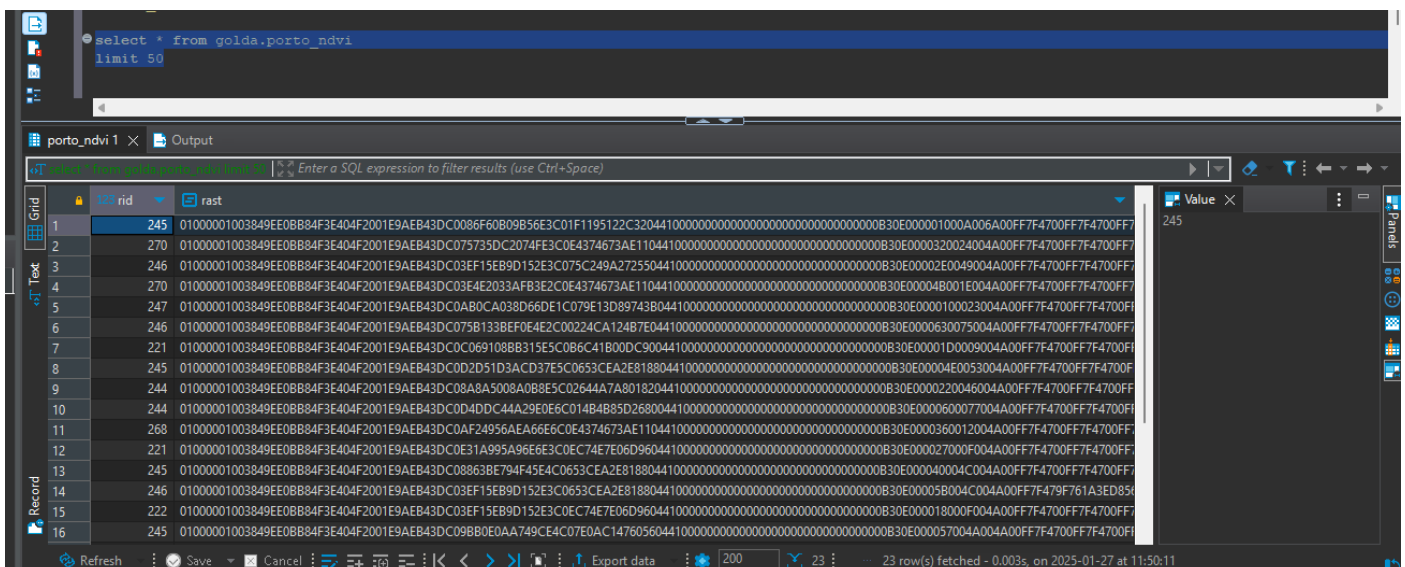
Topographic Position Index (TPI)

- Przykład 10 - ST_TPI:



Algebra map

- Przykład 1 - Wyrażenie Algebry Map:



- Przykład 2 – Funkcja zwrotna:

